DRAFT EIA & EMP FOR
PROPOSED ROUGH STONEAND GRAVEL QUARRY
(CATEGORY – B1)

(Submitted for Public Hearing as per the provisions of EIA Notification 2006 & its amendments thereof)

TOR Identification No.TO24B0108TN5594899N Dated 27/12/2024
F.No. 11441

PROPOSED QUARRY LEASE DETAILS	
SURVEY NOS	98/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7, 105/8 AND 105/11
VILLAGE	MELNARMA
TALUK	CHEYYAR
DISTRICT	TIRUVANNAMALAI
EXTENT	7.44.00 HA
PROPOSED PRODUCTION QUANTITY FOR FIRST FIVE YEARS	8,68,060 m^3 OF ROUGH STONE 1,00,452 m^3 of GRAVEL FORMATION
LAND	CONSENT PATTA LAND

(Sector No. 1(a) (Sector no.1 as per NABET)
Category of the Project: B1 Cluster Mining, Total Cluster Area – 11.91.0 Ha
Baseline Monitoring Period – October 2024 to December 2024

APPLICANT

TVL.JCK MINES,
THIRU.J.K. VETTRIVELAN (PARTNER)
NO.782, MARIAMMAN KOVIL STREET
JAMBODAI VILLAGE, AZHIVIDAITHANGI POST
VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT - 604 402

ORGANIZATION

M/S. GLOBAL MINING SOLUTIONS
(NABET ACCREDITED & ISO 9001 CERTIFIED CONSULTANT)
PLOT NO. 6, SF NO. 13/2, A2, VS CITY, RC CHETTYPATTY,
KOTTAMETTUPATTY, OMALUR, SALEM, TAMIL NADU – 636 455
NABET ACCREDITATION NO – NABET/EIA/2326/IA 0110
CONTACT: 97502 23535, 94446 54520
Email: infoglobalmining@gmail.com,
globalminingsolutionssalem@gmail.com

Global Mining Solutions

MARCH - 2025

NABET

UNDERTAKING BY PROJECT PROPONENT

UNDERTAKING

I hereby, undertake that the Environmental Impact Assessment (EIA) Report for the Proposed Rough Stone & Gravel Quarry at S.F.No. 98/2, 98/3,98/4,98/7, 100/1, 100/2, 101/2, 101/3,101/4,105/1, 105/3, 105/7,105/8 and 105/11 over an extent of 7.44.0 Ha in Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State and the report is line with compliance with Terms of Reference (ToR) issued by SEIAA, Tamil Nadu vide ToR Identification No. TO24B0108TN5594899N dated 27.12.2024. I, hereby assure that all the information and data provided in the EIA report is accurate, true and correct and owns the responsibility of the same.

Date:

Place: Tiruvannamalai



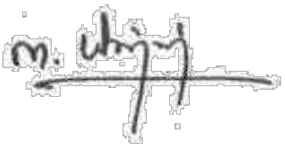
Tvl. JCK Mines, Thiru J.K. Vettrivelan (Partner)

UNDERTAKING BY EIA CONSULTANT

UNDERTAKING

I, Mr. Manikandan Manickam, EIA Co-ordinator for sector 1 confirms that this EIA Report of Rough Stone & Gravel Quarry at S.F.No. 98/2, 98/3,98/4,98/7, 100/1, 100/2, 101/2, 101/3,101/4,105/1, 105/3, 105/7,105/8 and 105/11 over an extent of 7.44.0 Ha in Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State has been prepared by **M/s. Global Mining Solutions.**

I also confirm that I shall be fully accountable for any miss-leading information mentioned in this report.

Signature: 

Name: Manikandan Manickam

Designation: EIA Co-Ordinator

Name of the EIA Consultant organization: M/s. Global Mining Solutions, Salem.

NABET Certificate No.: NABET/EIA/2326/IA 0110

Date: Place:

NABET ACCREDITATION CERTFICATE

QUALITY COUNCIL® OF INDIA
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National Accreditation Board for Education and Training

Certificate of Accreditation

Global Mining Solutions

Plot No - 6 SF No 13/2 A2, VS City, RC Chettypatty,
Kottamettupatty, Omalur, Salem, Tamil Nadu-636455

*The organization is accredited as **Category-B** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organizations, Version 3: for preparing EIA-EMP reports in the following Sectors –*

S. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1	Mining of minerals-opencast mining only	1	1 (a) (i)	A

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in IAAC minutes dated February 10, 2023, posted on the QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance with the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no. QCI/NABET/ENV/ACO/23/2724 dated March 31, 2023. The accreditation needs to be renewed before the expiry date by Global Mining Solutions, Salem following the due process of assessment.

Sr. Director, NABET
Date: March 31, 2023

Certificate No.
NABET/EIA/2326/IA 0110

Valid up to
January 4, 2026

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

DECLARATION OF EXPERTS

Declaration by Experts contributing to the EIA of Proposed Mining of Rough stone and Gravel Quarry Over an Extent of 7.44.0 Ha by Tvl. JCK Mines represented by Thiru. J. K. Vettrivelan (Partner).

I, hereby, certify that I was a part of the EIA team in the following capacity that developed the above EIA.

EIA Coordinator: Manikandan Manickam

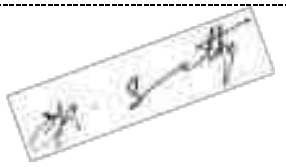
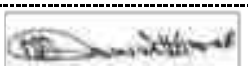
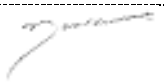
Signature and Date:

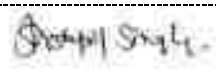
Period of involvement: October – December 2024

Contact information: M/s. Global Mining Solutions
Plot No. 6, SF NO. 13/2, A2, VS City,
RC Chettypatty, Kottamettupatty,
Omalur, Salem,
Tamil Nadu – 636 455

Functional area experts:

S. No.	Functional areas	Name of the expert/s	Involvement (Period and task)	Signature and date
1.	AP	Dhanalakshmi Ramanathan	1. Selection of Baseline Monitoring stations based on the wind direction 2. Interpretation of Baseline data by comparing it with standards prescribed by CPCB against the type of area 3. Identification of sources of air pollution and suggesting mitigation measures to minimize impact Period: Oct 24 to Dec 24	
2.	WP	Abirami Kaliaperumal	1. Selection of baseline Monitoring Locations for Ground water analysis and also identifying nearest surface water to be studied 2. Interpretation of baseline data collected 3. Identification of impacts based on the baseline study conducted and also to the ground water and nearby surface water due to the proposed project 4. Preparation of suitable and appropriate mitigation plan	

			Period: Oct 24 to Dec 24	
5.	SHW	Ramadoss N	1. Identification of nature of solid waste generated 2. Categorization of the generated waste and estimating the quantity of waste to be generated based on the per capita basis. Identification of impacts of SHW on Environment 3. Suggesting suitable mitigation measures by recommending appropriate disposal method for each category of waste generated Period: Oct 24 to Dec 24	
4.	SE	Sarasvathy K	1. Primary data collection through the census questionnaire 2. Obtaining Secondary data from authenticated sources and incorporating the same in EIA report. 3. Impact assessment & proposing suitable mitigation plan 4. CSR budget allocation by discussing with the local body and allotting the same for need based activity. Period: Oct 24 to Dec 24	
5.	EB	Saravanan S	1. Primary data collection through field survey and sheet observation for ecology and biodiversity 2. Secondary Collection through various authenticated sources 3. Prediction of anticipated impacts and suggesting appropriate mitigation measures. Period: Oct 24 to Dec 24	
6.	HG	Ravinthiran N	1. Study of existing surface drainage arrangements in the core and buffer zone, impact due to mining on these drainage courses and suggestion of mitigative measures 2. Determination of groundwater use pattern, development of rainwater harvesting program. 3. Storm water management through garland drainage system. Period: Oct 24 to Dec 24	
7.	GEO	Valliappan Meyyappan	Field survey for assessing regional and local geology, aquifer distribution, Determination of groundwater use	

			pattern, development of rainwater harvesting program. Period: Oct 24 to Dec 24	
8.	SC	Shisupal Sing	1. Interpretation of baseline report 2. Identification of possible impacts on soil, prediction of soil conservation and suggesting suitable mitigation measures. Period: Oct 24 to Dec 24	
9.	AQ	Srilatha Thiruveedhula	1. Collection of Meteorological data for the baseline study period 2. Plotting wind rose plot and thereby selecting the monitoring locations based on the wind pattern 3. Estimation of sources of air emissions and air quality modelling is done 4. Interpretation of the results obtained 5. Identification of the impacts and suggesting suitable mitigation measures. Period: Oct 24 to Dec 24	
10.	NV	Dhanalakshmi Ramanathan	1. Selection of monitoring locations 2. Interpretation of baseline data 3. Prediction of impacts due to noise pollution and suggestion of appropriate mitigation measures Period: Oct 24 to Dec 24	
11.	LU	Srilatha Thiruveedhula	1. Collection of Remote sensing satellite data to study the land use pattern. 2. Primary field survey and limited field verification for land categorization in the study area 3. Preparation of Land use map using Satellite data for 10km radius around the project site. Period: Oct 24 to Dec 24	
4.	RH	S.V. Prashant	1. Identification of the risk 2. Interpreting consequence contours 3. Suggesting risk mitigation measures Period: Oct 24 to Dec 24	

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

I, Prabhu, hereby, confirm that the above-mentioned experts prepared the EIA report of Proposed Mining of Rough stone and Gravel Quarry Over an Extent of 7.44.0 Ha by Tvl. JCK Mines represented by Thiru. J. K. Vettrivelan (Partner). I also confirm that the consultant organization shall be fully accountable for any mis-leading information mentioned in this statement.



Signature:

Name:

Designation:

Name of the EIA consultant organization:

NABET Certificate No. & Issue Date:

TOR AND ITS COMPLIANCE

Table 1 ToR and its Compliance

S. No.	ToR Points	Compliance	Page No.
1.	SEIAA Specific Conditions		
1.1.	The authority noted that the subject was appraised in the 516th SEAC meeting held on 06.12.2024. After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant **Terms of Reference (ToR) along with Public Hearing** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC, standard conditions stipulated by MoEF&CC & the conditions mentioned in Annexure of this minutes.	Noted. Agree to comply	
2.	SEAC Conditions – Site Specific		
2.1.	1. The mining activity is restricted to the depth of 47m below ground level. Hence, the proponent shall submit the revised mining plan approved by the competent authority.	The same will complied in the Final EIA Report	
	2. 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	The affidavit showing the Copy of the agreement forming CMC, The Organisation chart of the Committee with defining the role of the members and the 'Standard Operating Procedures' (SOP) executing the planned activities will be enclosed in Final EIA Report	
	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.		
	3. Since waterbodies are situated nearby, the PP shall carry out the scientific studies to assess the hydrogeological condition of the quarry to determine impacts of the mining operation on the ground water conditions in the waterbodies.	The detailed hydrogeological study will be conducted and will be enclosed in the Final EIA report	
	4. The proponent shall furnish photographs of adequate fencing, garland drainage built with siltation tank & green belt along the periphery including replantation of existing trees; maintaining the safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	The photos of fencing and green belt is shown in Figure 2-15	41
	5. The Proponent shall carry out Bio diversity study as a part of EIA study and the same shall be included in the Report.	The detailed biodiversity study as a part of EIA is briefed in section 3.8.5 of Chapter 3	87
	6. The PP shall prepare the EMP for the entire project life of mine, i.e, 10 years and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	The sworn affidavit for the same is enclosed as Annexure	
	7. The PP shall carry out the comprehensive studies on the cumulative environmental impacts of the existing & proposed quarries which included drilling & blasting, loading & hauling on the surrounding village and structures.	The comprehensive studies on the cumulative environmental impacts of the existing & proposed quarries which included drilling & blasting, loading & hauling on the surrounding village and structures is included in Chapter 7	
3. SEAC Standard Conditions			
3.1	1. In the case of existing/operation 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	Not applicable. This is a fresh quarry.	

	vi. Violation in the quarry during the past working vii. Quantity of material mined out outside the lining lease area viii. Condition of Safety zone/benches ix. Revised/Modified Mining Plan showing the benches of not exceeding 6m 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.	The letter detailing habitations around the proposed mining is obtained from VAO is enclosed as Annexure – 5.	
	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	The enumeration of structures is detailed in 3.5.1 of Chapter 3	48
	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.	The detailed hydrogeology report will be furnished in the final EIA report	
	5. The Project Proponent shall carry out Bio-diversity study through reputed institution and the same shall be included in the EIA report.	The same will be complied in the final EIA report	
	6. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries. Tiger reserve etc. upto a radius of 25 km from the proposed site.	The DFO letter stating that the proximity distance of RF & PF will be incorporated in the final EIA report	
	7. In 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, Suratkal and Anna University Chennai-CEG	Not applicable. This is a fresh quarry.	

	Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.		
	8. However, in case of the fresh/virgin quarries, the project shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30m below ground level.	Detailed slope stability study will be carried out after commencement of the mining operation while reach mine depth after 25 m. The details of slope stability are elaborated in section 7.7 of Chapter 7	127
	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	The same will be furnished during the final EIA report.	
	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.	The PP will use controlled blasting techniques with Nonel to ensure that dust generation, noise, and vibration levels remain within the prescribed limits.	
	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.	The PP has not carried out any quarrying operation before this project.	
	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	Not applicable. This is a fresh quarry project.	
	13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	Not applicable. This is a fresh quarry project.	
	14. Quantity of minerals mined out. • Highest production achieved in any one year. • Detail of approved depth of mining.	Not applicable. This is a fresh quarry project.	

	• 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 comer 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).	Project coordinates superimposed in satellite imagery and given as Figure No – 2-2 in Chapter – 2. The geology and geomorphology map are provided in Figure No.3.12 and 3.13 Chapter 3. The Soil map is provided under Figure No. 3-24, Chapter-3. The 10km Radius Index plan showing buffer zone is given in Figure No.3-7 in Chapter – 3.	21, 61, 62, 84 and 53
	16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing etc.,	This is fresh quarry. The condition will be complied after commencement of the mining operation.	
	17. The proponent shall furnish photographs of adequate fencing, greenbelt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan	There are no trees within ML area. Fencing and plantations are under process (80 % of the work completed). Greenbelt / Plantation is being carried out in the safety zone to enhance the vegetative growth and aesthetic in the safety zone area. In the post mining stage, an area of 2.44.0 Ha will be under greenbelt and plantation.	
	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.	The geological reserves - rough stone 40,89,195 m3 and gravel 1,48,698 m3. The mineable reserves: Rough stone 868060 m^3 and gravel 100452 m3. The proposed production is rough stone Rough stone 868060 m^3 and gravel 100452 m3 (Five year) by Opencast Mechanized mining method. The anticipated impact and its mitigation measures are detailed in Chapter 4.	106
	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	Complied. Please refer section 2.9.3 of Chapter 2	39

	provisions of Mines Act'1952 and the MMR" 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.		
	20. The Project Proponent shall conduct the Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD/TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitoring data, it may clearly be shown whether working all intersect ground water. Necessary data and documentation in this regard may be provided.	The hydrogeological study report will be furnished during the final EIA report	
	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.	The baseline data for all environments is collected for the Post Monsoon Season (Oct'24 – Dec'24).	
	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 air pollution, water pollution, & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	Cumulative impact study has been carried covering existing and this proposed quarries in the cluster and the same is incorporated in the Chapter 7. Accordingly, a detailed Environment Management Plan is prepared considering air, water, noise and soil environment and the details are given in Chapter 10.	139 and 140 147
	23. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	The runoff water during rainy season will be collected in the bottom quarry through proper drainage pattern and the collected water will be used for plantation and dust suppression during dry season. The Rain water harvesting plan is given chapter 4.	65, 108, 109
	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	The land use of the study area is described in Section 3.6.2 of Chapter 3. The anticipated impacts on the land environment and the mitigation measures are detailed in Chapter 4.	54,107

	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.	The overburden in the form of Gravel, after the excavation gravel will be directly loaded into tipper to the needy buyers for road project and construction works for filling and leveling of low-lying areas.	
	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.	No proximity to Critically polluted areas.	
	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.	The impact of the mining operations due to this quarry on water environment is studied and mitigation measures are proposed. Rain water harvesting plan is given Chapter 4.	108 and 109
	28. Impact on local transport infrastructure due to the Project should be indicated	Since the production is very less, only few trucks of 5/10T will be used for transport. The effect of transport on local transport will be negligible. 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 significant impact due to the proposed transportation from the project area. Details in section 2.9.6 of Chapter 2.	41
	29. A tree survey shall be carried out (Nos. name of species, age, diameter, etc) both within the mining lease applied area & 300m buffer zone and its management during mining activity	There are no much trees within 300m buffer zone of the project area. The predominant flora noticed small tress of *Acacia nilotica* trees of very few numbers.	
	30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	Detailed mine closure plan is given in Chapter 7.6	141

	31. As 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, where ever possible	Accepted. It will be done.	
	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 and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.	Green belt is proposed in an area of 2.44.0 ha. Green belt development plan is provided in section 2.9.4 of chapter 2.	40
	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 green belt area with GPS coordinates all along the boundary of the project site with at least 3 m wide and in between blocks in an organized manner	The same will be furnished in the final EIA report	
	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.	A disaster management plan is prepared and the details are given in Chapter 7.	127
	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	Risk assessment and its management is given in Chapter 7.	127
	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.	Occupational Health Impacts of the project and preventive measures are detailed under Chapter 4.	121
	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.	No major impact on public health will be there since the villages are located more than 1km from the lease area. Details of CER and CSR are discussed under Chapter No. 8	144

	38. The Socio-economic studies should be carried out within a 5km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	Socio economic study is conducted both by visits and secondary data collection. Details are given in Chapter 3	102
	39. Details of litigation pending against the project, if any, with direction /order passed by any Court of law against the Project should be given.	No litigation is pending	
	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.	Benefits of the project is given in Chapter 8	144
	41. If any quarrying operations were carried out in the proposed quarrying site for which now 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.	Not applicable. This is a fresh quarry project.	
	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.	The affidavit for EMP will be furnished during the final EIA report	
	43. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the condition mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986	Agreed	
4.	SEIAA STANDARD CONDITIONS		
4.1	**Cluster Management Committee**		
	1. Cluster management committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry	There are two existing quarries and this proposed within a 500-metre radius. The proponent will take the initiative to form a cluster management committee once environmental clearance is obtained for this 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.,	Agreed. Will be complied.	
	3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.	Agreed. The list of members of the committee formed will be submitted to AD/mines after obtaining Environmental Clearance.	
	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.	Agreed. Details of the Operation plan for cluster mining operations will be submitted once we get environmental clearance.	
	5. The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.	Risk management plan for the individual quarry is given in this report. As far as cluster working condition is concerned, once the committee is formed, risk management as a cluster including inundation of clusters and the evacuation plan will be elaborated.	
	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.	Environmental policy for the cluster will be framed by the cluster management committee and the policy will be in accordance with EPA Act, 1986 and its amendments, guidelines by MoEF&CC/SEIAA and other regulatory bodies. This policy will be displayed in the quarry.	
	7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.	Agreed. It will be complied as mentioned in the Point No.4	
	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.	Agreed. It will be complied as mentioned in the Point No.4.	
	Agriculture & Agro-Biodiversity		
	9. Impact on surrounding agricultural fields around the proposed mining Area.	Agreed.	
	10. Impact on soil flora & vegetation around the project site.	Complied. The details are given in Chapter 4.	120

	11. Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.	There is no standing trees or vegetation within the mine lease area.	
	12. The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	The ecological details have been provided in Chapter 3 and measures have been provided in Chapter 4.	87, 120
	13. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	The detailed action plan has been described in the EMP (Chapter 10) for the sustainable management for the project area and its surroundings.	147
	14. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.	The impact of project on the land environment has been discussed in Table 413 under Chapter 4.	107
	Forests		
	15. The project proponent shall detail study on impact of mining on Reserve Forests free ranging wildlife.	Venkunam RF is located within 10 km radius and no other reserved forest located in the buffer zone. The fauna commonly found in the core and buffer zone is given in Chapter 3.	100
	16. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	There is no schedule I species of animals observed within study area as per Wildlife Protection Act, 1972 and no species falls in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area. The anticipated impact and its mitigation measures for biological environment are detailed in Chapter 4.	100
	17. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	Not Applicable. This is a dry barren land.	
	18. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	Venkunam RF is located within 10 km radius and no other reserved forest located in the buffer zone.	

	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.	The hydrogeological study report will be incorporated in the final EIA report.	
	20. Erosion Control measures.	There is no waste generation (OB) in this quarry has been envisaged. However, there may be erosion due to rainy season and that is limited within quarry area. The control measures are explained in Chapter 4.	107
	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.	Complied. The study details are incorporated in Chapter 3. Anticipated impacts and its mitigation measures are detailed in Chapter 4.	108
	22. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	There is no wastewater generation / discharge of wastewater from this Quarry, so this is not applicable.	
	23. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.	Fragmentation impact on environment may be due to drilling and blasting. The anticipated impacts and mitigation measures are discussed in Chapter 4.	
	24. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.	An ecological and biodiversity study has been conducted and the same is incorporated in the Chapter 3 of the EIA/EMP report. However, there is no any features mentioned in this condition within the M.L area. However, the impacts anticipated with respect to the environment of the project area is very negligible and it will be minimized within the project area.	87

	25. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.	Agreed.	
	26. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.	Complied. The details are described in Chapter 4.	108
	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.	The details will be incorporated in the final EIA report	
	Energy		
	28. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilize the Energy shall be furnished.	Complied. The details are described in Chapter 4.	107
	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.	Only the best equipment will be used, and it will be properly and regularly maintained. Regular vehicular emission tests will be conducted on the transport vehicles to ensure minimal carbon emissions.	
	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.	To further reduce carbon emissions, a good greenbelt plan has been planned. The carbon emission and the measures to mitigate carbon emission have been discussed in Chapter 4.	
	31. Impact of mining on pollution leading to GHGs emissions and the impact of the same on the local livelihood.	The details are furnished in Chapter 4	
	Mine Closure Plan		
	32. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.	Complied. Mine Closure Plan has been incorporated in the approved Mining 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.	Complied. The details are described in Chapter 10.	146
	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.	Total EMP Cost for 5 years is 266.13 lakhs i.e. Capital Cost Rs. 43.84 Lakhs + Recurring Cost Rs. 222.30 for five years, which is including greenbelt cost and cost for mine closure plan. The breakup of the EMP cost is mentioned in table 10-2 and 10-3	147
	Risk Assessment		
	35. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	Complied. The details are described in Chapter 7.	127
	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.	Complied. The details are described in Chapter 7.	127
	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.	There are no historical places, schools, cemeteries, temples, bird sanctuaries, and wildlife sanctuaries within 500 metres of the proposed project area. In this regard, the project proponent has received an official letter from the Village Administrative Officer. The letter copy enclosed as Annexure – 5.	
	38. As per the MoEF& CC office memorandum F.N0.22-65/2017-1A.11I dated: 30.09.2020 and20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	Complied. The action plan of the public hearing will be furnished in the final EIA report	

	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.	The same will be complied in the final EIA report	
STANDARD ToR			
1.1.	An EIA-EMP Report shall be prepared for peak capacity (…..MTPA) operation in an ML/project area of.....ha based on the generic structure specified in Appendix III of the EIA Notification, 2006.	Noted.	
1.2.	An EIA-EMP Report would be prepared for peak capacity operation to cover the impacts and environment management plan for the project specific activities on the environment of the region, and the environmental quality encompassing air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts including prediction modelling for..... MTPA of mineral production based on approved project/Mining Plan for.....MTPA. Baseline data collection can be for any season (three months) except monsoon.	Noted and agree to comply	
1.3.	Proper KML file with pin drop and coordinate of mine at 500-1000 m interval be provided	Noted, Google earth image showing lease area with Coordinates of mine is given in Figure 2-2 of Chapter 2.	21
1.4.	A Study area map of the core zone (project area) and 10 km area of the buffer zone (1: 50,000 scale) clearly delineating the major topographical features such as the land use, surface drainage pattern including rivers/streams/nullahs/canals, locations of human habitations, major constructions including railways, roads, pipelines, major industries, mines and other polluting sources. In case of ecologically sensitive areas such as Biosphere Reserves/National Parks/WL Sanctuaries/ Elephant Reserves, forests (Reserved/Protected), migratory corridors of fauna, and areas where endangered fauna and plants of medicinal and economic importance found in the 15 km study area should be given. The above details to be furnished in tabular form also	Study area map in 1: 50,000 scale covering 10 km radius showing all the features is given in Figure 2-7 of Chapter 3.	26

1.5.	Map showing the core zone delineating the agricultural land (irrigated and un-irrigated, uncultivable land as defined in the revenue records, forest areas (as per records), along with other physical features such as water bodies, etc should be furnished.	The proposed quarry is a Patta land in the name of Tmt. Santhi, Thiru. Sudhakaran, Thiru. Seenivasan, Thiru. Gopalan, Thiru. Boopalan, Thiru. Vettrivelan, Tmt. Sowmiya and Tmt. Parvathi vide Patta Nos. 515, 557, 612, 623 and 641. The Pattadars has given the consent to Thiru.J.K. Vettrivelan (Applicant), Partner of Tvl. JCK. Mines and the same has been registered. The copy of the Patta, Adangal, A-Register and consent registration document are enclosed as Annexure - 6.	
1.6.	A contour map showing the area drainage of the core zone and 25 km of the study area (where the water courses of the core zone ultimately join the major rivers/streams outside the lease/project area) should also be clearly indicated in the separate map.	The contour map for the study area of 10 km radius is attached as Annexure 12	
1.7.	Catchment area with its drainage map of 25 km area within and outside the mine shall be provided with names, details of rivers/ riverlet system and its respective order. The map should clearly indicate drainage pattern of the catchment area with basin of major rivers. Diversion of drains/ river need eloboration in form of length, quantity and quality of water to be diverted	Drainage map (Figure 3-11) is given in Chapter-3. This proposed project will not divert any water bodies.	60
1.8.	(Details of mineral reserves, geological status of the study area and the seams to be worked, ultimate working depth and progressive stage-wise working scheme until the end of mine life should be provided on the basis of the approved rated capacity and calendar plans of production from the approved Mining Plan. Geological maps and sections should be included. The Progressive mine development and Conceptual Final Mine Closure Plan should also be shown in figures. Details of mine plan and mine closure plan approval of Competent Authority should be furnished for green field and expansion projects.	The geological reserves, geology, production plan, pre and post land use pattern of the lease area, ultimate depth are provided in Chapter 2 and Chapter 3. Geological Map and its section (Figure 2-9), year wise Production plan (Figure 2-12), Conceptual plan and its section (Figure 2-13) are given in Chapter 2. Mining plan approval letter and approved mining plan report is given in Annexure – 3.	29, 35 and 36

1.9.	Details of mining methods, technology, equipment to be used, etc., rationale for selection of specified technology and equipment proposed to be used vis-à-vis the potential impacts should be provided.	The method of mining and equipment to be used are detailed in Chapter 2.	37
1.10.	Impact of mining on hydrology, modification of natural drainage, diversion and channeling of the existing rivers/water courses flowing though the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.	Not Applicable. No stream passing through the mine lease area.	
1.11.	A detailed Site plan of the mine showing the proposed break-up of the land for mining operations such as the quarry area, OB dumps, green belt, safety zone, buildings, infrastructure, Stockyard, township/colony (within and adjacent to the ML), undisturbed area -if any, and landscape features such as existing roads, drains/natural water bodies to be left undisturbed along with any natural drainage adjoining the lease /project areas, and modification of thereof in terms of construction of embankments/bunds, proposed diversion/re-channelling of the water courses, etc., approach roads, major haul roads, etc should be indicated.	The pre and post land use pattern of the mine lease area is given in Table 3-4 of Chapter 3. This proposed quarry generates no waste, as the entire mined mineral will be directly dispatched to customers in need. Hence, no dumps are anticipated. There is an existing road from the area leads to Kurambur – Melma Road on the western side of the project	58
1.12.	Original land use (agricultural land/forestland/grazing land/wasteland/water bodies) of the area should be provided as per the tables given below. Impacts of project, if any on the land use, in particular, agricultural land/forestland/grazing land/water bodies falling within the lease/project and acquired for mining operations should be analyzed. Extent of area under surface rights and under mining rights should be specified. Area under Surface Rights Area (ha) S.N ML/Project Land use Rights(ha) (ha) Area under Both (ha) 1 Agricultural land 2 Forest Land 3 Grazing Land 4 Settlements 5 Others (specify) S.N. Details Area (ha) 1 Buildings 2 Infrastructur 3. Roads 4 Others (specify) Total	The pre and post land use pattern of the mine lease area is given in Table 3-4 of Chapter 3.	58
1.13.	Study on the existing flora and fauna in the study area (10km) should be carried out by an institution of relevant discipline. The list of flora and fauna duly authenticated	Detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] was	87

	separately for the core and study area and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna should be given. If the study area has endangered flora and fauna, or if the area is occasionally visited or used as a habitat by Schedule-I species, or if the project falls within 15 km of an ecologically sensitive area, or used as a migratory corridor then a Comprehensive Conservation Plan along with the appropriate budgetary provision should be prepared and submitted with EIA-EMP Report; and comments/observation from the CWLW of the State Govt. should also be obtained and furnished.	carried out and discussed under Chapter No. 3. There is no schedule I species of animals observed within study area as per Wildlife Protection Act 1972 as well as no species is in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area.	
1.14.	One-season (other than monsoon) primary baseline data on environmental quality - air (PM10, PM2.5, SOx, NOx and heavy metals such as Hg, Pb, Cr, As, etc), noise, water (surface and groundwater), soil - along with one-season met data coinciding with the same season for AAQ collection period should be provided. The detail of NABL/ MoEF&CC certification of the respective laborartory and NABET accreditation of the consultant to be provided.	Baseline Data were collected for Post-Monsoon Season (October to December 2024) as per CPCB Notification and MoEF & CC Guidelines. Details are provided in Chapter No. 3. The NABL certificate of the lab, used for testing and analysis, is provided in Annexure -9	
1.15.	Map (1: 50, 000 scale) of the study area (core and buffer zone) showing the location of various sampling stations superimposed with location of habitats, other industries/mines, polluting sources, should be provided. The number and location of the sampling stations in both core and buffer zones should be selected on the basis of size of lease/project area, the proposed impacts in the downwind (air)/downstream (surface water)/groundwater regime (based on flow). One station should be in the upwind/upstream/non-impact/non-polluting area as a control station. The monitoring should be as per CPCB guidelines and parameters for water testing for both ground water and surface water as per ISI standards and CPCB classification wherever applicable. Observed values should be provided along with the specified standards.	Monitoring locations for Air, Water, Noise and Soil are given in Chapter 3. Criteria for Air Sampling Location Selection: Two Up Wind directions, two down wind direction and two cross wind directions were selected for air Monitoring. Details in Chapter 3. Criteria for Water Sampling Locations: Cheyyar River (U/s) and (D/s) and six ground water sampling were collected and analysed and are given in Chapter 3. Details given under description of the environment chapter-3.	
1.16.	For proper baseline air quality assessment, Wind rose pattern in the area should be reviewed and accordingly location of AAMSQ shall be planned by the collection of air		

	quality data by adequate monitoring stations in the downwind areas. Monitoring location for collecting baseline data should cover overall the 10 km buffer zone i.e. dispersed in 10 km buffer area. In case of expansion, the displayed data of CAAQMS and its comparison with the monitoring data to be provided		
1.17.	A detailed traffic study along with presence of habitation in 100 mts distance from both side of road, the impact on the air quality with its proper measures and plan of action with timeline for widening of road. The project will increase the no. of vehicle along the road which will indirectly contribute to carbon emission so what will be the compensatory action plan should be clearly spell out in EIA/ EMP report.	Traffic density survey was carried out to analyses the impact of Transportation in the study area as per IRC guidelines 1961 and it is inferred that there is no significant impact due to the proposed transportation from the project area. Details in section 2.9.6 of Chapter-2.	41
1.18.	The socio-economic study to conducted with actual survey report and a comparative assessment to be provided from the census data should be provided in EIA/ EMP report also occupational status & economic status of the study area and what economically project will contribute should be clearly mention. The study should also include the status of infrastructural facilities and amenities present in the study area and a comparative assessment with census data to be provided and to link it with the initialization and quantification of need-based survey for CSR activities to be followed.	Detailed in chapter-3 socio-economic study with occupational status & economic status of the study area. The study should also include the status of infrastructural facilities and amenities present in the study area. CSR are discussed under Chapter 8.	102
1.19.	The Ecology and biodiversity study should also indicate the likely impact of change in forest area for surface infrastructural development or mining activity in relation to the climate change of that area and what will be the compensatory measure to be adopted by PP to minimize the impact of forest diversion.	Biodiversity study report is detailed in section 3.8.5 of Chapter 3	87
1.20.	Baseline data on the health of the population in the impact zone and measures for occupational health and safety of the personnel and manpower for the mine should be submitted.	Occupational health impacts and its mitigation measures are detailed in Table 4-9, chapter-4.	121

1.21.	Impact of proposed project/activity on hydrological regime of the area shall be assessed and report be submitted. Hydrological studies as per GEC 2015 guidelines to be prepared and submitted	The hydrogeological study report will be furnished in the final EIA report	
1.22.	Impact of mining and water abstraction from the mine on the hydrogeology and groundwater regime within the core zone and 10 km buffer zone including long-term monitoring measures should be provided. Details of rainwater harvesting and measures for recharge of groundwater should be reflected in case there is a declining trend of groundwater availability and/or if the area falls within dark/grey zone.	The total water requirement of 9.5 KLD will be sourced from outside agencies, so no water abstraction is anticipated. The rain water harvesting plan is detailed in Chapter 4 It is inferred the quarrying activities in the Cumulative EIA project (Quarry) will not intersect the Ground water table. Rainwater harvesting plan is given in Chapter 2.	108
1.23.	Study on land subsidence including modeling for prediction, mitigation/prevention of subsidence, continuous monitoring measures, and safety issues should be carried out.	Detailed in Chapter-4 Anticipated and mitigation measures of in the study area.	107
1.24.	Detailed water balance should be provided. The break up of water requirement as per different activities in the mining operations, including use of water for sand stowing should be given separately. Source of water for use in mine, sanction of the Competent Authority in the State Govt. and impacts vis-à-vis the competing users should be provided.	Total Water Requirement: 9.5 KLD Discussed under Chapter 2, the water balance chart is given in Figure 3-9 The required water will be met from rainwater accumulated in mine pit (when available) and from the approved water vendors.	39
1.25.	PP shall submit design details of all Air Pollution control equipment (APCEs) to be implemented as part of Environment Management Plan vis-à-vis reduction in concentration of emission for each APCEs	Air Pollution control equipment (APCEs) to be implemented as part of Environment Management Plan details given chapter-4	110
1.26.	PP shall propose to use LNG/CNG based mining machineries and trucks for mining operation and transportation of mineral. The measures adopted to conserve energy or use of renewable sources shall be explored	The machinery and equipment required for this project are given in Table 2.9 of Chapter 2. The proposal requires 7,11,190 Liters of HSD for the entire life of the mine.	37

1.27.	PP to evaluate the greenhouse emission gases from the mine operation and corresponding carbon absorption plan.	Carbon emission from quarrying activities is detailed in Chapter 4	107
1.28.	Site specific Impact assessment with its mitigation measures, Risk Assessment and Disaster Preparedness and Management Plan should be provided.	Impact assessment with its mitigation measures, Risk Assessment and Disaster Preparedness and Management Plan given chapter-7.	127
1.29.	Impact of choice of mining method, technology, selected use of machinery and impact on air quality, mineral transportation, handling & storage/stockyard, etc, Impact of blasting, noise and vibrations should be provided.	Mining method, technology details given chapter-2. The impact on mineral transportation, blasting, noise and vibration are detailed in Chapter 4.	37, 117
1.30.	Impacts of mineral transportation within the mining area and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions should be provided. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop etc, management plan for maintenance of HEMM and other machinery/equipment should be given. Details of various facilities such as rest areas and canteen for workers and effluents/pollution load emanating from these activities should also be provided.	Traffic density survey was carried out to analyze the impact of Transportation in the study area as per IRC guidelines 1961 and it is inferred that there is no much significant impact due to the proposed transportation from the project area. Details in Chapter 2. 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 There is no proposal for a rough stone processing or workshop within the project area, so no effluent is anticipated in the mine.	41
1.31.	Details of various facilities to be provided to the workers in terms of parking, rest areas and canteen, and effluents/pollution load resulting from these activities should also be given.	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.	39
1.32.	The number and efficiency of mobile/static water jet, Fog cannon sprinkling system along the main mineral transportation road inside the mine, approach roads to the mine/stockyard/siding, and also the frequency of their use in impacting air quality should be provided.	PP will provide mobile water tankers with a cost of 1.0 lakhs under EMP.	
1.33.	Conceptual Final Mine Closure Plan and post mining land use and restoration of land/habitat to the pre- mining status should be provided. A Plan for the ecological restoration of the	Final Mine Closure Plan and post mining land use details given in chapter-7.	141

	mined out area and post mining land use should be prepared with detailed cost provisions. Impact and management of wastes and issues of re-handling (wherever applicable) and backfilling and progressive mine closure and reclamation should be furnished.	Mine Closure Plan is a part of Approved Mining Plan enclosed as Annexure – 3.	
1.34.	Adequate greenbelt nearby areas, mineral stock yard and transportation area of mineral shall be provided with details of species selected and survival rate Greenbelt development should be undertaken particularly around the transport route.	Inside the mine lease area 3000 plants and out the mine lease area 1000 plants will be planted (Total 4000 nos of trees will be planted).	
1.35.	Cost of EMP (capital and recurring) should be included in the project cost and for progressive and final mine closure plan.	Total Project Cost including EMP cost is 509.346 Lakhs, which is including the mine closure plan cost.	
1.36.	Details of R&R. Detailed project specific R&R Plan with data on the existing socio-economic status of the population (including tribals, SC/ST, BPL families) found in the study area and broad plan for resettlement of the displaced population, site for the resettlement colony, alternate livelihood concerns/employment for the displaced people, civic and housing amenities being offered, etc and costs along with the schedule of the implementation of the R&R Plan should be given.	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.	
1.37.	CSR Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project should be given.	CSR details given in chapter-8	144
1.38.	Corporate Environment Responsibility:		
1.39.	a) The Company must have a well laid down Environment Policy approved by the Board of Directors.	Environment policy details given in chapter- 10.	
1.40.	b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.	Environment policy details given in chapter- 10.	
1.41.	c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.	The administrative set up and environmental monitoring cell details are given in Chapter 10.	146

1.42.	d) To have proper checks and balances, the company should have a well laid down 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.	The administrative set up and environmental monitoring cell details are given in Chapter 10.	146
1.43.	e) Environment Management Cell and its responsibilities to be clearly spell out in EIA/ EMP report	The Environmental Monitoring cell detail is provided in Chapter 10	146
1.44.	f) In built mechanism of self-monitoring of compliance of environmental regulations should be indicated.	The Environmental Monitoring cell detail is provided in Chapter 10	146
1.45.	Status of any litigations/ court cases filed/pending on the project should be provided.	Nil	
1.46.	PP shall submit clarification from DFO that mine does not fall under corridors of any National Park and Wildlife Sanctuary with certified map showing distance of nearest sanctuary.	Nott Applicable	
1.47.	Copy of clearances/approvals such as Forestry clearances, Mining Plan Approval, mine closer plan approval. NOC from Flood and Irrigation Dept. (if req.), etc. wherever applicable.	Not Applicable	
1.48.	Details on the Forest Clearance should be given as per the format given: Total ML Total Project Area Forest (ha) land (ha) Date of FC Extent of Forest Land Balance area for which FC is yet to be obtained Status of appl for diversion of forest land If more than one provides details of each FC	Not Applicable	
1.49.	In case of expansion of the proposal, the status of the work done as per mining plan and approved mine closure plan shall be detailed in EIA/ EMP report	Not applicable. This is a fresh quarry project.	
1.50.	Details on Public Hearing should cover the information relating to notices issued in the newspaper, proceedings/minutes of Public Hearing, the points raised by the general public and commitments made by the proponent and the time bound action proposed with budgets in suitable time frame. These details should be presented in a tabular form.	The details of public hearing will be incorporated in the final EIA report	

	If the Public Hearing is in the regional language, an authenticated English Translation of the same should be provided.		
1.51.	PP shall carry out survey through drone highlighting the ground reality for atleast 10 minutes	Noted and agreed	
1.52.	Detailed Chronology of the project starting from the first lease deed alloted/Block allotment/ Land acquired to its No. of renewals, CTO /CTE with details of no. renewals, previous EC(s) granted details and its compliance details, NOC details from various Govt bodies like Forest NOC(s), CGWA permissions, Power permissions, etc as per the requisites respectively to be furnished in tabular form.	Noted and agreed	
1.53.	The first page of the EIA/ EMP report must mention the peak capacity production, area, detail of PP, Consultant (NABET acrreditation) and Laboratory (NABL / MoEF & CC certification)	Complied	
1.54.	The compliances of ToR must be properly cited with respective chapter section and page no in tabular form and also mention sequence of the respective ToR complied within the EIA-EMP report in all the chapter,s section.	As per Tor compliance each chapter wise page and table, figure no given in the EIA/EMP report.	
STANDARD TOR			
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	This is a fresh quarry	
2.	A copy of the document in support of the fact that the proponent is the rightful lessee of the mine should be given.	It is a Patta land in the name of Tmt. Santhi, Thiru. Sudhakaran, Thiru. Seenivasan, Thiru. Gopalan, Thiru. Boopalan, Thiru. Vettrivelan, Tmt. Sowmiya and Tmt. Parvathi vide Patta Nos. 515, 557, 612, 623 and 641. The Pattadars has given the consent to Thiru.J.K. Vettrivelan (Applicant), Partner of Tvl. JCK. Mines and the same has been registered. The copy of the Patta, Adangal,	

		A-Register and consent registration document are enclosed as Annexure - 6.	
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. All documents including approved mine plan, EIA and Public Hearing are compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and is in the name of the lessee.	
4.	All comer 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).	Project area is superimposed on Satellite imagery is enclosed in Figure No. 3-6. Project area boundary coordinates superimposed on Toposheet & Surface Features around the project area covering 10km radius – Figure No. 2-2. Geology map of the project area covering 10km radius - Figure No. 3-13. Geomorphology Map of the Study Area covering 10 km radius – Figure No. 3-12	53, 21, 61 and 62
5.	Information should be provided in Survey of India Topo sheet in l:50,000 scare 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.	The following map in 1:50,000 Scale: Geology map of the project area covering 10km radius – Figure No. 3-13. Geomorphology Map of the Study Area covering 10 km radius – Figure No. 3-12 Important water bodies, streams and rivers are highlighted in Figure 3-2 and Soil Characteristics are shown in Figure 3-24	61, 62, 50, 84
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.	**a. Precise Area Communication:** The Project Proponent has obtained Precise area communication letter received from the Joint Director (A/c), O/o. Assistant Director, Department of Geology and Mining, Tiruvannamalai vide Rc.No. 549/Kanimam/2024 dated 28.08.2024. The copy of the letter is enclosed as Annexure – 2. **b. Mining Plan Approval:**	

		The project proponent has prepared mining plan under rule 19(1), 41 & 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 and the same has been approved by the Joint Director (A/c), O/o. Assistant Director, Dept. of Geology & Mining, Tiruvannamalai vide Rc.No. 549/Kanimam/2024 dated 23.09.2024. The copy of the letter is enclosed as Annexure - 3	
7.	It should be clearly stated whether the proponent company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.	The proponent will frame a well-planned environmental policy. Its details are provided under Chapter 10.	150
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.	The proposed quarrying operation is not underground mining and hence subsidence study is not applicable. Various risks likely to arise due to mining activities are detailed under section 7.3, Chapter-7. The impact due to ground vibrations due to blasting is given in para 2.8.6 of Chapter 2.	127, 38
9.	The study area will comprise of l0 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	The land use of the study area was studied to demarcate various LULC categories and its details are provided under section 3.6.2	54,58 and 36

	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.	of Chapter-3. The land use pattern at present and at the end of the quarrying period has been provided in Table 3-4, Chapter-3. The Conceptual plan of mine lease area is shown in Figure No- 2-13.	
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.	There is no overburden anticipated during the entire rough stone quarrying operation.	
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. ln 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.	There is no Forest Land involved in the proposed project area.	
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.	Only Venkunam RF is located in the study area of 10 km radius The figure showing the same is illustrated in Figure 2-5.	
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	
17.	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within l0 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief	Not Applicable	

	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 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.	The detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] is carried out and the details are incorporated in section 3.8.5 of Chapter 3	87
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.	Not Applicable	
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).	Not Applicable	
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	Not Applicable	

	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 of2009, water quality, noise revel, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.	Baseline Data is collected in post monsoon season (Oct – Dec 24) for AAQ, WQ, NL and EB. Site-specific meteorological study data is collected. 2 Locations are chosen for upwind, 2 Locations for downwind and 2 Locations for crosswind apart from project location.	
23.	Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. lt 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.	Air Quality Modelling for prediction of incremental GLC's of pollutant was carried out using AERMOD view and Detailed in Chapter 4. Air Quality Modelling for Cluster are detailed in Chapter 7.	114-115 139-140
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.	The total water requirement for the project is 9.5 KLD. The required water will be procured from outside agencies initially and later rainwater harvested in the mine pit shall be used other than drinking purpose. Water Balance diagram is presented in section 2.9.1 of chapter 2	39

25.	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	Water will be sourced from local vendors and ground water will not be extracted. Hence, not applicable.	
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.	Details of water conservation measures in detailed in Chapter 4. Rain water harvesting details are included in Chapter 3.	
27.	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.	Impact Studies and Mitigation Measures of Water Environment including Surface Water and Ground Water are discussed in Table 4-2	108
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-ali4 shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	The quarrying activity will not intersect ground water table as quarrying is proposed up to a depth of 57 m AGL and water table is found at a depth of 68 m BGL.	
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.	Not applicable	
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.	Site Elevation: ≃ 93 m from above MSL Working depth: 57m (BGL) GW Table: 68m BGL	
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	Greenbelt Development are detailed in Chapter 4 and Chapter 8 2.44.0 hectares of land are allotted for greenbelt development.3000 Nos. of tree species will be planted inside the Mine Lease Area and 1000 Nos. of tree species will be planted outside the Mine Lease Area.	

	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.	This is a small quarry and the production is very less. 6 Nos. of 5T/10T tippers will be used for transport. The trips will be minimum. Hence no major impact on transport is expected	
33.	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	Temporary Infrastructure & other facilities will be provided to the Mine Workers after the grant of quarry lease.	
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.	At the conceptual stage the quarried-out land will be fenced and lower benches will be allowed to collect rain water to act as a temporary reservoir and Greenbelt development will be carried out on the top bench, unutilized areas and haul roads.	
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.	Details of occupational health and safety aspects are given in Table 4-9 of Chapter 4	121
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.	No Public Health Implications anticipated due to this project. Details of CER and CSR are discussed under Chapter No. 8 under section 8.5.1	144
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.	This project provides employment to 35 people directly. Local people will be hired for unskilled labour. Through CSR, nearby schools, hospitals will be benefitted. For CSR, INR 8.0 Lakh is	

		allocated. Based on the demand of the people during public hearing, further funds will be allocated, if necessary.	
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.	Environmental Management plan details are given in Chapter 10.	146
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.	The details of the public hearing will be included in Chapter 7 along with detailed action plan.	
40.	Details of litigation pending against the project, if any, with direction /order paced by any Court of Law against the Project should be given.	There is no litigation pending against the project.	
41.	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.	Project Cost: 509.346 lakhs CER Cost: Rs. 8 Lakhs EMP Cost: Rs. 266.13 Lakhs	147
42.	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Included 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.	Outlined 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	Yes, Enclosed	
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.	Yes, Complied	
d.	Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/ NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project,	Baseline monitoring results are detailed in Chapter 3. Original Baseline monitoring reports will be made available during appraisal of the project.	

e.	Where the documents provided are in a language other than English, an English translation should be provided.	Yes, complied	
f.	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	Yes, complied	
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- l 1013/41/2006-IA.11 0) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.	Noted & agreed	
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-l l0l I161812010-1A.ll (l) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the Environment Clearance 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.	Yes, Complied	
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 and Geological Plan – Figure No. 2-8 and Figure No. 2-10	27 and 31

EIA REPORT

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Annexure No – 2	Precise Area Communication Letter
Annexure No – 3	Mine Plan Approval Letter Copy, approval book with annexures
Annexure No – 4	Details of other leases within AD MINES 300m radius Letter
Annexure No –5	VAO Letter for features within 500 m radius
Annexure No –6	Land Documents
Annexure No –7	Monitoring Report
Annexure No –8	Lab NABL Certificate
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1 INTRODUCTION

1.1 Preamble

Environment Impact Assessment (EIA) is a process used to identify the environmental, social & economic impacts of a project prior to decision making. It seeks to anticipate environmental effects early in the planning and design process, identify strategies to mitigate negative effects, adapt projects to the local environment, and provide the proponent with the predicted choices. Economic and environmental benefits can be obtained through the use of EIA. The project's overall time and cost can be reduced by taking into account environmental effects, including prediction and mitigation, early benefits in project design, environmental protection, and optimal resource utilization.

1.2 General Information on Mining of Minerals

The charnockite series includes rocks of many different types, some being felsic and rich in quartz and microcline, others mafic and full of pyroxene and olivine, while there are also intermediate varieties corresponding mineralogical to norites, quartz-norites and diorites.

A special feature, recurring in many members of the group, is the presence of strongly pleochroic, reddish or green orthopyroxene (formerly known as hypersthene).

(Source: District Survey Report - Tiruvannamalai)

1.3 Purpose of the report

Tvl. JCK Mines, Thiru J. K. Kathirvelan (Partner) proposes to establish a Rough Stone & Gravel Quarry at S.F. Nos. 98/2, 98/3,98/4,98/7, 100/1, 100/2, 101/2, 101/3,101/4,105/1, 105/3, 105/7,105/8 and 105/11 over an extent of 7.44.0 Ha in Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State. The area of the proposed mine is 7.44.0 Ha> 5.00 Ha. In this regard, Form-I and Pre-Feasibility Report has been submitted on 13.11.2024 and the ToR was granted by the SEIAA vide ToR Identification No. TO24B0108TN5594899N. The copy of the ToR is enclosed as Annexure - 1. The Geological Resources of rough stone in the proposed Mine Lease area is 40,89,195 m^3 and Gravel is 1,48,698 m3 for the ultimate depth of 57m BGL. As per the ToR, the proposed production is 8,68,060m3 of Rough Stone and 1,04,452m3 of gravel for the period of five years. The proposal for ToR was considered by the State Expert Appraisal Committee in its 516th meeting held on 06.12.2024 for prescribing Terms of Reference (ToR) for preparation of the Environmental Impact Assessment (EIA) report.

The purpose of the EIA study is to assess the baseline environmental conditions and to anticipate the possible environmental impacts during operation of the project, thereby suggesting appropriate mitigation measures to control the same. The EIA report has been prepared in line with the Terms of Reference issued by SEIAA vide ToR Identification No. TO24B0108TN5594899N.

1.4 Identification of the project and project proponent

1.4.1 About the Project:

The applicant Tvl. JCK Mines, proposed to quarry for the period of five years in Patta land over an area of 7.44.0 Ha located in S.F.No. 98/2, 98/3,98/4,98/7, 100/1, 100/2, 101/2, 101/3,101/4,105/1, 105/3, 105/7,105/8 and 105/11 of Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State. It is a Patta land in the name of Tmt. Santhi, Thiru. Sudhakaran, Thiru. Seenivasan, Thiru. Gopalan, Thiru. Boopalan, Thiru. Vettrivelan, Tmt. Sowmiya and Tmt. Parvathi vide Patta Nos. 515, 557, 672, 623 and 641. The Pattadars has given the consent to Thiru. J. K. Vettrivelan (Applicant), Partner of Tvl. JCK Mines and the same has been registered. The copy of the Patta, Adangal, and A-Register and consent registration document are enclosed as Annexure - 6. The copy of the Precise area communication letter received from the Joint Director (A/c), O/o. Assistant Director, Department of Geology and Mining, Tiruvannamalai enclosed as Annexure – 2.

1.4.2 About the Project Proponent:

Table 1-1 Details of Project Proponent

Name of the Project Proponent	Tvl. JCK Mines, Thiru. J. K. Vettrivelan (Partner)
Communication Address	No. 782, Mariamman Kovil Street, Jambodai Village, Azhividaithangi post, Vembakkam taluk, Tiruvannamalai District – 604402.
Mobile No.	9786228697
Email - ID	tvljckmines@gmail.com

1.5 Brief description of nature, size and location of the project

Table 1-2 Salient Features of the project

S. No.	Particulars	Description
1.	Nature	Mining of Rough Stone and Gravel Quarry
2.	Location	S.F.No. 98/2, 98/3,98/4,98/7, 100/1, 100/2, 101/2, 101/3,101/4,105/1, 105/3, 105/7,105/8 and 105/11 of Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
3.	Size (Extent)	7.44.0 Ha
4.	Project Cost	Rs. 509.346 Lakhs (Including EMP and CER Cost)

1.6 Details of Quarries within cluster area of 500m radius

The details of the quarries within 500 m radius are given below:

Table 1-3 Details of Quarry within 500m radius

S. No	Name and address of the lessee	Village & S. F. Nos	Extent in Hectare	Lease Period
i. Abandoned Quarries				
Nil				
ii. Existing Quarries				
1.	Tvl. JCK Mines No. 782, Mariyamman Koil Street, Jambodai Village, Azhividaithangal Post, Vembakkam Taluk	Melnarma Village, S.F.Nos. 100/3, 100/5, 100/6, 100/7, 100/8, 100/9, 100/10, 100/11, 100/12 & 100/13	4.47.00 Ha	15.07.2020 to 14.07.2025
iii. Proposed Quarries				
1	Tvl. JCK Mines Partner Thiru.J.K. Vettrivelan No. 782 Mariamman Kovil Street, Jambodai Village, Azhividaithangi Post, Tiruvannamalai District	Melnarma Village, S.F.Nos. 98/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7, 105/8 and 105/11	7.44.00 Ha	Proposed Area

The total lease within the 500m radius (Proposed + Existing) (1 no + 1 no) works out to 11.91.00 Ha including this lease area.

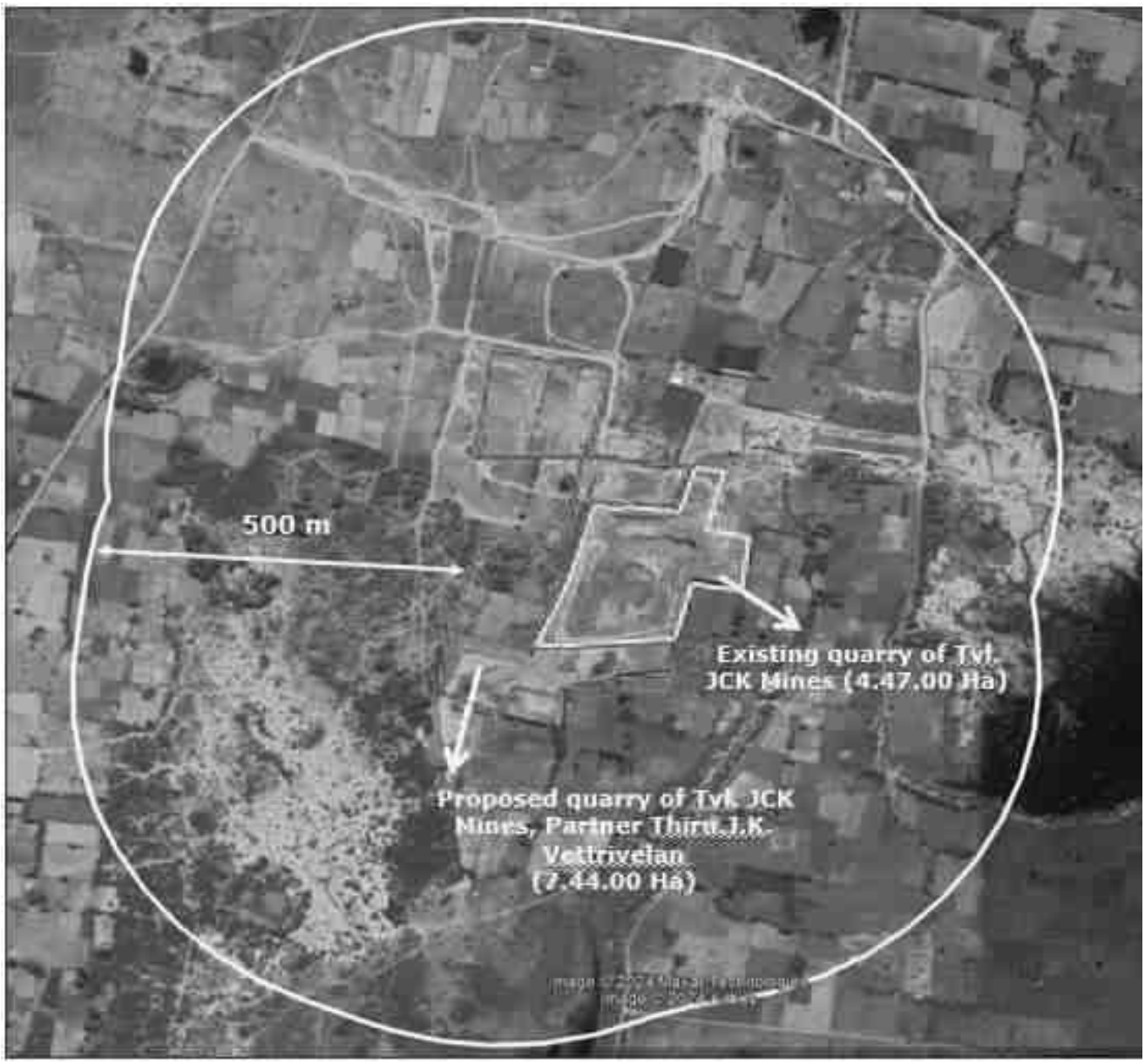


Figure 1-1 Details of Quarries within 500 m radius

1.7 Details of Statutory approvals

- Precise Area Communication:

  The Project Proponent has obtained Precise area communication letter received from the Joint Director (A/c), O/o. Assistant Director, Department of Geology and Mining, Tiruvannamalai vide Rc.No. 549/Kanimam/2024 dated 28.08.2024. The copy of the letter is enclosed as Annexure – 2.

- Mining Plan Approval Letter

  The project proponent has prepared mining plan under rule 19(1), 41 & 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 and the same has been approved by the Joint Director (A/c), O/o. Assistant Director, Dept. of Geology

& Mining, Tiruvannamalai vide Rc.No. 549/Kanimam/2024 dated 23.09.2024. The copy of the letter is enclosed as Annexure - 3

- 500 m radius quarry features

  The project proponent has obtained an official letter from the Joint Director (A/c), O/o. Assistant Director, Dept. of Geology & Mining, Tiruvannamalai vide Rc.No. 549/Kanimam/2024 dated 23.09.2024. The copy of the letter is enclosed as Annexure - 4

- Land document of the proposed lease area

  It is a Patta land in the name of Tmt. Santhi, Thiru. Sudhakaran, Thiru. Seenivasan, Thiru. Gopalan, Thiru. Boopalan, Thiru. Vettrivelan, Tmt. Sowmiya and Tmt. Parvathi vide Patta Nos. 515, 557, 612, 623 and 641. The Pattadars has given the consent to Thiru.J.K. Vettrivelan (Applicant), Partner of Tvl. JCK. Mines and the same has been registered. The copy of the Patta, Adangal, A-Register and consent registration document are enclosed as Annexure - 6.

- VAO certification regarding 300m features of the project area

  There are no historical places, schools, cemeteries, HT and LT lines, temples, bird sanctuaries, and wildlife sanctuaries within 300 metres of the proposed project area. In this regard, the project proponent has received an official letter from the Village Administrative Officer, Melnarma Village. The copy of the letter is enclosed as Annexure – 5

- Blasting Agreement

  The Project Proponent have agreement with M/s. Kuberan Explosives & Co. to carry out the blasting operation for the proposed quarry. The Blasting Agreement is enclosed as Annexure – 10.

1.8 EIA process

Screening: Screening is the first stage of the EIA process. In this stage, the State level Expert Appraisal Committee (SEAC) examined the application of EC made by the proponent in Form 1 through online (Proposal No. SIA/TN/MIN/505329/2024, dated 12.11.2024) and decided that the project requires detailed environmental studies for the preparation of EIA report.

Therefore, the proponent submitted application for Terms of Reference (ToR) on 13.11.2024.

Scoping: The proposal was placed in the 516th meeting of SEAC on 06.12.2024. Based on the presentation and documents furnished by the project proponent, SEAC decided to recommend the proposal for the grant of Terms of Reference (ToR) to SEIAA and SEIAA recommended ToR in its 781st meeting dated 23.12.2024.

Public Consultation: In this stage, an application along with the draft of EIA and EMP report will be made to the Member Secretary of the Tamil Nadu Pollution Control Board (TNPCB) to conduct Public Hearing ensuring public participation at the project site or in its close proximity in the district. During public hearing, an opportunity will be given to the people living nearby the project site to express their opinions about the impact of the proposed project on the environment. The outcome of the public hearing meeting will be updated in the final EIA report for appraisal.

Appraisal: In this stage, an application along with final EIA report including the outcome of the public consultations will be made to the SEIAA. The application thus made will be scrutinized by the SEAC. Then, the SEAC will make recommendations to grant EC or reject the application to the SEIAA.

1.9 Terms of Reference (ToR)

SEAC framed a comprehensive ToR based on the project information provided in Form I, PFR and issued ToR vide ToR Identification No. TO24B0108TN5594899N. The copy of the ToR is enclosed as Annexure - 1.

1.10 Scope of the EIA Study:

The main scope of the EIA study is to quantify the cumulative impact of the quarries in the cluster on the study area and formulate the effective mitigation measures for each individual lease. 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 sewage, and dust generation has been provided in this report. The baseline monitoring study has been carried out during the period of October 2024 – December 2024 for various environmental components such as land, soil, air, water, noise, ecology, etc. 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. The sampling methodologies for the various environmental parameters required for the study, frequency of sampling, method of sample analysis, etc., are given in Chapter 3.

1.11 Post Environmental Clearance Monitoring

1.11.1 Methodology adopted

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

Table 1-4 Post Environmental Clearance Monitoring

S. No.	Description	Frequency of monitoring
1.	Ambient Air Quality Monitoring	Quarterly /Half-yearly
2.	Water Level & Water Quality Monitoring (Both Surface and Ground Water)	Quarterly /Half-yearly
3.	Noise Level Monitoring	Quarterly /Half-yearly

4.	Soil Quality Monitoring	Quarterly /Half-yearly
5.	Medical check-up	Quarterly /Half-yearly

1.12 Structure of the EIA Report

The generic structure of the EIA Report is prepared as per the Technical EIA Guidance Manual for Mining of Minerals.

2 PROJECT DESCRIPTION

2.1 Type of the project

Tvl. JCK Mines represented by Thiru. J. K. Vettrivelan (Partner) proposes to set up a Rough Stone & Gravel Quarry at S.F.No. 98/2, 98/3,98/4,98/7, 100/1, 100/2, 101/2, 101/3,101/4,105/1, 105/3, 105/7,105/8 and 105/11 over an extent of 7.44.0 Ha in Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State. As per EIA Notification, 2006 and its subsequent amendments, project comes under category B1 & schedule 1(a) under item 1 as the area is 7.44.0 Ha >5 Ha. As per approved Mining Plan, the proposed production is 8,68,060m3 of Rough Stone and 1,04,452m3 of gravel for the period of five years by opencast mechanized mining. The project will be appraised at state level by State Environment Impact Assessment Authority, Tamil Nadu. Environment Clearance study will involve preparation of draft EIA report on the basis of baseline & impact assessment study is carried out. Also, before appraisal, under 7(III) of EIA notification 2006, the project involves the Public Consultation and the same will be conducted under SPCB (TN) in Tiruvannamalai District.

2.2 Need for the project

To achieve a huge infrastructure being envisaged by Government of India, particularly in road and housing sector, there is a need for basic building materials. The rough stone and gravel form the primary building material.

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

S. No.	Year	Production of Rough Stone	Revenue Realized
1.	2016-2017	688198	33519675
2.	2017-2018	825787	38311705
3.	2018-2019	1023023	59673732

2.3 Project Location

2.3.1 Location of the project site

The proposed quarry is located at S.F. Nos. 98/2, 98/3,98/4,98/7, 100/1, 100/2, 101/2, 101/3,101/4,105/1, 105/3, 105/7,105/8 and 105/11 over an extent of 7.44.0 Ha in Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State. The mining area is located in 12°34'46.23"N to 12°35'04.08"N & 79°39' 39.29" E to 79°39'50.78"E. The location of the project is given below in Figure 2-1.

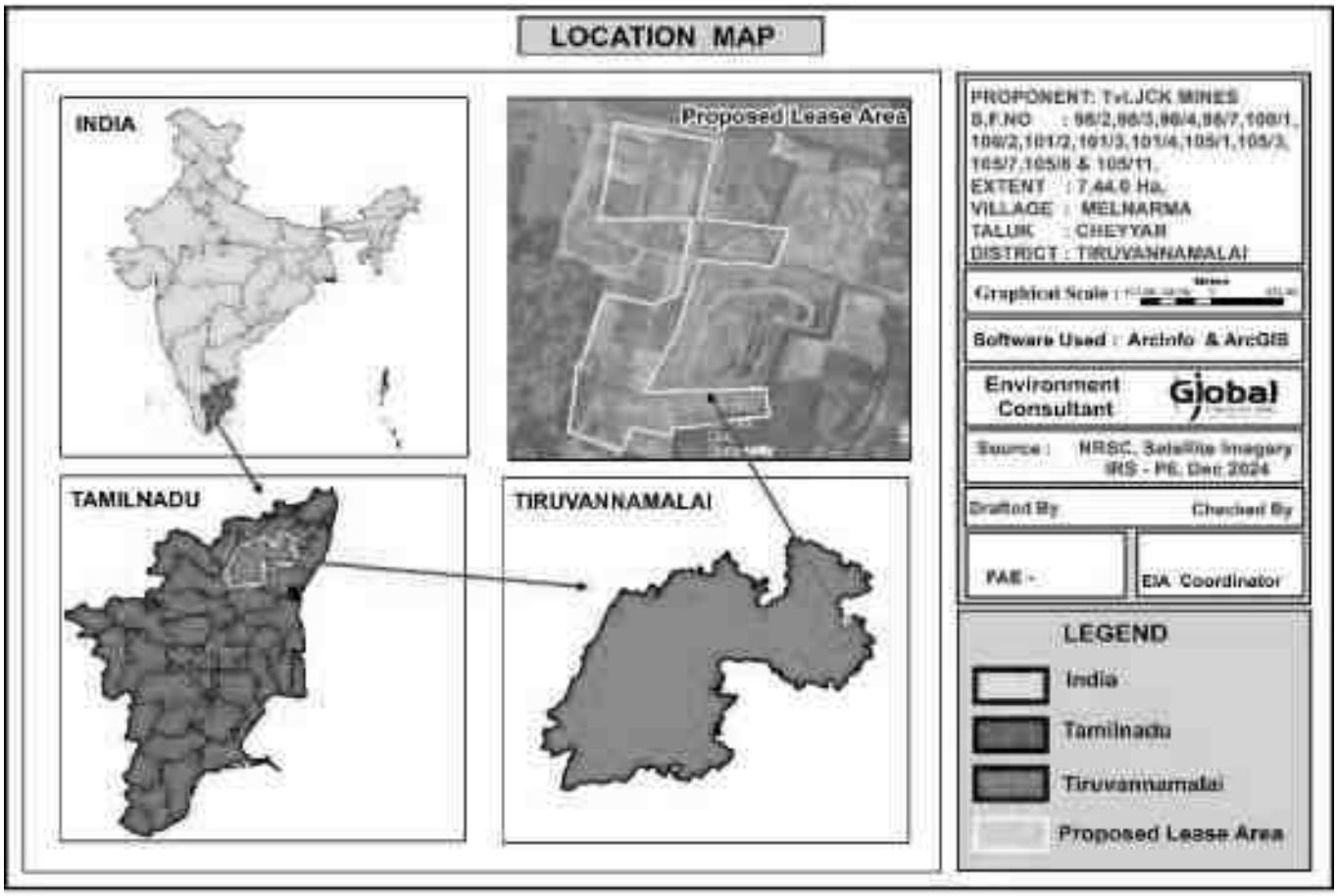


Figure 2-1 Project Location

The project boundary co-ordinates are shown below:

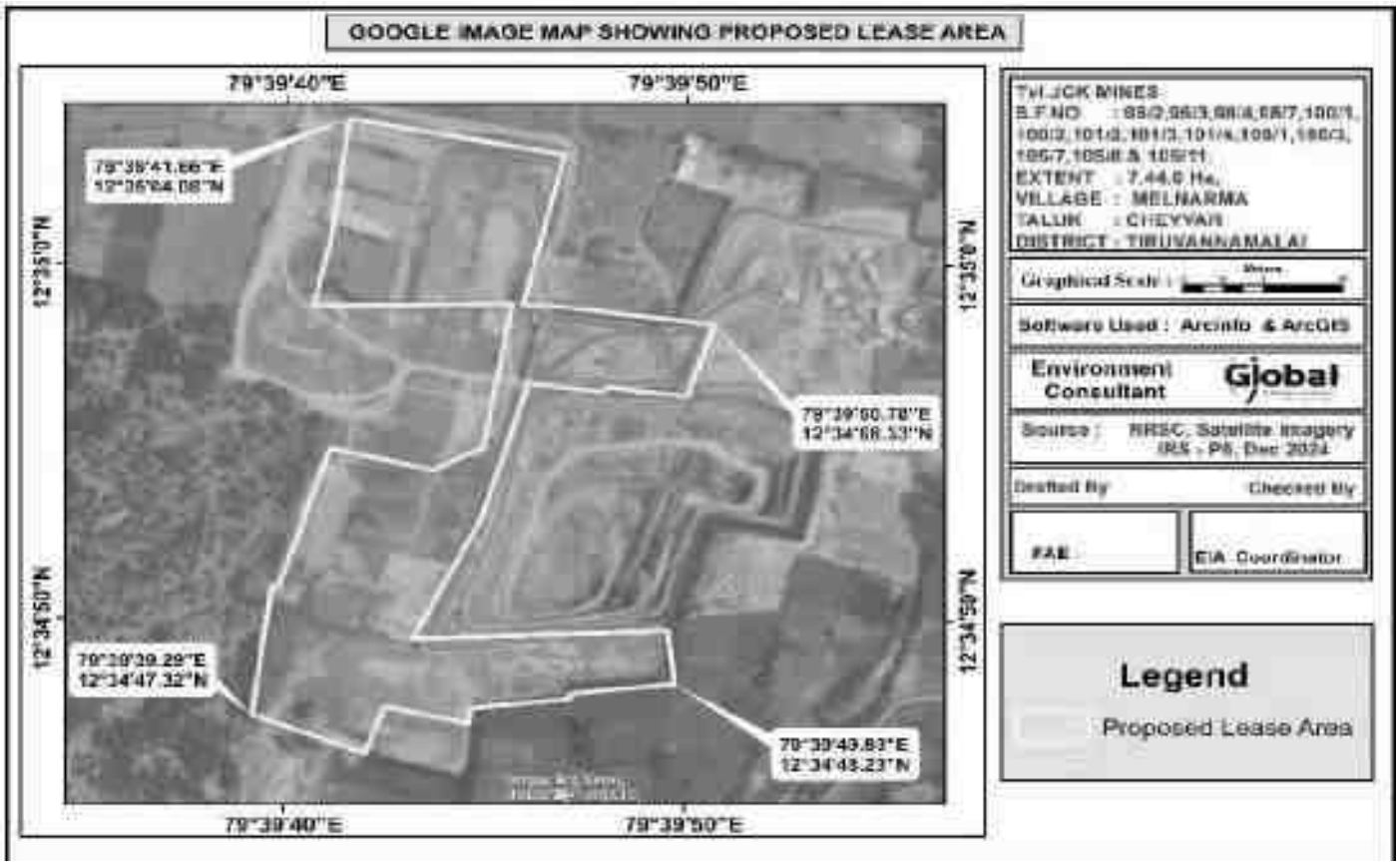


Figure 2-2 Boundary Co-ordinates of the Project

As per condition 1, PP has provided the safety distance of 50m for Eri Poramboke in the S.F. No. 105/2. As per condition 2, PP has provided the safety distance of 7.5m safety distance to the adjoining Patta lands and 10m safety distance to the adjoining Government Lands. The details of safety distance provided as per approved mining plan:

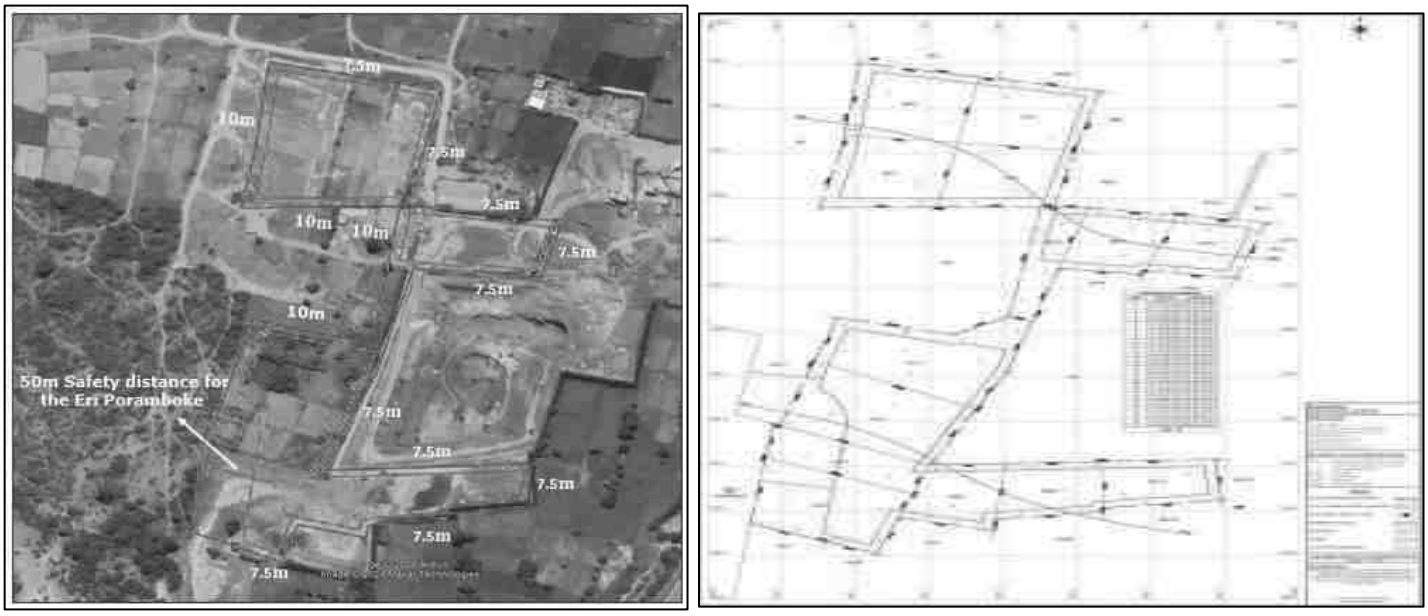


Figure 2-3 Details of Safety Distance

The site photographs of the project site are shown below

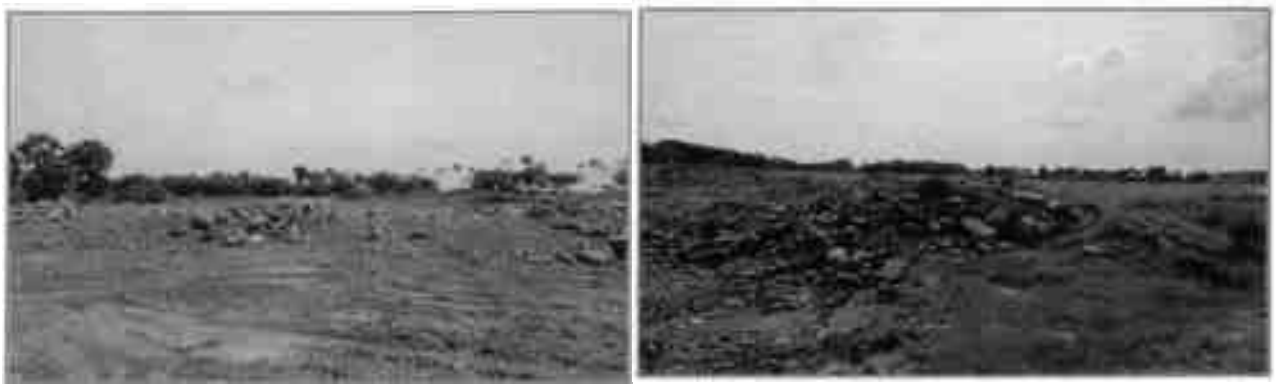


Figure 2-4 Site Photographs

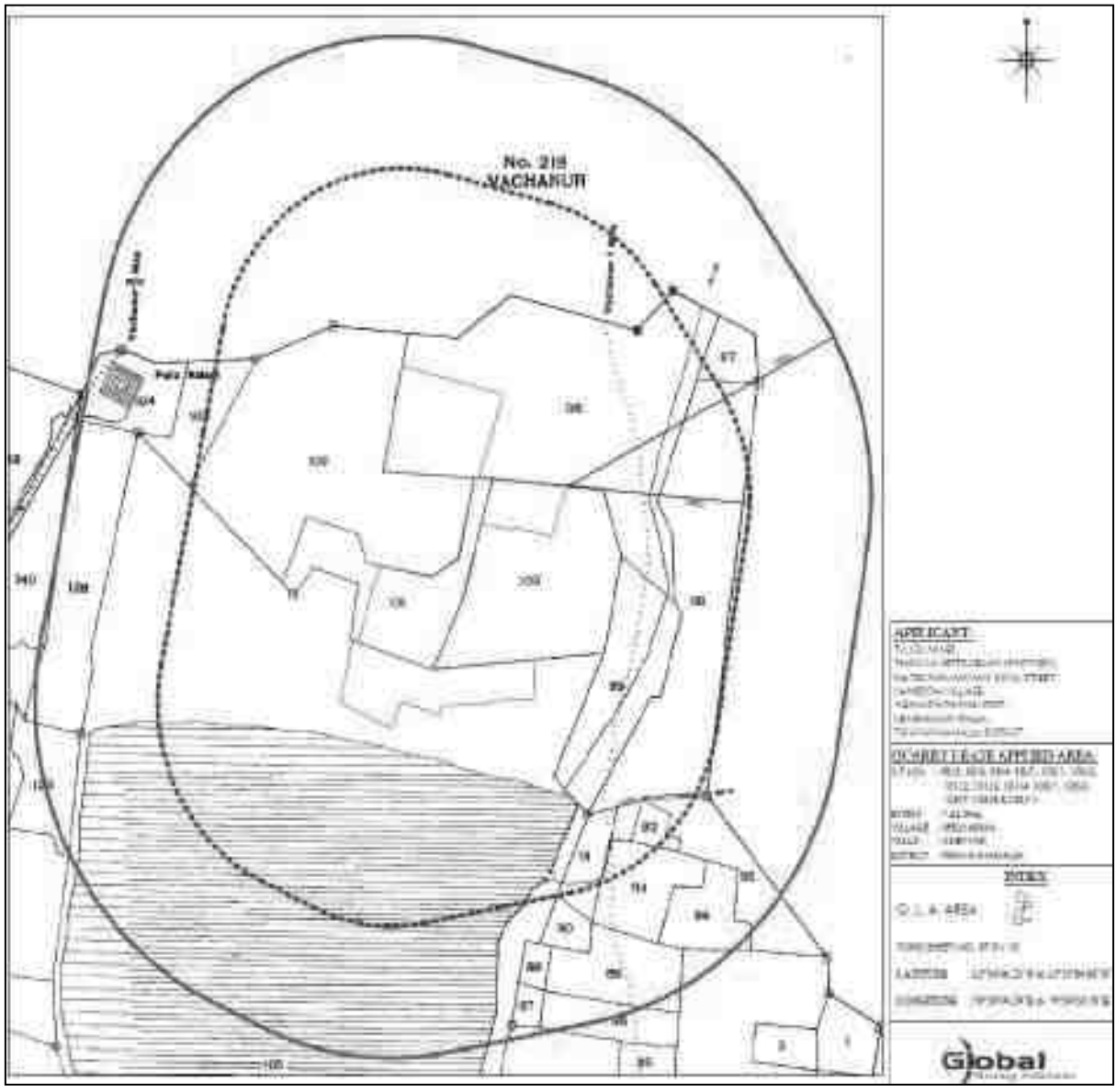


Figure 2-5 Village Map

2.3.2 Site Connectivity

The proposed site is located near Vachanur Village (680m, N) and is accessible from Kurambur-Melma Road. The site is located near SH -116 Kanchipuram-Vandavasi Road, which is located at a distance of 3.8 km (W).

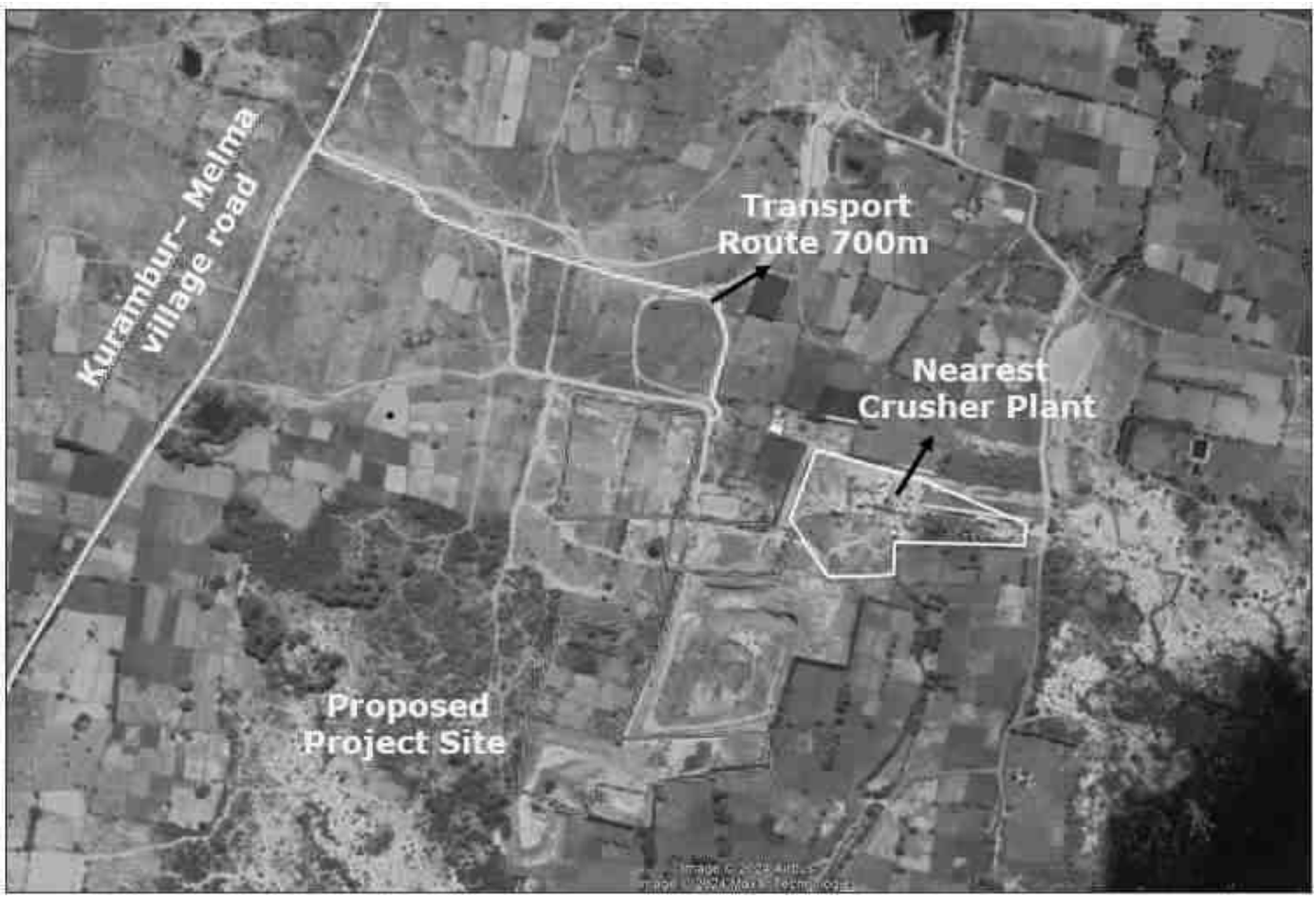


Figure 2-6 Site Connectivity

The details of site connectivity is shown below:

Table 2-1 Site Connectivity

S. No.	Particulars	Details
1.	Nearest Highway	NH 179B (Tiruvannamalai – Chennai) – 24 km, SE SH -116 (Kanchipuram-Vandavasi) Road - 3.8 km, W.
2.	Nearest Railway Station	Pakkam – 24 km, SE
3.	Nearest Airport	Chennai - 72 km, NE
4.	Nearest Port	Chennai - 85 km, NE
5.	Nearest Village	Vachanur – 680m, N

The salient features of the project site are given below:

Table 2-2 Salient features of the project site

<table>
<tr><th>S. No.</th><th>Particulars</th><th>Details</th></tr>
<tr><td>1.</td><td>Proponent Name</td><td>Tvl. JCK Mines represented by Thiru. J. K. Vettrivelan (Partner)</td></tr>
<tr><td>2.</td><td>Proposed project</td><td>Rough Stone & Gravel Quarry of Tvl. JCK Mines</td></tr>
<tr><td>3.</td><td>Extent</td><td>7.44.0 Ha and the cluster area within 500 m radius including the proposed mine is 11.91.0 Ha > 5 Ha</td></tr>
<tr><td>4.</td><td>Location</td><td>S.F. Nos. 98/2, 98/3,98/4,98/7, 100/1, 100/2, 101/2, 101/3,101/4,105/1, 105/3, 105/7,105/8 and 105/11 of Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu</td></tr>
<tr><td>5.</td><td>Co-ordinates of the project site</td><td>
<table>
<tr><th>S. No.</th><th>Latitude</th><th>Longitude</th></tr>
<tr><td>1.</td><td>12°35’04.08” N</td><td>79°39’41.66” E</td></tr>
<tr><td>2.</td><td>12°34’58.33” N</td><td>79°39’50.78” E</td></tr>
<tr><td>3.</td><td>12°34’47.32” N</td><td>79°39’39.29” E</td></tr>
<tr><td>4.</td><td>12°34’49.70” N</td><td>79°39’49.67” E</td></tr>
</table>
</td></tr>
<tr><td>6.</td><td>Topography</td><td>Plain Terrain</td></tr>
<tr><td>7.</td><td>Site Elevation above MSL</td><td>≃ 93 m from above MSL</td></tr>
<tr><td>8.</td><td>Topo Sheet No.</td><td>57 P/10</td></tr>
<tr><td>9.</td><td>Minerals of Mine</td><td>Rough Stone & Gravel</td></tr>
<tr><td>10.</td><td>Proposed production in m^3</td><td>8,68,060m3 of Rough Stone and 1,04,452m3 of gravel</td></tr>
<tr><td>11.</td><td>Ultimate Depth of mining</td><td>57m (BGL)</td></tr>
<tr><td>12.</td><td>Method of Mining</td><td>Opencast, Semi-Mechanized Mining with a bench height of 5m and bench width of 5m is proposed</td></tr>
<tr><td>13.</td><td>Drilling/Blasting</td><td>Drilling and controlled Blasting is proposed</td></tr>
<tr><td>14.</td><td>No. of Working days</td><td>300 Days</td></tr>
<tr><td>15.</td><td>Water requirement & Source</td><td>9.5 kLD and will be sourced from local vendors</td></tr>
<tr><td>16.</td><td>Manpower</td><td>35 Nos.</td></tr>
<tr><td>17.</td><td>Project Cost</td><td>Rs. 509.346 lakhs</td></tr>
<tr><td>18.</td><td>Mining Plan Approval</td><td>Joint Director (A/c), O/o. Assistant Director, Dept. of Geology & Mining, Tiruvannamalai vide Rc.No. 549/Kanimam/2024 dated 23.09.2024.</td></tr>
<tr><td>19.</td><td>Safety Zone</td><td>2.44.00 Ha will be maintained as safety zone and tree saplings will be planted in this area</td></tr>
<tr><td>20.</td><td>Ground water level</td><td>68 m BGL</td></tr>
</table>

The detailed Environmental Settings of the project is detailed below in Table 2-3

Table 2-3 Environmental Settings of the project

S. No.	Particulars	Details
1.	Nearest Highway	(NH-179B) Tiruvannamalai-Chennai – 24.00km (SE) (SH-116) Kancheepuram – Vandavasi – 3.8km (W)
2.	Nearest Railway Station	Pakkam – 24.0km, SE
3.	Nearest Airport	Chennai - 72 km, NE
4.	Nearest Port	Chennai - 85 km, NE
5.	Nearest Village	Vachanur – 680m, N
6.	Water bodies	• Odai – 560m (NE) • Kuttai – 435m (W) • Kulam – 550m (NE) • Melnarma Tank – 270m (S) • Thukkuvadi Tank – 420m (SE) • Thuraiyur Tank – 1.0km (SW) • Vachanur Tank- 930m (NW) • Alathur Chitheri – 980m (NE) • Uthiramerur Lake – 7.2km (NE) • Cheyyar River – 8.7km (N) • Subam River - 7.2km (SE)
7.	Reserved Forest	Venkunam RF – 7.3 km (SW)
8.	Eco Sensitive Zone and Wildlife Sanctuary (Notified)	Nil within 10km Radius Karikili Bird Sanctuary – 19.0 km (E
9.	Archaeological important places	Nil within 10 km radius
10.	Defense Installations	Nil within 10 km radius
11.	Nearest Port	Nil within 10 km radius
12.	Seismic Zone	Nil within 10 km radius

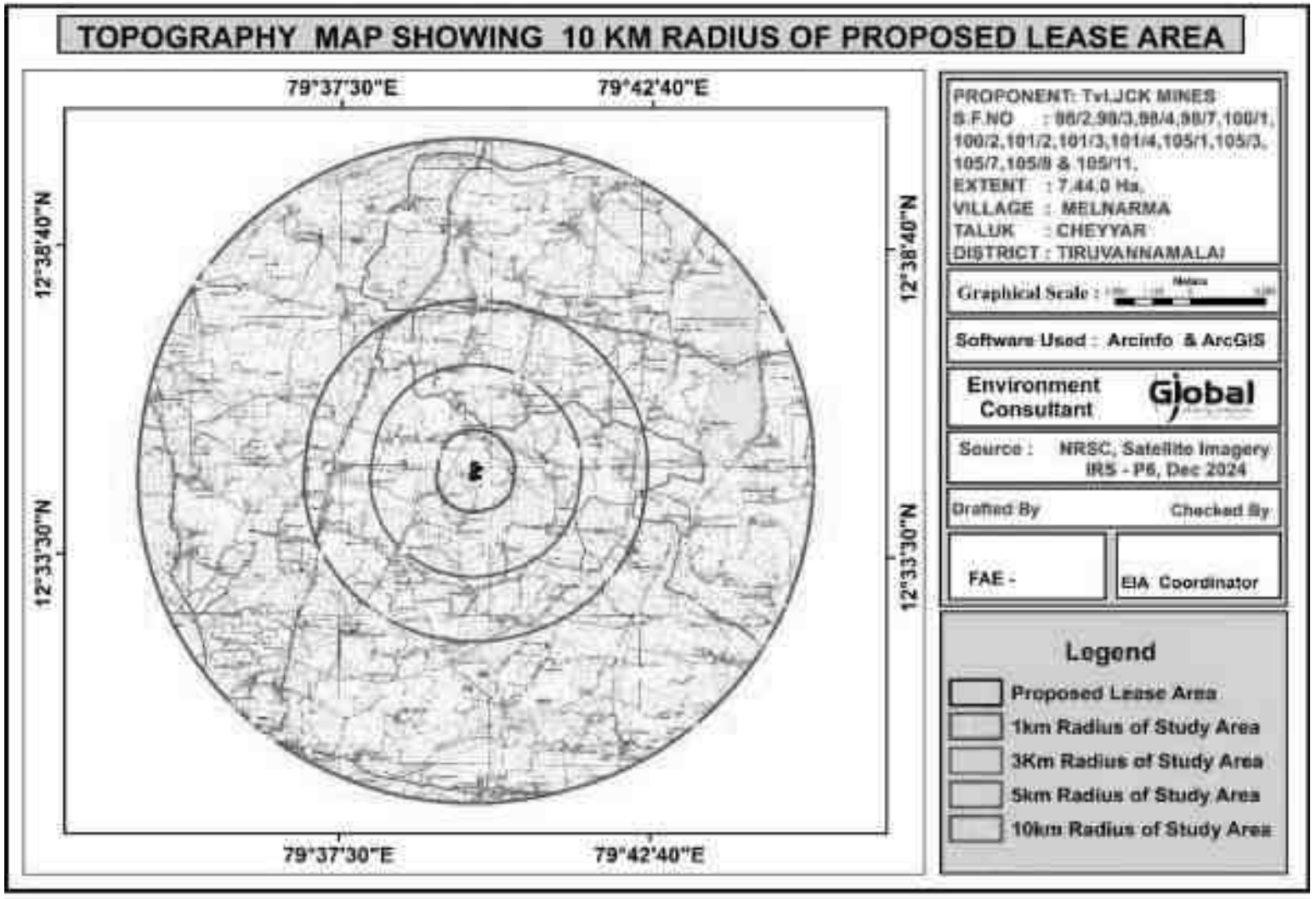


Figure 2-7 10 km Radius TOPO Map

2.4 Leasehold Area

The proposed project area is classified as a Patta land in the name of Tmt. Santhi, Thiru. Sudhakaran, Thiru. Seenivasan, Thiru. Gopalan, Thiru. Boopalan, Thiru. Vettrivelan, Tmt. Sowmiya and Tmt. Parvathi vide Patta Nos. 515, 557, 612, 623 and 641. The Pattadars has given the consent to Thiru.J.K. Vettrivelan (Applicant), Partner of Tvl. JCK. Mines and the same has been registered. The copy of the Patta, Adangal, and A-Register and consent registration document are enclosed as Annexure - 6. There is no human settlement within 500m radius. The surface plan of the project is shown below:

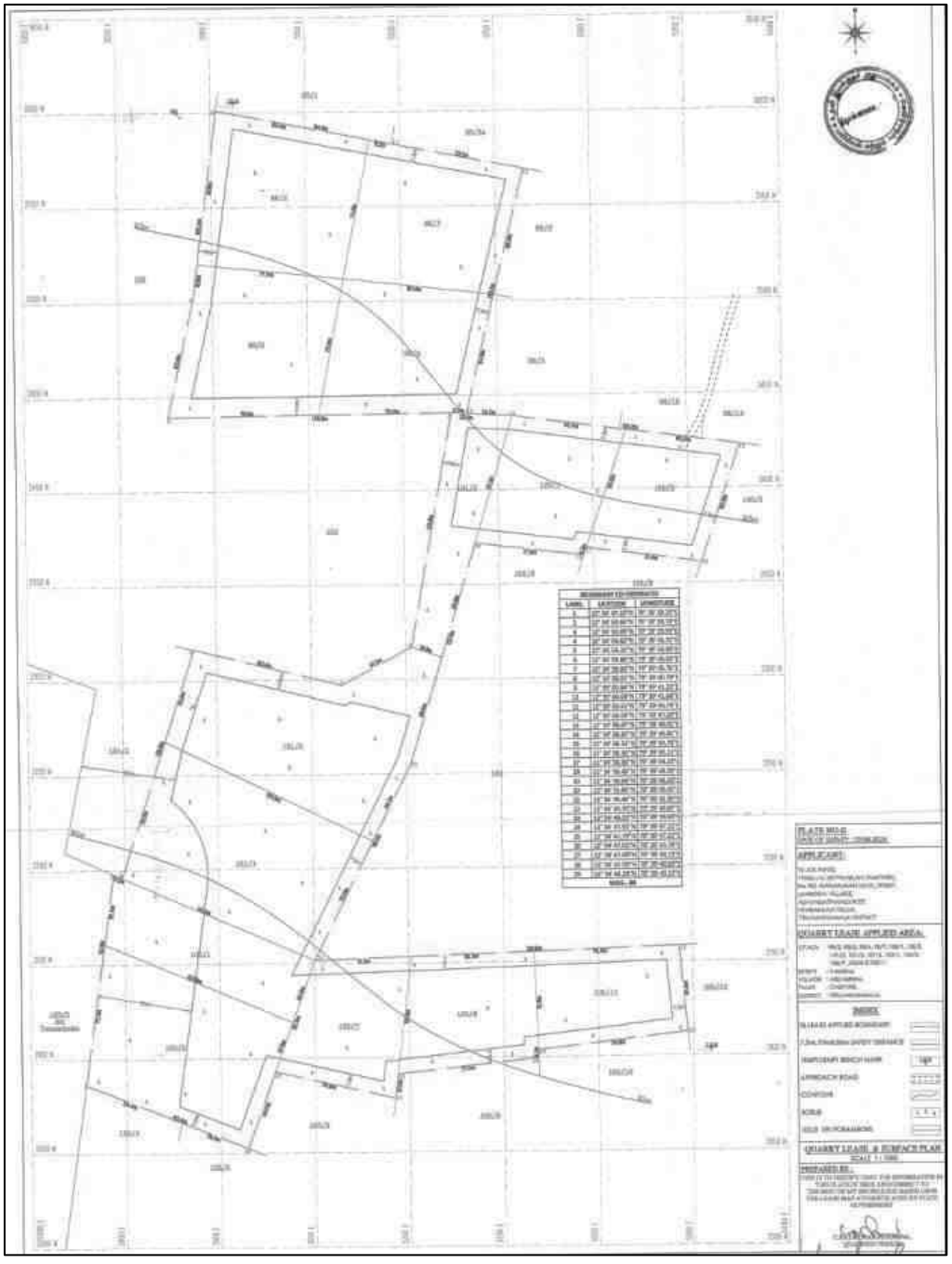


Figure 2-8 Surface plan of the project area

2.5 Land Use Pattern

The land use pattern of the project site is given below

Table 2-4 Land use pattern of the mine area

Sl. No.	Land Use	Present Area (Ha)	Area in use during the quarrying period (Ha)
1.	Quarrying Pit	Nil	4.95.00
2.	Infrastructure	Nil	0.02.00
3.	Roads	Nil	0.03.00
4.	Green Belt	Nil	2.44.00
5.	Unutilized	7.44.00	Nil
	Total	**7.44.00**	**7.44.00**

2.6 Geology

2.6.1 Regional Geology

Tiruvannamalai District mainly comprises of rocks of Archaeon 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, supracrustal 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 fluviatile, 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 (MioPliocene) 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.

AGE		FORMATION
Recent	-	Quaternary
		Formation (Gravel)
---------Unconformity----------		
Archaean	-	Charnockite
		Peninsular Gneiss complex

2.6.2 Regional Geology

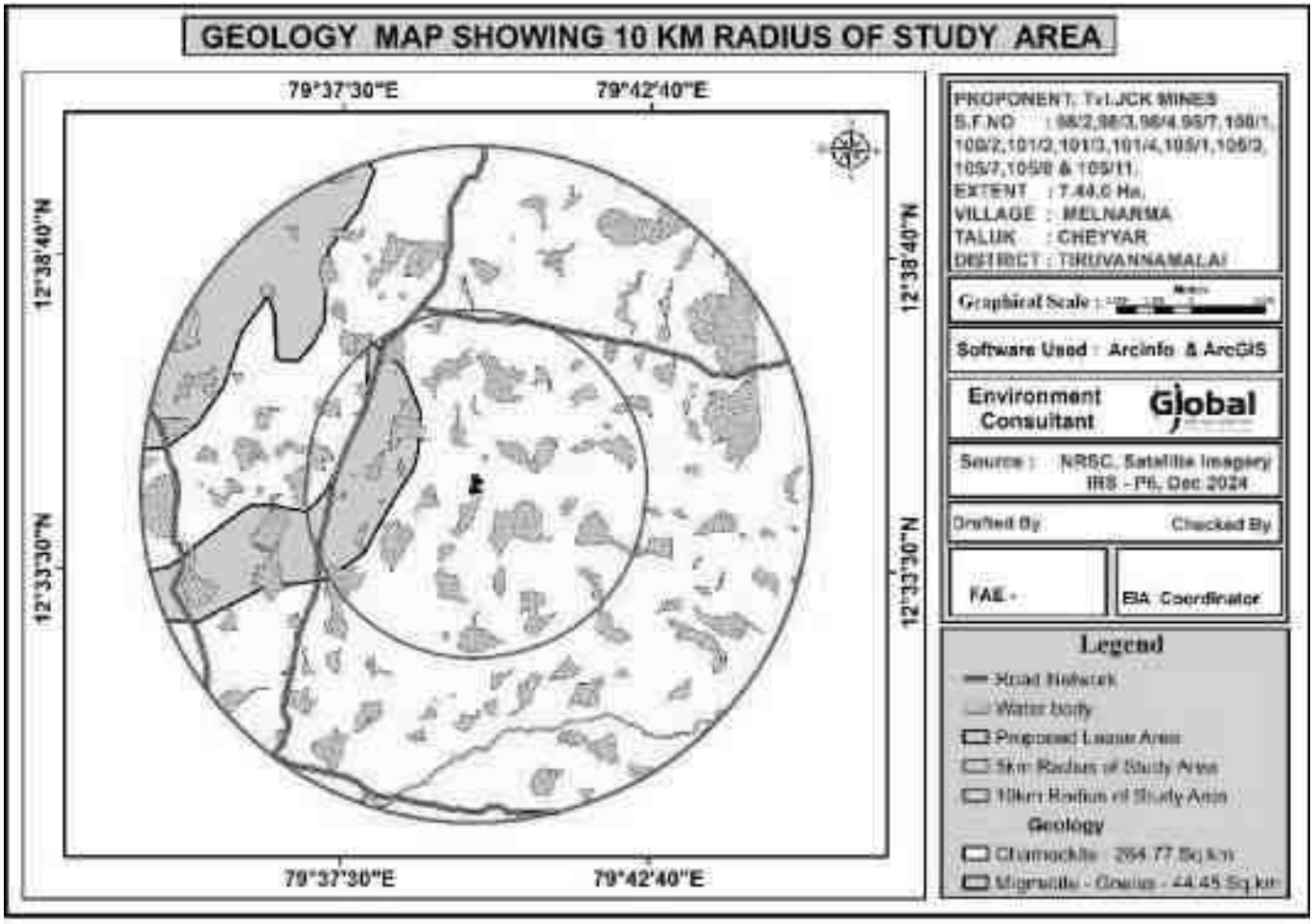


Figure 2-9 Geology map of the study area

The geology map of the study area reveals that the area is predominately covered with Charnockite [284.77 Sq.km], which falls under Charnockite group and the remaining area is covered with gnesis (Migmatite Group) [44.45 Sq.km]. No exploration was carried out. Massive Rough stone formation visible from the existing pits in the nearby quarry operations and dry open wells.

2.7 Details of Mining

The proposed activity is the extraction of Rough Stone and gravel by open cast semi mechanized mining method over an extent of 7.44.0 Ha. The details of mining are presented below

Table 2-5 Details of Mining

S. No.	Particulars	Details
1.	Method of mining	Open Cast Semi-mechanized
2.	Geological Reserves	40,89,195m^3 of rough stone and 1,48,698m^3 of gravel
3.	Mineable Reserves	8,68,060m^3 of rough stone, 1,00,452m^3 of Gravel
4.	Proposed Production	8,68,060m3 of Rough Stone and 1,04,452m3 of gravel
5.	Bench Details	Bench Height of 5m and Bench Width of 5m is proposed.

The details of geological and mineable reserves in the lease area have been provided below in the subsequent sub section.

2.7.1 Estimation of Reserves

The geological and recoverable reserves are estimated by cross-section method. Totally eight sections have been drawn, four sections drawn length wise as (X-Y), (X1-Y1), (X2-Y2), (X3-Y3) and another four sections drawn width wise as (A-B), (C-D), (E-F), (G-H) to cover maximum area considered for lease.

The Plans and Sections have been drawn with a scale of 1:1000 and 1:500 respectively.

2.7.2 Geological Reserves

The quarrying is restricted up to a depth of 57m BGL. The details of the available geological reserve are given below.

Table 2-6 Geological Reserve

Section	Length in (m)	Width in (m)	Depth in (m)	Volume in m^3	Gravel formation in m^3	Geological Resources of Rough stone in m^3
XY-AB	160	149	2	71520	47680	
	160	149	55	1311200		1311200
Total					**47680**	**1311200**
X1Y1-CD	147	68	2	29988	19992	
	147	68	55	549780		549780
Total					**19992**	**549780**
X2Y2-EF	89	130	2	34710	23140	
	89	130	55	636350		636350
Total					**23140**	**636350**
X2Y2-GH	163	103	2	50367	33578	
	163	103	55	923395		923395

Total					**33578**	**923395**
X3Y3-GH	59	206	2	36462	24308	
	59	206	55	668470		668470
Total					**24308**	**668470**
Grand Total					**148698**	**4089195**

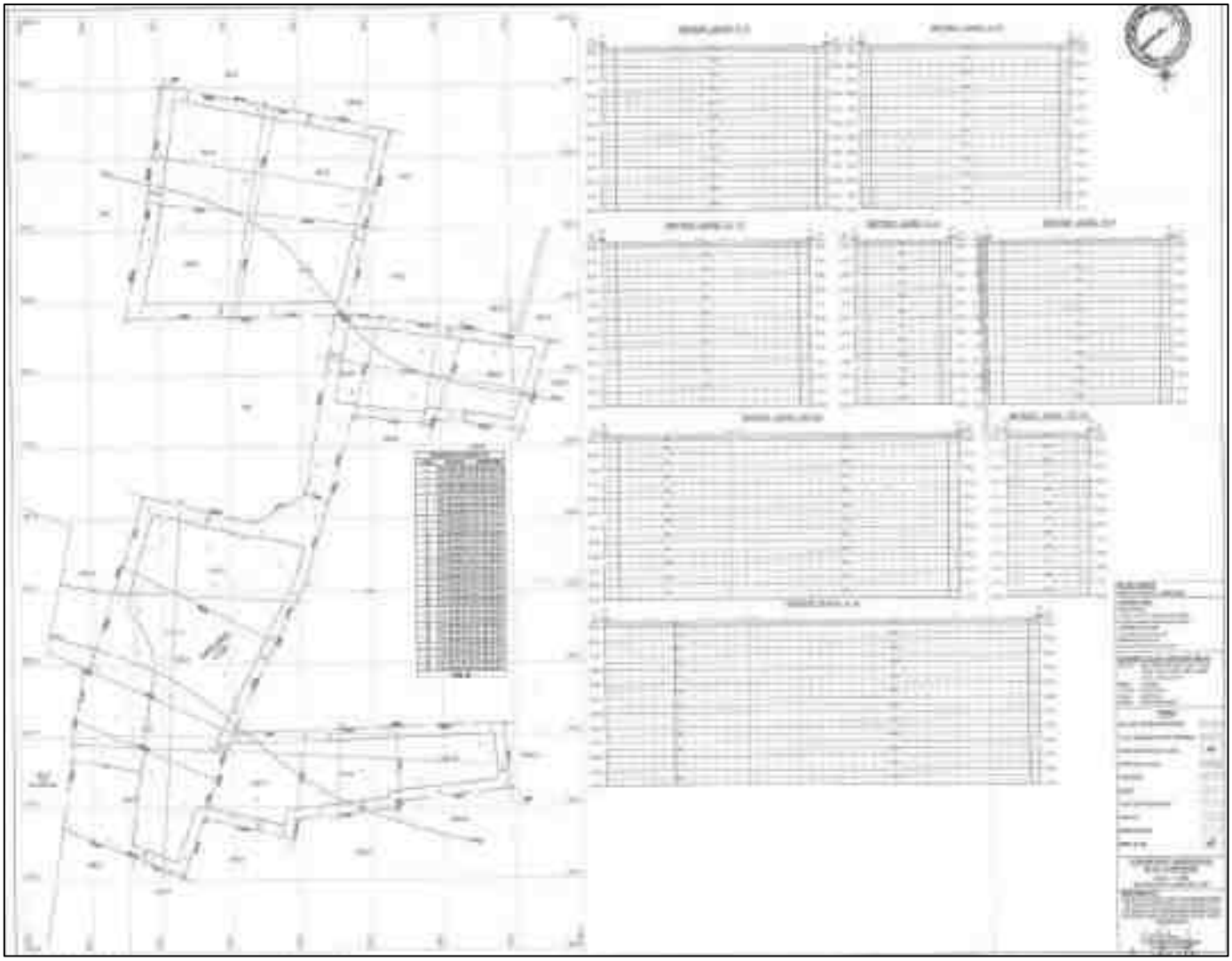


Figure 2-10 Available Geological Reserves

2.7.3 Available Mineable Reserve

The available mineable reserve calculated by deducting 10m safety distance and bench loss.

Table 2-7 Available Mineable Reserve

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m^3	Gravel in m^3	Mineable Reserves of rough stone in m^3
XY-AB	I	140	132	2	36960	36960	
	II	134	126	5	84420		84420
	III	124	116	5	71920		71920
	IV	114	106	5	60420		60420
	V	104	96	5	49920		49920
	VI	94	86	5	40420		40420
	VII	84	76	5	31920		31920
	VIII	74	66	5	24420		24420
	IX	64	56	5	17920		17920
	X	54	46	5	12420		12420
	XI	44	36	5	7920		7920
	XII	34	26	5	4420		4420
Total						**36960**	**406120**
X1Y1-CD	I	128	52	2	13312	13312	
	II	122	46	5	28060		28060
	III	112	36	5	20160		20160
	IV	102	26	5	13260		13260
	V	92	16	5	7360		7360
Total						**13312**	**68840**
X2Y2-EF	I	79	109	2	17222	17222	
	II	76	103	5	39140		39140
	III	71	93	5	33015		33015
	IV	66	83	5	27390		27390
	V	61	73	5	22265		22265
	VI	56	63	5	17640		17640
	VII	51	53	5	13515		13515
	VIII	46	43	5	9890		9890
	IX	36	33	5	5940		5940
	X	26	23	5	2990		2990
Total						**17222**	**171785**
X2Y2-GH	I	154	52	2	16016	16016	
	II	151	49	5	36995		36995

	III	146	44	5	32120		32120
	IV	141	39	5	27495		27495
	V	136	34	5	23120		23120
	VI	131	24	5	15720		15720
	VII	126	14	5	8820		8820
Total						**16016**	**144270**
X3Y3-GH	I	43	197	2	16942	16942	
	II	37	194	5	35890		35890
	III	27	189	5	25515		25515
	IV	17	184	5	15640		15640
Total						**16942**	**77045**
Grand Total						**100452**	**868060**

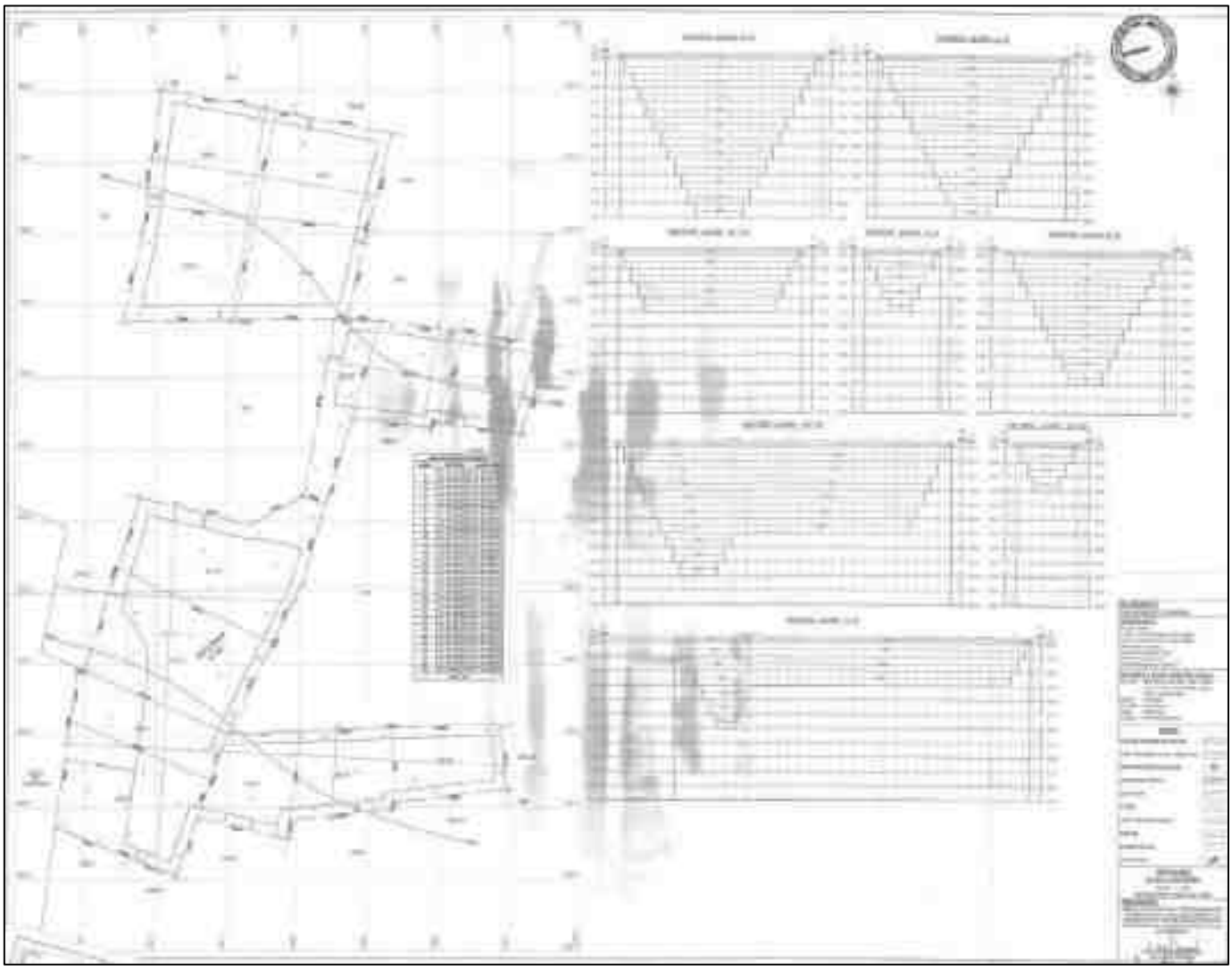


Figure 2-11 Mineable Reserves

2.7.4 Year-wise Production Plan

The production of minerals for the next five years as per the mining plan is given Table

Table 2-8 Year-wise Production Details

Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m^3	Gravel in m^3	Mineable reserve of rough stone in m^3
I	XY-AB	I	140	132	2	36960	36960	
		II	134	126	5	84420		84420
		III	124	116	5	71920		71920
	X1Y1-CD	I	128	52	2	13312	13312	
Total							**50272**	**156340**
II	X2Y2-EF	I	79	109	2	17222	17222	
	X2Y2-GH	I	154	52	2	16016	16016	
	X3Y3-GH	I	43	197	2	16942	16942	
	XY-AB	IV	114	106	5	60420		60420
		V	104	96	5	49920		49920
		VI	94	86	5	40420		40420
		VII	84	76	5	31920		31920
Total							**50180**	**182680**
III	XY-AB	VIII	74	66	5	24420		24420
		IX	64	56	5	17920		17920
		X	54	46	5	12420		12420
		XI	44	36	5	7920		7920
		XII	34	26	5	4420		4420
	X1Y1-CD	II	122	46	5	28060		28060
		III	112	36	5	20160		20160
		IV	102	26	5	13260		13260
		V	92	16	5	7360		7360
	X2Y2-EF	II	76	103	5	39140		39140
	X2Y2-GH	II	10	49	5	2450		2450

Total								**177530**
IV	X2Y2-GH	II	141	49	5	34545		34545
		III	146	44	5	32120		32120
	X3Y3-GH	II	37	194	5	35890		35890
		III	27	189	5	25515		25515
	X2Y2-EF	III	71	93	5	33015		33015
		IV	36	83	5	14940		14940
Total								**176025**
V	X2Y2-EF	IV	30	83	5	12450		12450
		V	61	73	5	22265		22265
		VI	56	63	5	17640		17640
		VII	51	53	5	13515		13515
		VIII	46	43	5	9890		9890
		IX	36	33	5	5940		5940
		X	26	23	5	2990		2990
	X2Y2-GH	IV	141	39	5	27495		27495
		V	136	34	5	23120		23120
		VI	131	24	5	15720		15720
		VII	126	14	5	8820		8820
	X3Y3-GH	IV	17	184	5	15640		15640
Total								**175485**
Grand Total							**100452**	**868060**

Figure 2-12 Year-Wise Production Plan

2.7.5 Conceptual Plan

Conceptual Mining Plan is prepared with an object of five years of systematic development of bench lay outs, selection of ultimate pit limit, depth of quarrying, ultimate pit slope, selection of sites for construction of infrastructures etc. Ultimate pit size is designed based on certain practical factors such as the economical depth of mining, safety zones, permissible areas etc. The ultimate pit dimension is given below:

Ultimate Pit dimension (M) end of Mining plan Period			
Pit No	Length (max) in (m)	Width (Avg) in (m)	Depth(max) in(m)
I	140	130	57
II	128	52	22
III	249	99	47

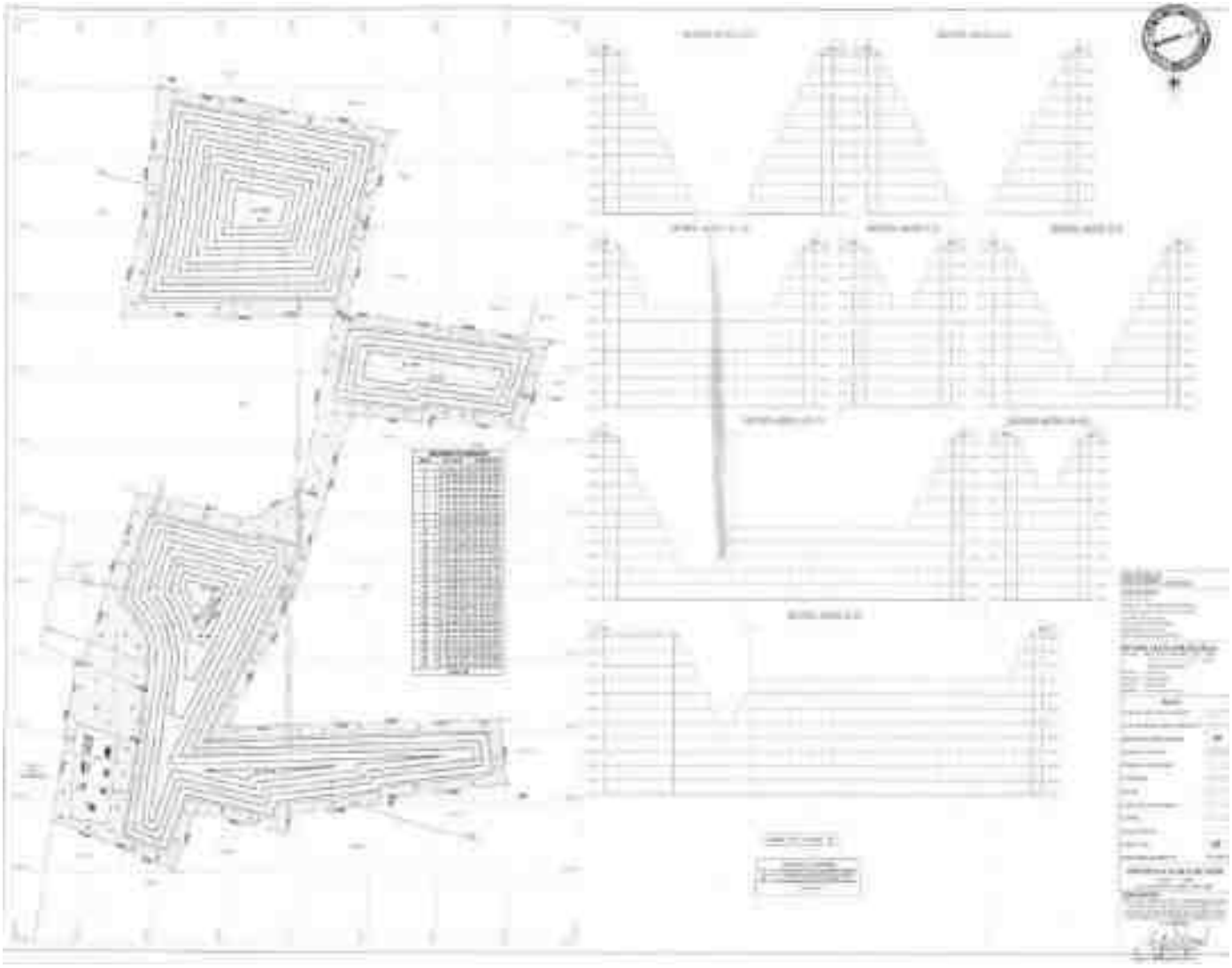


Figure 2-13 Conceptual Plan & Sections

2.8 Type of Mining

The proposed mining project is an opencast method of semi mechanized mining with 5.0m height 5m width of the bench. However, as far as the quarrying of rough stone is concerned, observance of the provisions of Regulation 106(2) (b) as above is seldom [possible due to various inherent petrogenetic factors coupled with mining difficulties. Hence it is

proposed to obtain relaxation to the provisions of the above regulation from the Director of mines safety for which necessary provision is available with the regulation 106(2) (b) of MMR-1961, under Mine Act-1952.

2.8.1 Mode of working

The rough stone is proposed to quarry 5m bench height, 5m width with conventional opencast semi-Mechanized method. The quarry operation involves shallow jack hammer drilling, slurry blasting, excavation, Loading and transportation of rough stone to the needy crusher/other buyers. The production of rough stone in this quarry involves the following method which is typical for Rough Stone quarrying in contrast to other major mineral mining.

Splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy crusher/other buyers.

Occasionally hydraulic excavators are attached with rock breakers for fragmentation to avoid secondary blasting.

The primary boulders thus splitted are removed from the pits by excavators and further made to smaller sizes by rock breakers attached in excavators. It is a conventional opencast semi mechanized method of mining.

2.8.2 Details of Overburden

The overburden in the form of Gravel, after the excavation of Gravel and Rough stone will be directly loaded into tipper to the needy crushers/other buyers for road project and construction works for filling and leveling of low-lying areas.

2.8.3 Details of Machineries to be used in mining

Table 2-9 List of Machineries

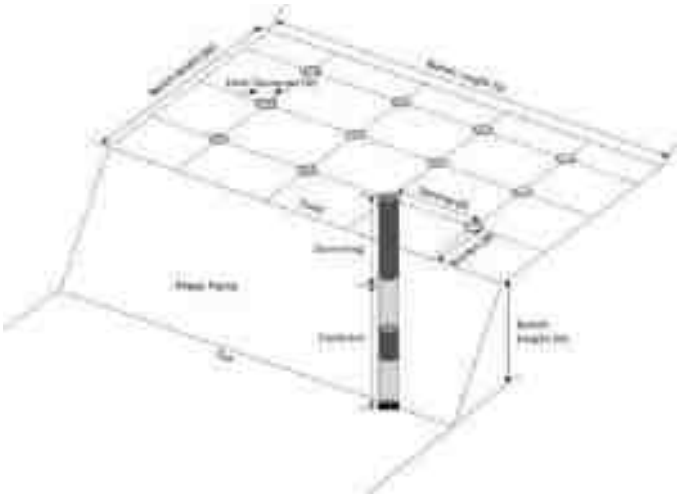
Drilling	S.No	Type	Nos	Dia Hole mm	Size Capacity	Make	Motive power
	1	Jack hammer	8	32	1.2m to 6m	Atlas Copco	Compressed air
	2	Compressor	2	-	-	Atlas Capco	Diesel Drive
Loading	Excavator of 0.90m3 bucket capacity (with Rock breaker attachment) (1No).						
Transportation	Tipper 6Nos (5/10Ts) capacity.						

2.8.4 Blasting

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

Diameter of the hole	Spacing	Depth	Burden for hole	Pattern of hole	Inclination of hole

32-36mm	0.6m	1 to 1.5m	0.6m	Zig Zag	70^0 from the horizontal



2.8.5 Type of Explosive to be used

Small dia, 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of rough stone. No deep hole drilling or primary blasting is proposed.

2.8.6 Measures to minimize und vibration due to blasting

Controlled blasting measures will be adopted for minimizing ground vibration and fly rock. Shallow depths jackhammer drilling and blasting is proposed to be carried out with minimum use of explosive mainly to give shattering effect in rough stone for easy excavation and to control fly rock.

Number of holes	:	502
Powder factor	:	6Ts/Kg of explosives
Total explosive required	:	251Kg slurry explosives
Charge / hole	:	0.5Kg
Blasting time	:	12-2 Pm

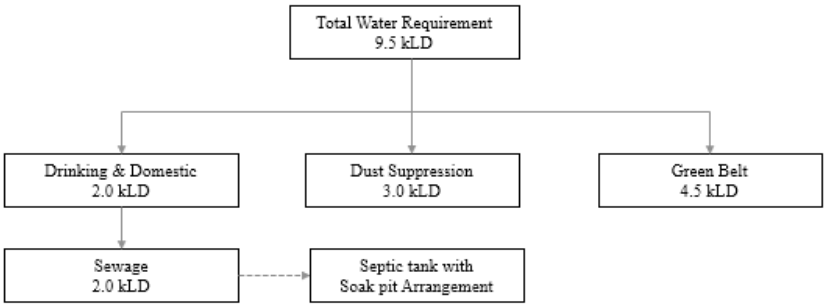
2.8.7 Storage & Safety measures taken during blasting

The applicant will engage an authorized explosive agency to carry out the small amount of blasting and it will be supervised by competent and statutory foreman/ mines manager. The applicant ensure that will appoint the Mate (Should have Valid Blaster Certificate) during Blasting Operation.

2.9 General Features

2.9.1 Water requirement

The total water requirement would be 9.5 kLD, which will be sourced from Local vendors. Out of 9.5 kLD, 2 kLD will be used for Drinking and Domestic purpose, 3.0 kLD will be used for Dust Suppression and remaining 4.5 kLD will be used for Green Belt. The water balance chart is shown below:



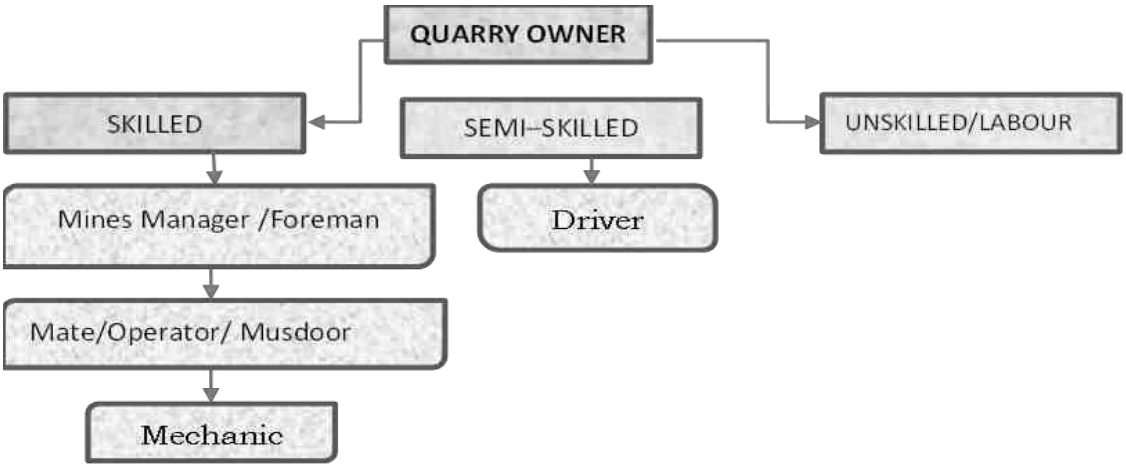
2.9.2 Surface drainage pattern

In an open cast mining project, the nearby streams may experience high siltation. The contours decide the runoff pattern of catchment area. It also indicates erosion potential. These may have significant impacts on water resources. However, in absence of any perennial drainage in the vicinity of mine and flat terrain having not higher than first order drain, the impact on water regime, with appropriate mitigation measures as mentioned, is likely to insignificant.

2.9.3 Manpower Requirement

The details of the manpower requirement are detailed below

1.	Skilled	Mines Manager	1 No.
		Foreman / Mate	2 No.
		Operator	10 No.
		Mechanic	1 No.
2.	Semi–skilled	Driver	6 No.
3.	Unskilled	Labours	15Nos
		Total =	**35Nos**



2.9.4 Green Belt

As per SEAC norms, PP have to plant 4,000 Saplings (500*7.44.00 Ha =3720 ≃ 4000). The safety zone area of 2.44.00 Ha will be maintained as green belt area. This area will be planted with local Species of 3000 Nos. of saplings, remaining 1000 saplings will be planted outside the lease such as at project surrounding schools, temples, road sides, etc. In the conceptual stage internal road and office area will be planted with local species.

Table 2-10 Green Belt development Plan

S.No.	Year	Species	No. of trees	Spacing	Survival
1	I	Pongamia pinnata, Syzigium cumini, Albizia lebbeck, Thespesia populnea, Bauhinia racemose, Cassia siamea, Azadirachta indiaca	600	3m x 3m	87%
2	II		600		
3	III		600		
4	IV		600		
5	V		600		
Total			**3000**		

The layout showing green belt plan is shown below

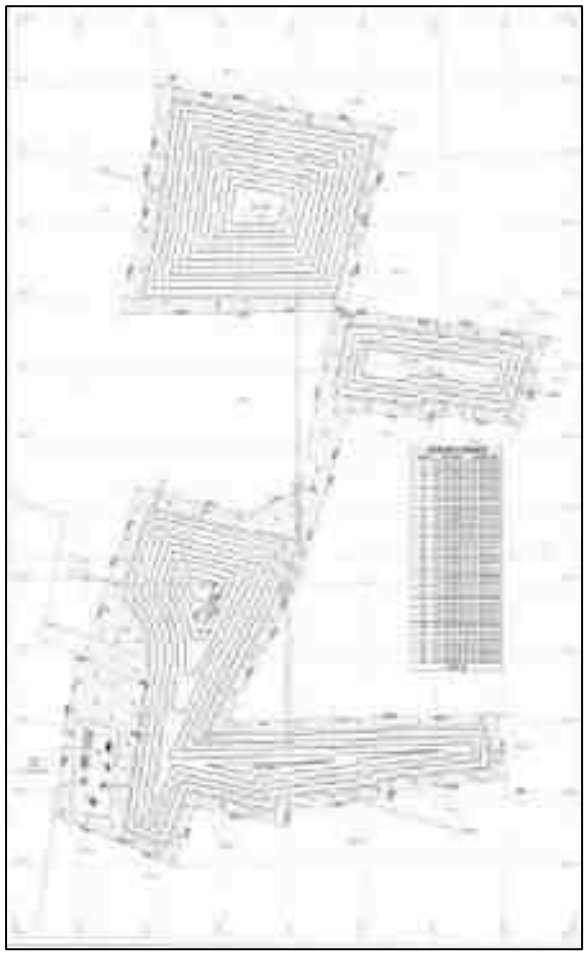


Figure 2-14 Green Belt Layout



Figure 2-15 Fencing & Plantation Photos

2.9.5 Energy Requirement

7,11,190 litres of HSD is required for the entire project life

2.9.6 Vehicular Traffic Density

The proposed quarry is located in Melnarma village. The details of transport route from the crusher plant are shown below:



Figure 2-16 Transport route from the crusher plant

The vehicular traffic survey will be carried out in the route through which mined out minerals are transported. Within 500 m radius, there is one existing quarry of Tvl. JCK Mines. The No. of trips per day for carrying the mine out mineral for this project is 186 Nos. The No. of trips per day for carrying the mine out mineral for Tvl. JCK Mines (Existing) is 223 Nos. Traffic Survey is conducted in SH 116

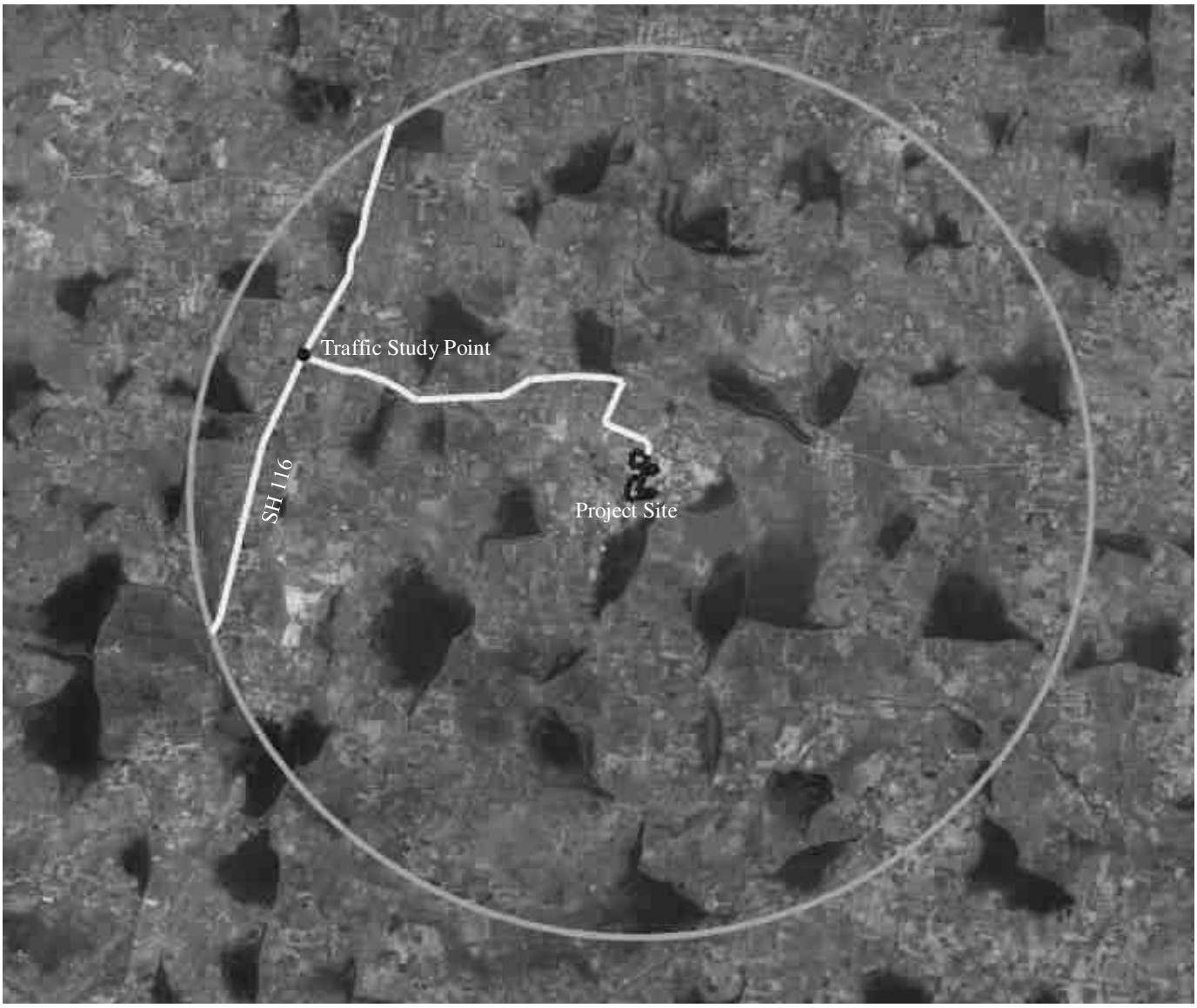


Figure 2-17 Traffic Study Point

Methodology

Vehicle Count

The vehicles passing through the road (in both ways) were counted separately for 24 hours at the one elected location from 0600 hrs to 0600 hrs next day continuously. Category wise vehicle counting has been done continuously and recorded in the traffic volume count on hourly basis under respective categories.

Categorization of Traffic

The engine driven vehicles were categorized into various heads viz. two wheelers, three wheelers, four wheelers and trucks/bus. The level of service is given below. (Source: Recommended Design Service Volumes (PCUs per hour), IRC)

Level of Service	General Operating conditions	Range of V/C
A	Free flow (traffic flows at or above speed limit and motorists have complete mobility between lanes)	<0.30
B	Reasonable flow (slightly more congested, with some maneuverability)	0.3 – 0.47
C	Stable flow (more congested than B, loads close to capacity)	0.48 – 0.68
D	Approaching unstable flow (speeds are somewhat reduced, example: busy corridor during middle of a weekday, or a functional urban highway during rush hour)	0.69 – 0.88
E	Unstable flow (flow becomes irregular, speed varies widely and rarely reaches speed limit)	0.88 - 1.00
F	Forced or breakdown flow (a constant traffic jam)	>1.00

Table 2-11 Summary on Traffic Volume

Route	Existing Traffic Survey in PCU	Incremental Traffic Survey due to project	Total traffic survey volume	Hourly capacity in PCU as per IRC -1960 guidelines
SH 116	250	70	0.16	1500

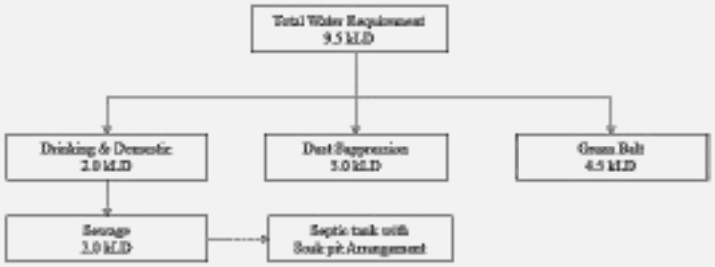
Table 2-12 Modified Level of service

Route	Existing Volume PCU/hr	Existing V/C Ratio	Additional Volume PCU/hr	Modified Volume PCU/hr	Modified V/C ratio	Modified LOS
SH 116	250	0.16	70	0.04	0.2	A*

2.9.7 Project Requirements

Table 2-13 Project Requirements

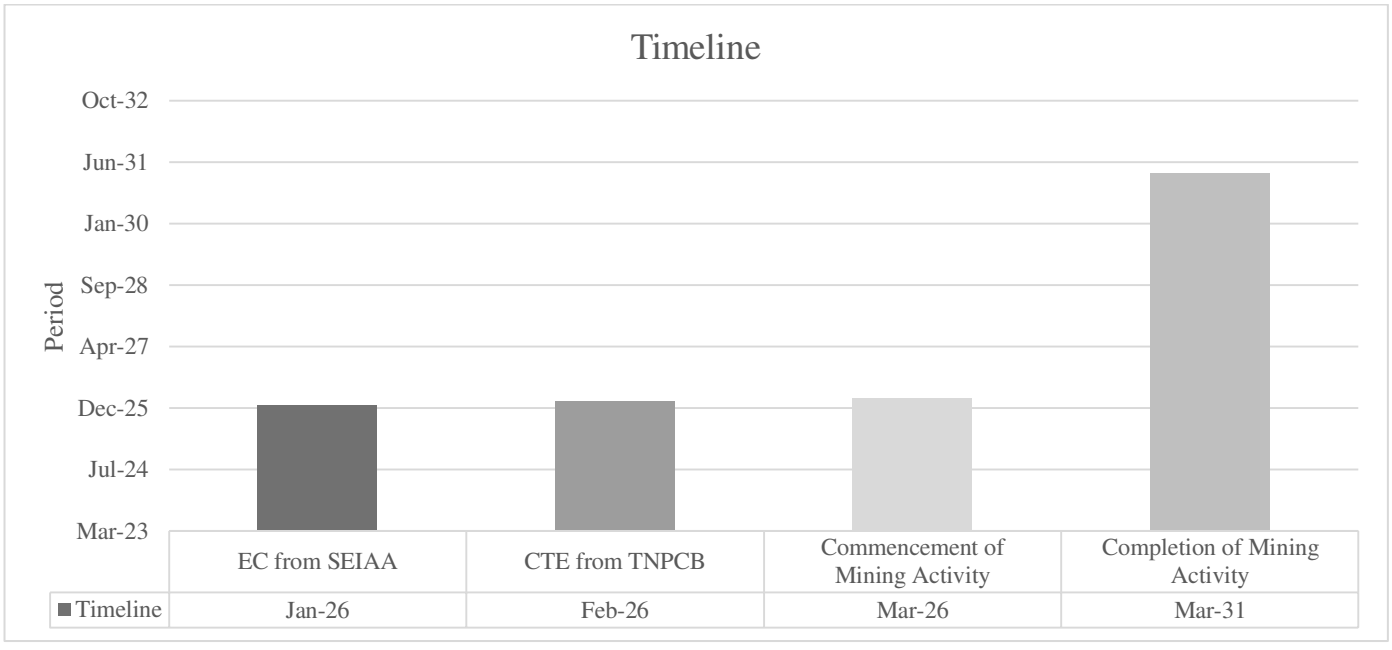
S. No.	Nature of requirement	Description
1.	Water requirement	The total water requirement would be 9.5 kLD, which will be sourced from Local vendors. Out of 9.5 kLD, 2 kLD will be used for Drinking and Domestic purpose, 3.0

		kLD will be used for Dust Suppression and remaining 4.5 kLD will be used for Green Belt. The water balance chart is shown below: 
2.	Power requirement	No electricity is needed for mining operations, for office demands, it will be met from the state grid.
3.	Manpower requirement	35 Nos.
4.	Project Cost	Rs. 509.346 Lakhs
5.	CER Cost	Rs. 8,00, 000/-

2.10 Timeline for implementation of Project activities

Mining work will be started upon the grant of Environmental Clearance (E.C) from SEIAA and Consent to Establish (CTE) from TNPC Board. The mining activity will be completed in 5 years on receipt of all the statutory approvals.

Graph 2-1 Schedule for implementation of the proposed project



3 DESCRIPTION OF ENVIRONMENT

3.1 General

This chapter depicts the establishment of baseline for valued environmental components, as identified in and around the proposed project site with an area of 10 km radius. Primary baseline data monitoring covered one season (three (3) months) i.e., Oct'24 – Dec'24 (Post – Monsoon) and secondary information was taken from government and semi-government organization's published data.

Primary baseline data are collected through field study and it covers

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

Baseline study is carried out with an objective to assess the prevailing environmental quality and to compare the same after the establishment of the proposed project.

3.2 Study area extent

The study area for the proposed project is as follows:

- Mine Lease area as the "core zone"
- A study area of 10 km radius from the project boundary is designated as buffer Zone.

We have obtained Terms of Reference from SEIAA vide ToR Identification No. TO24B0108TN5594899N

3.3 Monitoring Lab

The primary data for the proposed project was collected by M/s. Shrient Analytical and Research Labs Pvt Ltd, # 416/15, Dharga Road, Perungalathur, West Tambaram, Chennai – 600 045. (Accreditated by NABL as ISO/IEC/17025:2017)

3.4 Baseline Data Collection period

The baseline data is collected in accordance with the CPCB Guidelines. Primary baseline data monitoring covered one season (three (3) months) i.e., Oct'24 – Dec'24 (Post – Monsoon)

3.4.1 Frequency of Monitoring

Table 3-1 Frequency of Sampling and Analysis

S. No.	Attribute	Details of Baseline data	Frequency
1.	Air Environment		
i	Ambient air quality	Type of data: Primary data Sampling Locations: Project site and 6 surrounding locations within 10 km radius of the project site	24 hourly twice a week 4 hourly. Twice a week, One non-monsoon season

		Period: Oct 24 – Dec 24	8 hourly, twice a week 24 hourly, twice a week
ii	Noise Level	Type of data: Primary data Sampling Locations: Project site and 6 surrounding locations within 10 km radius of the project site Period: One-time sampling	24 hourly Once in 7 locations
iii	Meteorological Data	Type of data: Project Site Note: Secondary for choosing the baseline monitoring locations Source: Indian Meteorological Department (IMD), Chennai 2020	1 hourly continuous
2	Water Environment		
i	Ground water	Type of data: Primary data Sampling Locations: Project site and 6 surrounding locations Within 5 km radius of the project site Period: Once during the study period	One time sampling
ii	Surface water	Type of data: Primary data Project site – Nil Within 10 km – 2 Nos.	One time sampling
3	Land Environment		
vi	Land use & land cover	Type of data: Secondary Source: GIS Study for Land use/ Landcover details of 10 km radius	
vii	Soil analysis	Type of data: Primary data Sampling Locations: Project site and 5 surrounding locations within 5 km radius of the project site Period: Once during the study period	One time sampling
4	Socio – Economic Environment	1. Primary data: Project site (10 km around the project site) 2. Secondary data: Source: 'Census of India' 2011	One time sampling
5	Biological Environment	1. Primary data: Project site and selected locations in the 5 Km radius from the project site (Period: Nov 2024) 2. Secondary data: From 5 Km up to 10 km radius from the project site	

3.5 Study area details

Table 3-2 Study Area Details

S. No.	Description	Details	Source
1.	Project Location	S.F. Nos. 98/2, 98/3,98/4,98/7, 100/1, 100/2, 101/2, 101/3,101/4,105/1, 105/3, 105/7,105/8 and 105/11 over an extent of 7.44.0 Ha in Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu	Field Study
2.	Latitude & Longitude	Co- ordinates Latitude / Longitude 12° 34' 47.32"N 79° 39' 39.29"E 12° 34' 50.95"N 79° 39' 39.78"E 12° 34' 50.89"N 79° 39' 39.93"E 12° 34' 54.82"N 79° 39' 41.21"E 12° 34' 54.20"N 79° 39' 43.80"E 12° 34' 54.86"N 79° 39' 45.03"E 12° 34' 58.88"N 79° 39' 45.75"E 12° 34' 58.82"N 79° 39' 40.79"E 12° 35' 00.84"N 79° 39' 41.23"E 12° 35' 04.08"N 79° 39' 41.66"E 12° 35' 03.51"N 79° 39' 44.74"E 12° 35' 03.09"N 79° 39' 47.03"E 12° 34' 58.87"N 79° 39' 46.01"E 12° 34' 58.83"N 79° 39' 46.81"E 12° 34' 58.33"N 79° 39' 50.78"E 12° 34' 56.30"N 79° 39' 50.11"E 12° 34' 56.56"N 79° 39' 48.10"E 12° 34' 56.43"N 79° 39' 48.05"E 12° 34' 56.64"N 79° 39' 46.15"E 12° 34' 52.85"N 79° 39' 45.00"E 12° 34' 49.46"N 79° 39' 43.30"E 12° 34' 49.70"N 79° 39' 49.67"E 12° 34' 48.23"N 79° 39' 49.83"E 12° 34' 47.92"N 79° 39' 47.22"E 12° 34' 47.79"N 79° 39' 47.22"E 12° 34' 47.51"N 79° 39' 44.76"E	Land Documents

		12° 34' 47.09"N 79° 39' 44.71"E 12° 34' 47.55"N 79° 39' 42.60"E 12° 34' 46.23"N 79° 39' 42.12"E	
3.	Topo Sheet No.	57 P/10	Survey of India Toposheet
4.	Mine Lease Area	7.44.0 Ha	Land Documents
5.	Total population	799	Census Survey of India
6.	Maximum Temperature	35.3°C	IMD
7.	Minimum Temperature	21.5°C	
8.	Ecological Sensitive Areas - Wetlands, watercourses or other waterbodies, coastal zone, biospheres, mountains, forests	Nil	Survey of India Toposheet
9.	Densely Populated Area	Alanthur	
10.	Areas occupied by sensitive manmade land uses (hospitals, schools, places of worship, community facilities)	.Periyandavar Temple (435, N)	Field Study

3.5.1 Enumeration of the structures located within 500 m radius from the proposed quarry site

A site survey has been conducted to identify and list structures located within a 300 m radius from the proposed Quarry and are detailed below. There are no permanent structures or temples within a 300-meter radius from the project site. The PP has obtained a letter from Village Administrative Office (VAO), Tiruvannamalai stating that there are no structures situated within 300 m radius.



Figure 3-1 Google map showing Environmental Features located within 500 m radius from the proposed quarry site

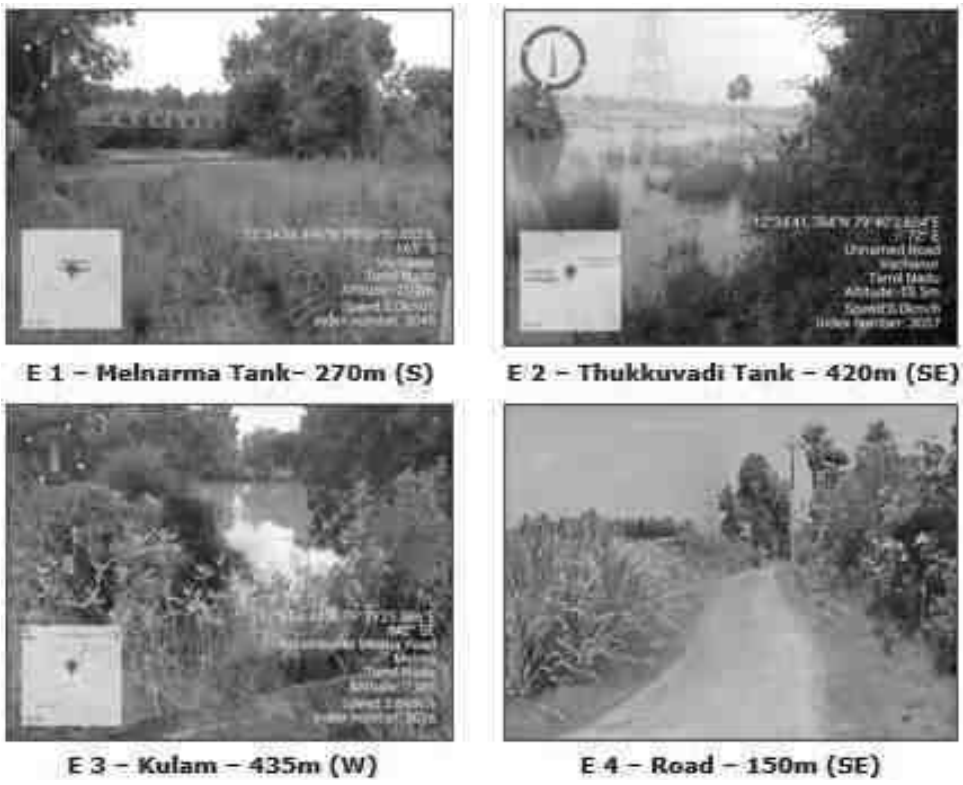


Figure 3-2 Photos of Environmental Features located within 500 m radius from the proposed quarry site

The details of the structures located within 500m radius is listed below

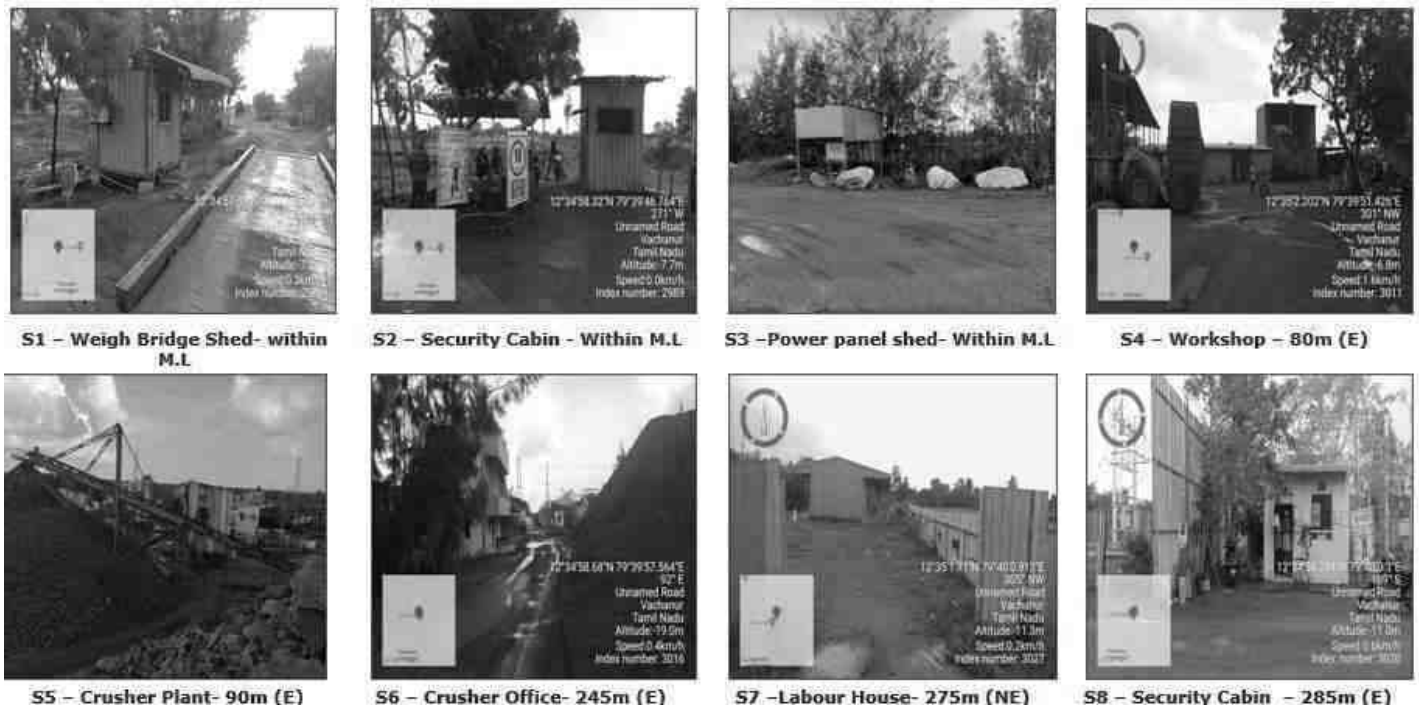


Figure 3-3 Photos of Structures located within 500 m radius from the proposed quarry site



S. No	Name of the Structure	Distance and Direction	Ownership	Occupant	Type	Age
S1	Weigh Bridge Shed	Within M.L	Belongs to Tvl. JCK Mines	-	G.I Shed	Less than 5 Years
S2	Security Cabin					
S3	Power paned shed					
S4	Workshop	80m (E)				
S5	Crusher Plant	90m (E)			-	
S6	Crusher Office	245m (E)			Concrete	
S7	Labour House	275m (NE)		More than 10	G.I Shed	
S8	Security Cabin	285m (E)		-	Masonry with G.I Shed	

Figure 3-4 Google map showing Structures located within 500 m radius from the proposed quarry site



Sl. No	Radius	School	Temple	Inhabited Village	Remark
1	0-100 m	Nil	Nil	Nil	Nil
2	100-200 m	Nil	Nil	Nil	Nil
3	200-300 m	Nil	Nil	Nil	Nil
4	300-400 m	Nil	Nil	Nil	Nil
5	400-500 m	Nil	1	Nil	I 1



Periyandavar Temple– 435m (N)

Figure 3-5 Google map & Photos showing Schools, Temples and inhabited village within 500m radius from the project site

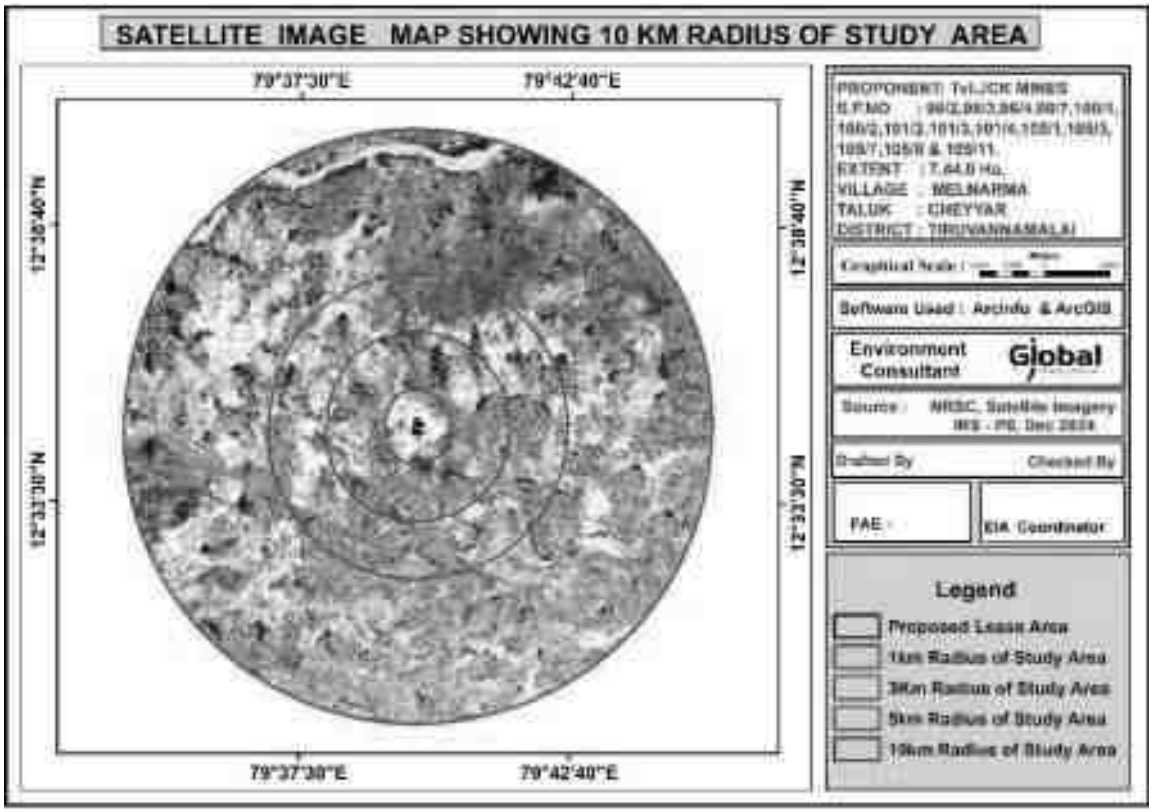


Figure 3-6 Satellite Image – 10km radius around the project site

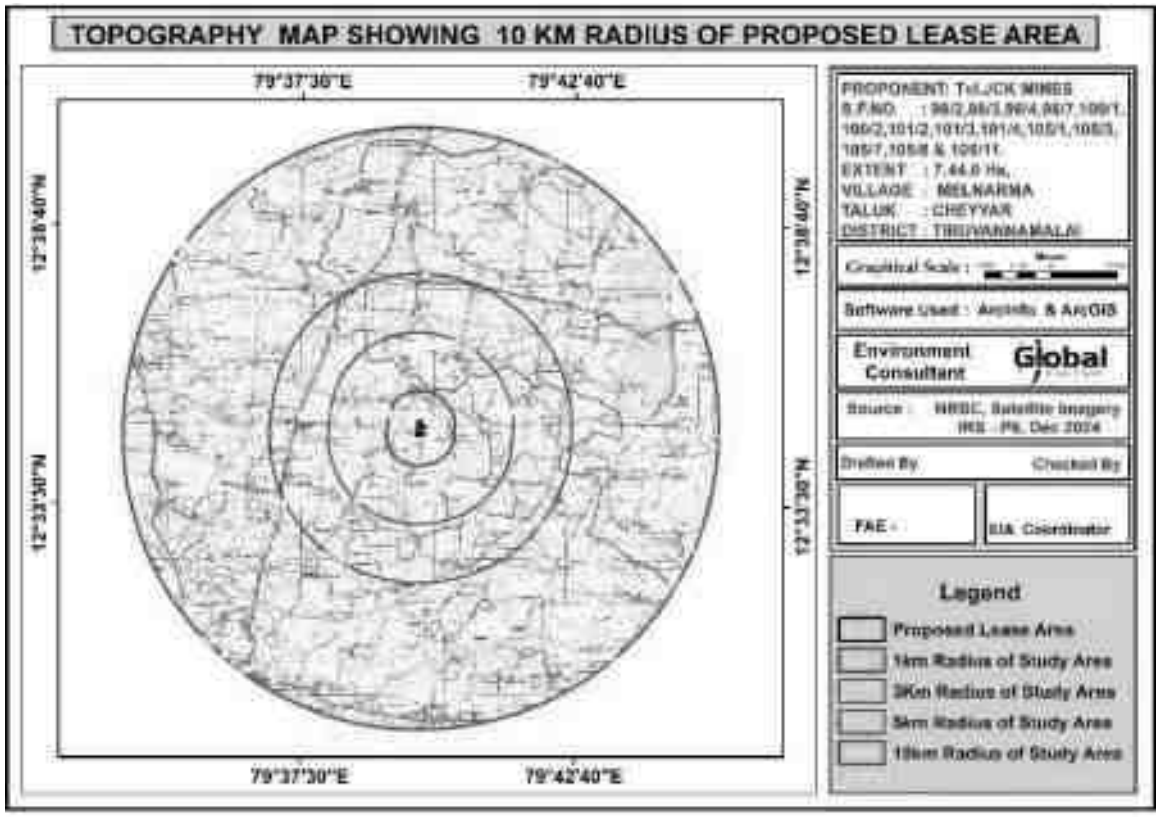


Figure 3-7 TOPO Map – 10km radius from the project site

3.6 Physical Conditions

The physical conditions of the study area are discussed:

- ♣ District Profile
- ♣ Land use, Drainage, Geology & Physiography
- ♣ Natural resources
- ♣ Seismic Zone Characteristics

3.6.1 District Profile

Tiruvannamalai lies in the northern part of Tamil Nadu, and 200 Km from the state capital Chennai. The district lies between 78° 20' and 79° 50' of the eastern longitudes and 11°55' and 13° 15' of the northern Latitudes. It is bounded on the north by Vellore District, on the east by Kanchipuram District, on the south by Villupuram District, and on the west by Dharmapuri and Krishnagiri districts. The area of the district is 6312 sq.km. It consists of Two Revenue Divisions and Eleven Taluks- Tiruvannamalai, Chengam, Arani, Polur, Cheyyar, Chetpet, Vandavasi, Kilpennathur, Kalasapakkam, Thandarampattu and Vembakkam. After independence Tiruvannamalai was under North Arcot District. The revenue district of North Arcot was divided into Vellore District and Tiruvannamalai District in October 1989. Population of the district is 2469 thousand numbers as per Census 2011. The district is 20% urbanized and constitutes literacy rate of 74.21%.

Source: "District Mineral Survey Report, Tiruvannamalai District"

3.6.2 Land Use Analysis

Land Use classification:

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

Methodology:

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

The terms 'land use' and 'land cover' (LULC) are often used to describe maps that provide information about the types of features found on the earth's surface (land cover) and the human activity that is associated with them (land use). Satellite remote sensing is being used for determining different types of land use classes as it provides a means of assessing a large area with limited time and resources. However, satellite images do not record land cover details directly and they are measured based on the solar energy reflected from each area on the land. The amount of multi spectral

energy in multi wavelengths depends on the type of material at the earth's surface and the objective is to associate particular land cover with each of these reflected energies, which is achieved using either visual or digital interpretation. In the present study the task is to study in detail the land use and land cover in and around the project site. The study envisages different LULC around the proposed project area and the procedure adopted is as below

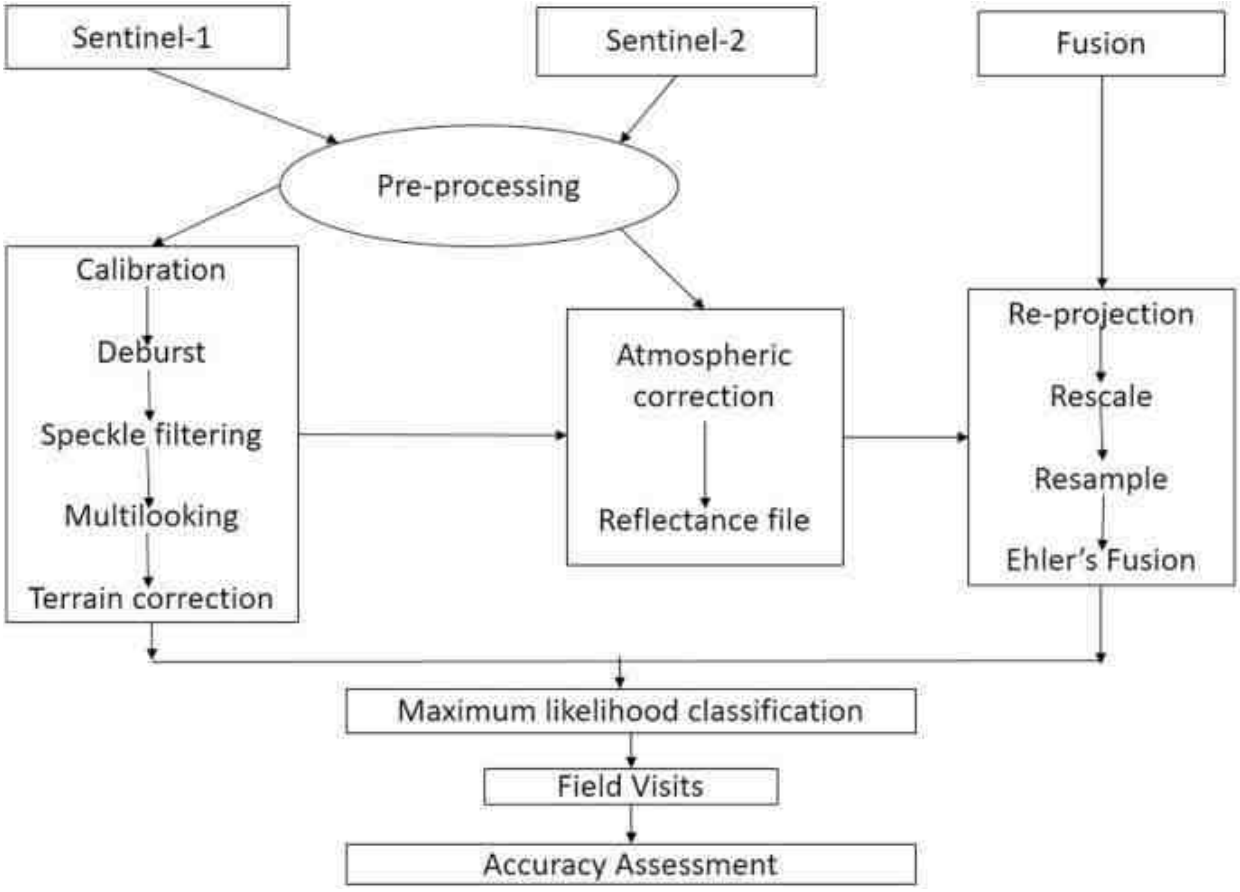


Figure 3-8 Flow-chart showing methodology of Land Use Mapping

Satellite Data:

Sentinal multispectral satellite data of 11th April 2022 was utilized for the present study. Details of satellite data is given below. The rectification of imagery was carried out on to bring the digital data on the earth coordinate system by means of ground control point (GCP) assignments/SOI topo sheets.

Scale of mapping:

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

Interpretation Technique:

Standard on screen visual interpretation procedure was followed. The various Land use / Land cover classes interpreted along with the SOI topographical maps during the initial rapid reconnaissance of the study area. The physiognomic expressions conceived by image elements of color, tone, texture, size, shape, pattern, shadow, location and associated features are used to interpret the FCC imagery. Image interpretation keys were developed for each of the LU/LC classes in terms of image elements.

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

1. Digitization of the study area (10 km radius from the proposed site) from the topo maps
2. In the present study the IRS –P6 satellite image and SOI topo sheets of 47-F/01,02,03have been procured and interpreted using the ERDAS imaging and ARC-GIS software adopting the necessary interpretation techniques.
3. Satellite data interpretation and vectorisation of the resulting units
4. Adopting the available guidelines from manual of LULC mapping using Satellite imagery (NRSA, 1989)
5. Field checking and ground truth validation
6. Composition of final LULC map

The LULC Classification has been done at three levels where level -1 being the broad classification about the land covers that is Built-up land, agriculture land, waste land, wet lands, and water bodies. These are followed by level –II where built-up land is divided into towns/cities as well villages. The agriculture land is divided into different classes such as cropland, Fallow, Plantation, while wastelands are broadly divided into, Land with scrub and without Scrub and Mining and Industrial wasteland. The wetlands are classified into inland wetlands, coastal wetlands and islands. The water bodies are classified further into River/stream, Canal, Tanks and bay. In the present study level II classification has been undertaken.

Ground verification:

Field verification involved collection, verification and record of the different surface features that create specific spectral signatures / image expressions on FCC. In the study area, doubtful areas identified in course of interpretation of imagery is systematically listed and transferred on to the corresponding SOI topographical maps for ground verification. In addition to these, traverse routes were planned with reference to SOI topographical maps to verify interpreted LU/LC classes in such a manner that all the different classes are covered by at least 5 sampling areas, evenly distributed in the area. Ground truth details involving LU/LC classes and other ancillary information about crop growth stage, exposed soils, landform, nature and type of land degradation are recorded and the different land use classes are taken the Land use map.

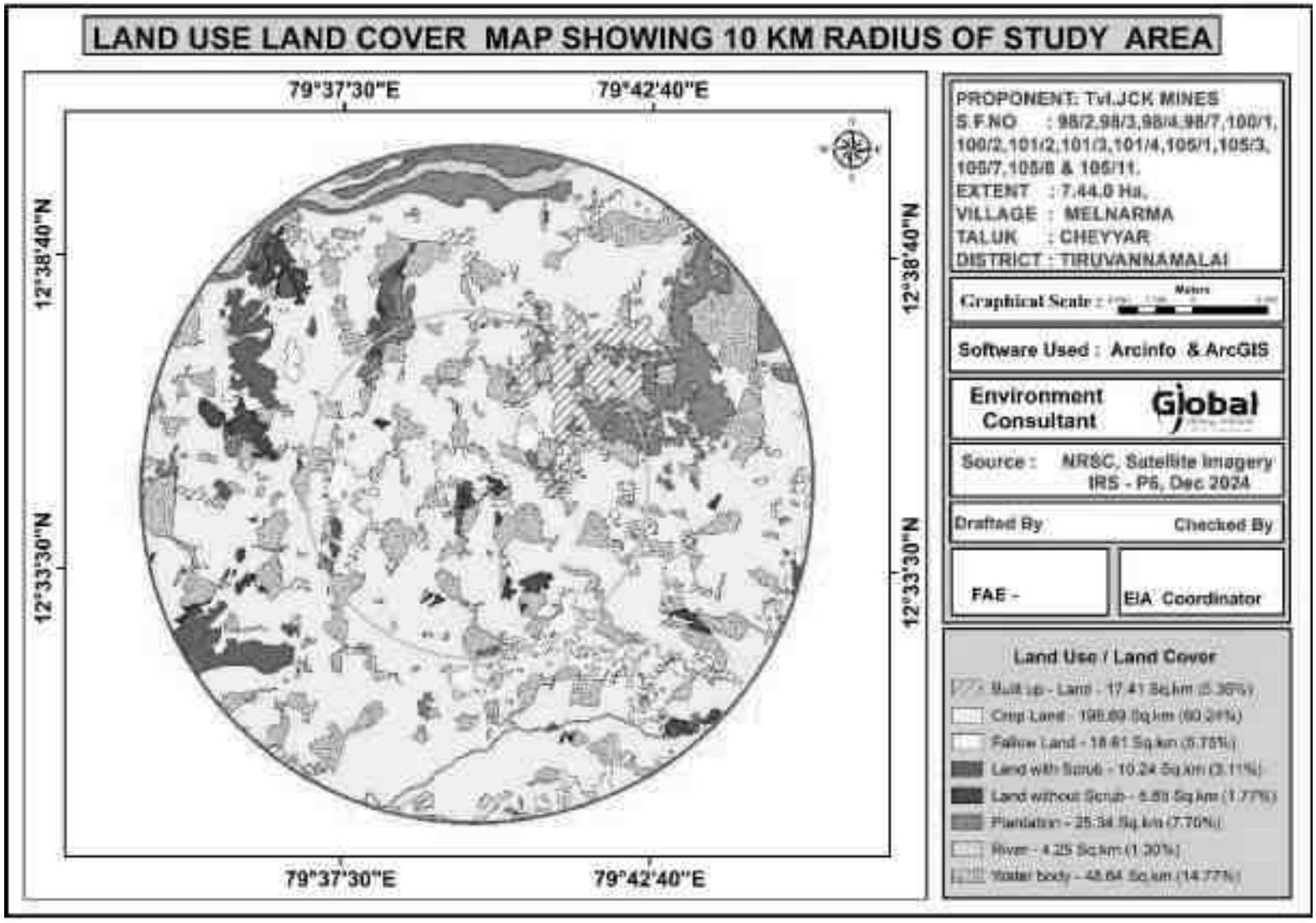


Figure 3-9 land Use Map – 10 km radius around the project site

Different Land use classes around 10 km radius from the project site are shown below

Table 3-3 land Use classification – 10km around the project site

Classification	Area in Sq.km	Percentage
Built – up Land	17.41	5.36
Crop land	198.89	60.24
Fallow Land	18.61	5.75
Land with Scrub	10.24	3.11
Land without Scrub	5.85	1.77
Plantation	25.34	7.70
River	4.25	1.30
Water body	48.64	14.77

The land use pattern of the project site is shown below:

Table 3-4 Land use pattern of the project area

Sl. No.	Land Use	Present Area (Ha)	Area in use during the quarrying period (Ha)
1.	Quarrying Pit	Nil	4.95.0
2.	Infrastructure	Nil	0.02.0
3.	Roads	Nil	0.03.0
4.	Green Belt	Nil	2.44.0
5.	Unutilized	7.44.0	Nil
	Total =	**7.44.0**	**7.44.0**

3.6.3 Contour and Drainage:

The project site is 93m AMSL. The drainage pattern within 5km radius is dendritic.

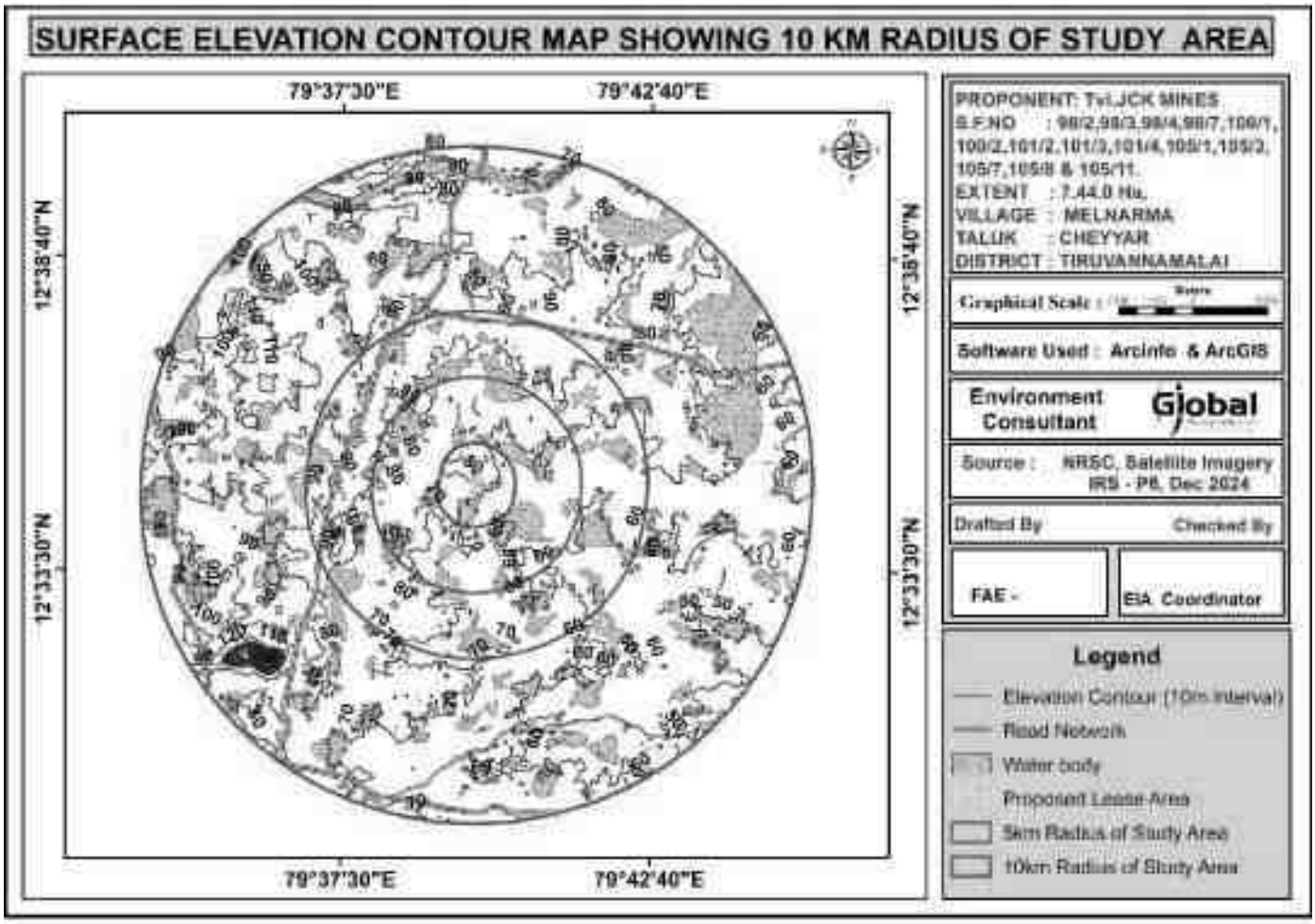


Figure 3-10 Contour Map

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 Cheyyar taluks. Palar rising near Nandidurg in Mysore enters Vellore district passing through Gudiyatham, Walajah and Arakonam taluks before entering into Cheyyar taluk 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 in to 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.

There is one odai, kuttai, kulam and 4 tanks located within 1 km radius of the project site. Melnarma Tank (270m, S), Thukkuvadi Tank (420m, SE), Thuraiyur Tank (1 km, SW) and Vachanur Tank (930m, NW) and Alathur Chitheri is located at 980m, NE

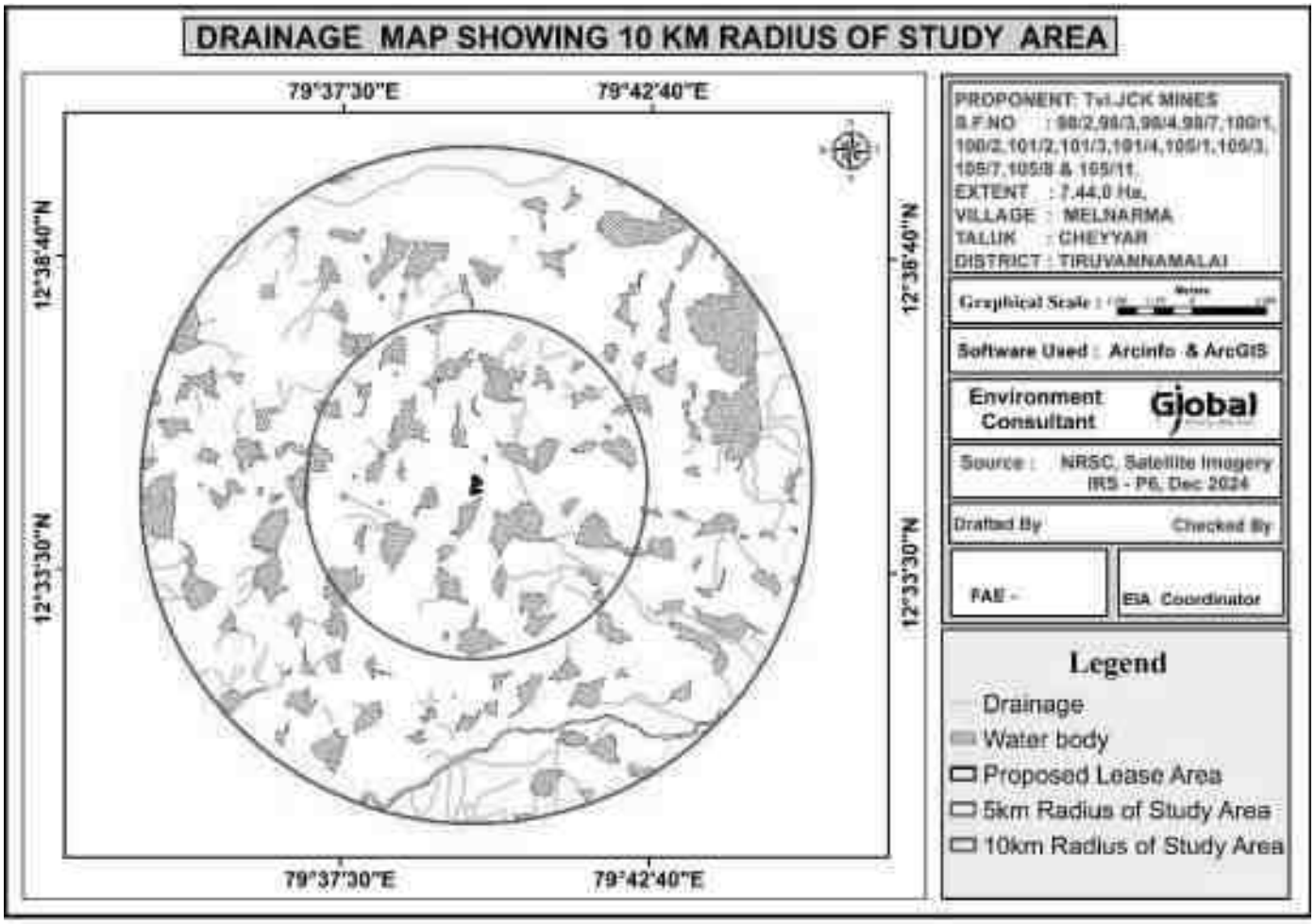


Figure 3-11 Drainage Map

3.6.4 Geomorphology

The prominent geomorphic units identified in the district through interpretation of Satellite imagery are 1) Moderately weathered buried pediplain 2) Pediment – Inselberg Complex 3) Residual Hill 4) Shallow Flood Plain and 5) Shallow weathered buried pediplain. The major part of the area is covered by weathered pediplain and it is formed by coalescence of pediments. A major part of the district constitutes a plain terrain with a gentle slope toward East and Southeast, except for the hilly terrain in the west. The general elevation of the area varies from less than 50-120 m amsl.

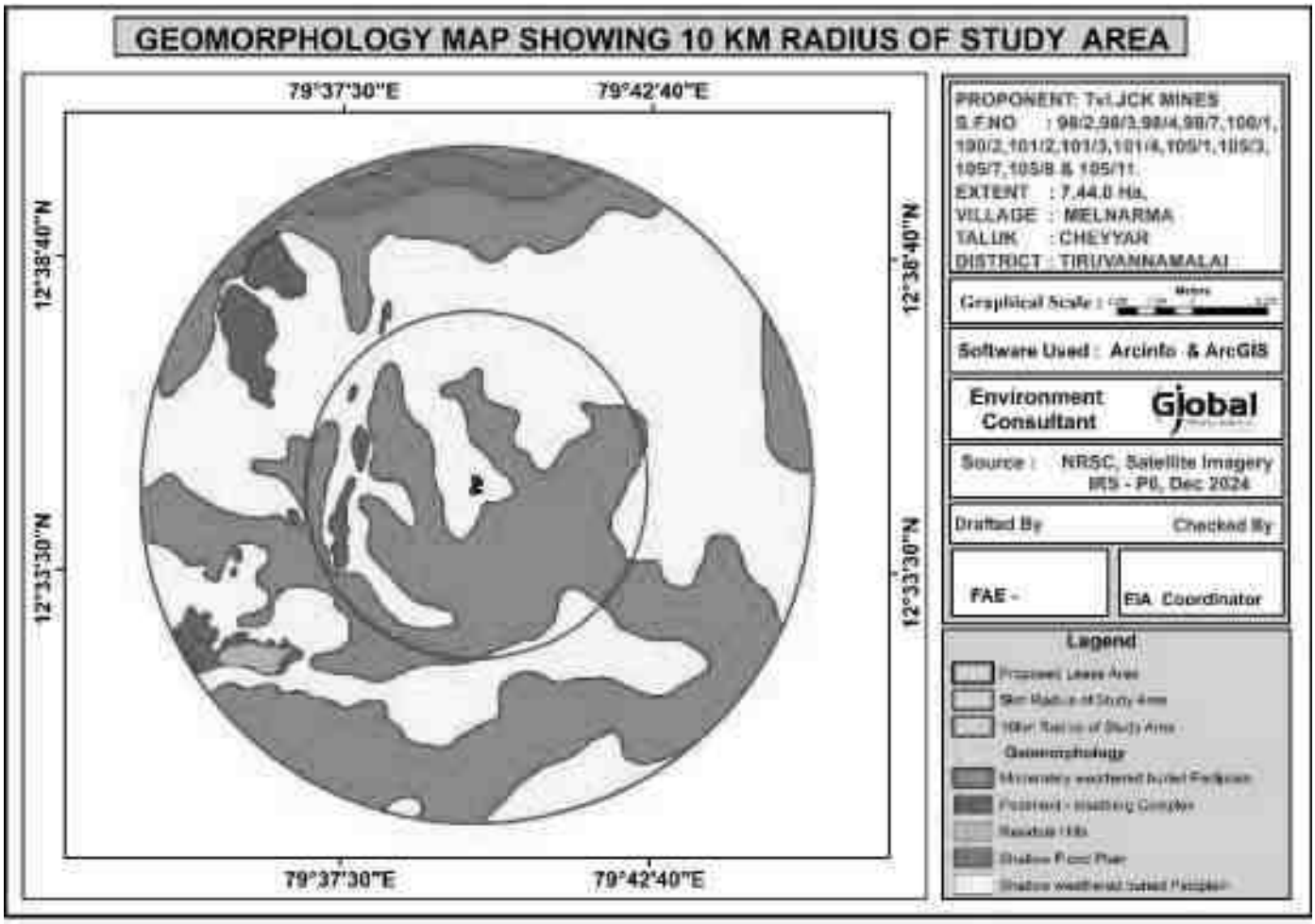


Figure 3-12 Geomorphology – 10 km radius around the project site

3.6.5 Geology

The geology map of the study area reveals that the area is predominately covered with Charnockite [284.77 Sq.km], which falls under Charnockite group and the remaining area is covered with gnesis (Migmatite Group) [44.45 Sq.km]. No exploration was carried out. Massive Rough stone formation visible from the existing pits in the nearby quarry operations and dry open wells.

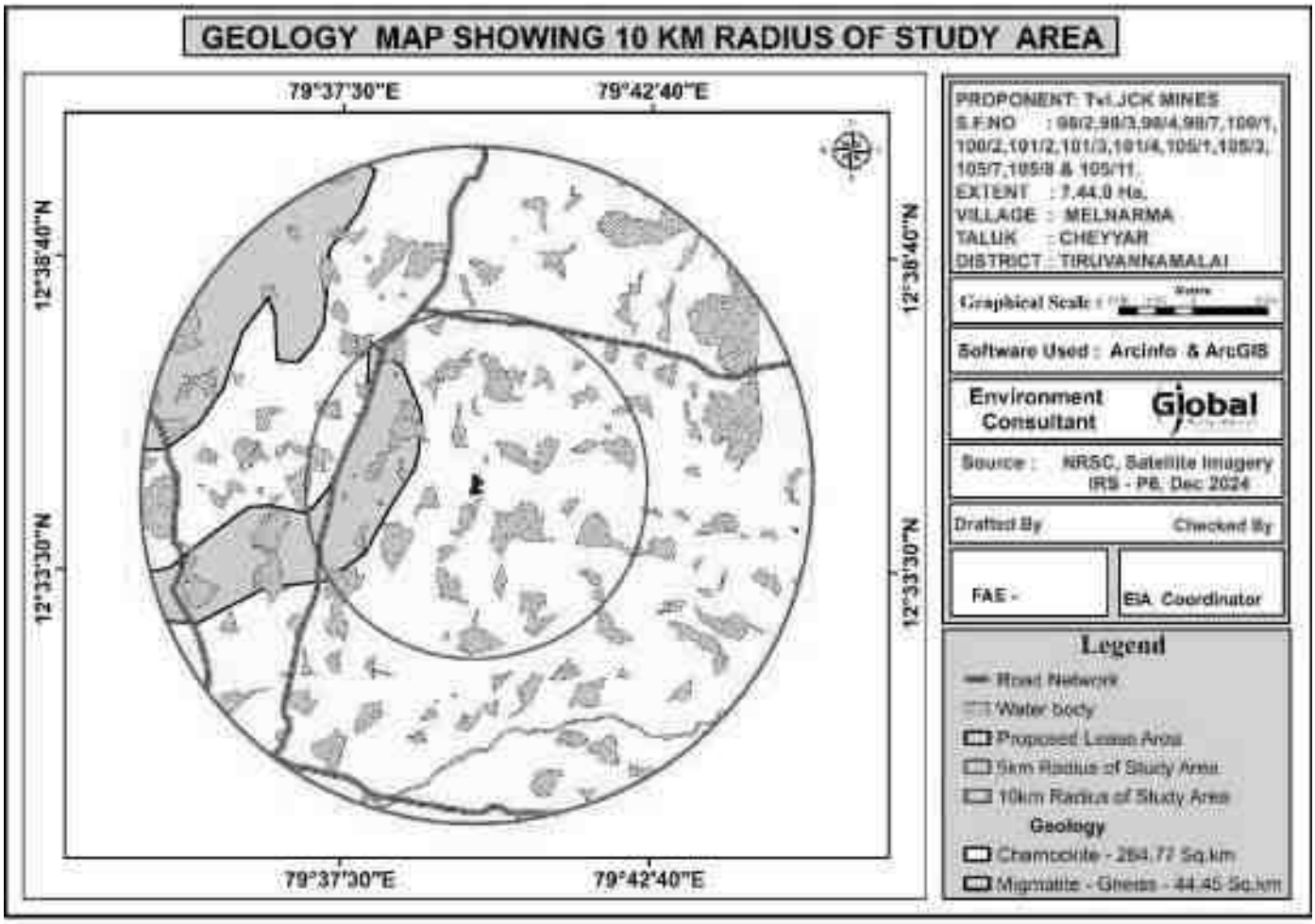


Figure 3-13 Geology – 10 km radius around the project site

3.6.6 Hydrogeology

The entire district is underlain by rocks belonging to hard crystalline rock masses of Archaean age. The archaean rocks in this area are represented by rocks of eastern Ghat complex comprising charnockite, migmatite complex of composite gneiss. The district is covered by metamorphic crystalline rocks of charnockite, composite gneiss of Archaean age. These rocks are highly metamorphosed and have been subjected to sever folding, crushing and faulting. Charnockite group is occupied by North and Southern part of the basin. The other rock type is encountered by composite granitic gneiss of Epidote of the basin. Charnockite group occupies the high ground as well as plain and it is poorly weathered and jointed. They are generally black grey to dark grey in colour medium to coarse grained texture and generally massive and un-foliated. A gneissic rock occurred as linear bands of granites, pegmatites, quartz veins the rock is well foliated. The Hornblende biotite gneiss forms the country rock of the area and epidote hornblende gneiss (Proterozic age) occurs as small isolated outcrops. The crystalline formations are charnockite, granitic

gneiss of Archean age have been intruding by dolerite dykes and pegmatite veins. These rocks are highly metamorphosed and have been subjected to very severe folding, crushing and faulting. The crystalline rocks are subjected to technic activities under various orogenic cycles resulting in the intensity of weathering various from place. Highly weathered zones and granitic rock occurs in masses are around some of the villages like Ariyanallur,

Mukkunam, Kaarunkulu, Tondur, Vedal, Melolakkur, Pennagar, Chinnaagram (57P/7). The general geological sequence of formation is given below: -.

Age	Stage	Lithology
Archaean	Migmatite Complex	Biotite Gneiss, Epidote, Hornblende gneiss
	Charnockite Group	Magnetite

3.6.7 Natural Resources

Forest Resources

Thiruvannamalai district is bounded on the north and west side by Vellore District, on the south side by Villupuram District, on the southwest side by Dharmapuri District and on the east side by Kancheepuram District. Geographical area of Thiruvannamalai is 6191Sq. Km. One sixth of the area of this district is covered by reserve forest and hills which is part and parcel of Eastern Ghats under Javvadhu Hills. Hills are: Thiruvannamalai hills, Javvadhu hills and Kailasagiri hills. One sixth of the area of this district is covered by reserve forest and hills which is part and parcel of Eastern Ghats under Jawadhu Hills. The important hills in this district are Thiruvannamalai (2668 ft MSL), Jawadhu hills (3600-3800 ft MSL) and Kailasagiri (2743 ft MSL)

Source: https://dcmsme.gov.in/dips/IPS_Thiruvannamalai_2012_tr.pdf

Agricultural Resources

Land and Agriculture 32% of land in Thiruvannamalai is used for agricultural activities to produce rice, ground nut and sugarcane. Another major economic activity of the district is Silk Saree weaving, a bulk of India's Silk apparels is produced by the people of Thiruvannamalai district largest concentration of Silk producers and weavers in Arni Taluk. Thiruvannamalai district is coming under North Eastern Zone region and the total area under cultivation is 192174.70 ha. In that, Horticultural crops have been cultivated in about 27103.90 ha and the prominent crops under cultivation are Banana, Mango, Tapioca, Tomato, Chillies, Brinjal, Bhendi, Watermelon, Muskmelon, Gourds, Turmeric, Medicinal coleus, lemongrass, Palmarosa, Jamine, Chrysanthemum and Tuberoseand other vegetables.In tiruvannamalai district Seetha and Jackfruit are producing in Jawadhu hills. Banana plantation is widely practiced in Padavedu region. Approximately 56 % of people are depended on Agriculture related works.

Mineral Resources

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

Source: District Survey report, Tiruvannamalai

3.6.8 Seismicity

Tiruvannamalai falls under seismic zone III, which is categorised as moderate damage zone. Tiruvannamalai Local Planning Area falls under Seismic Zone – III, II. The whole of Tiruvannamalai Local Planning Area falls in this zone which is a moderate to low seismic risk. The seismic zone of Tamilnadu is shown below.

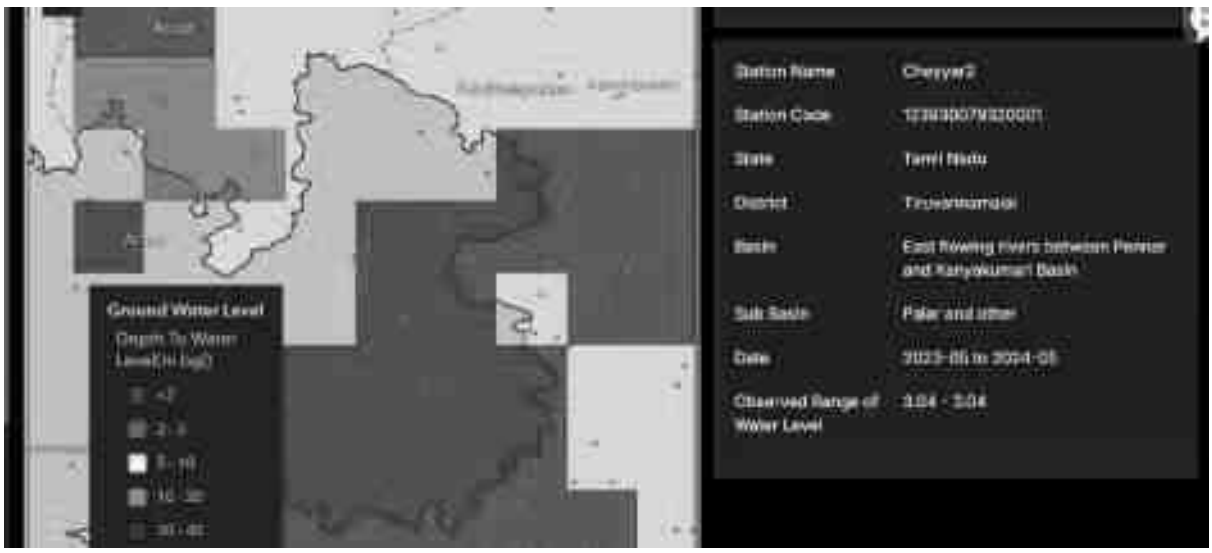


3.7 Water Environment

3.7.1 Ground water

Depth of GW Level and GW prospects

The ground water table in Cheyyar basin is 3.04 m BGL. **(Source: CGWB)**



The project falls under Cheyar Block, which is categorized as Over-Exploited (> 100%) as per Annexure to G. O (Ms) No. 161, Public Works (R2) Department, dated: 23.10.2019, where the eligibility for the extraction of groundwater, extraction will be permitted only in Safe/Semi critical and non-metro area. **(Source: NWM)**

4	CHENGAM	2,565.03	2,848.85	90.51	2,739.36	107	OVER EXPLOITED
5	CHENNAVARAM	1,834.53	1,713.08	34.62	1,747.70	95	CRITICAL
6	CHEYYAR	1,522.95	1,526.85	120.80	1,647.65	106	OVER EXPLOITED
7	DESUR	2,428.85	2,233.25	46.37	2,279.62	94	CRITICAL

The figure showing GW prospects for study area of 5 km is shown below **(Source: Bhuvan)**

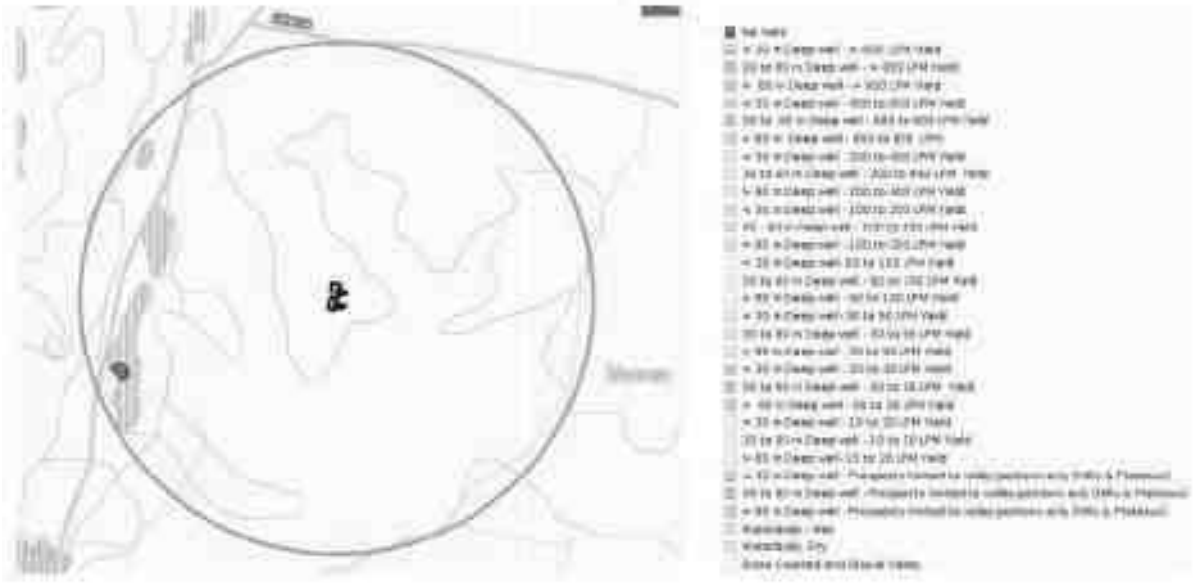


Figure 3-14 Ground water prospects – 5km radius around the project site

The average ground water level in the project is reported as 68 m BGL.

Ground water recharge estimation:

In view of the fact that the detailed data for recharge calculation is extremely difficult to come by some, very simple parameters have been enunciated by the CGWB in their '**Report of the Ground Water Resource Estimation Committee, Ground Water Resource Estimation Methodology - *1997, Central Ground Water Board'***. On an average infiltration can be taken as 44 to 60 cm per year over a total water spread based on the average area of water spread.

Ground water recharge: Total Mine Lease area x 0.6m x 60% x Mining period

= 74,400 Sq. m. x 0.6m x 0.6 x 5 years

= 1,33,920 Cu.m for 5 years

Rainfall Infiltration:

As per CGWB, the rainfall infiltration is computed by:

Rainfall Recharge = (Rainfall –minimum threshold) * RFIF *Area

= (0.0089 – 0.001) x 0.7 x 74,400

= 411.43 Cu.m

Ground Water Quality Monitoring

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

Table 3-5 Ground Water Quality Analysis

Environmental Parameters: **Ground water Quality Analysis**			
Monitoring Period	October 2024 – December 2024		
Design Criteria	Based on the Environmental settings in the study area		
Monitoring Locations	**Location**	**Distance from ML, km**	**Site Co-ordinates**
	Project Site	-	
	Ayyavadi	1.5	12°35'27.60"N, 79°39'1.99"E
	Alathurai	2.7	12°33'59.33"N, 79°40'52.93"E
	Veerambakkam	4.3	12°34'24.96"N, 79°37'21.38"E
	Thuraiyur	1.2	12°34'24.48"N, 79°39'15.82"E
	Vachanur	1.1	12°35'27.77"N, 79°39'54.58"E
	Alathur	2.0	12°35'3.70"N, 79°40'57.92"E
Methodology	Water Samples were collected in 5 Litre fresh cans as per IS 3025 Part I and transported to the laboratory in Iceboxes		
Frequency of Monitoring	Once in a season		

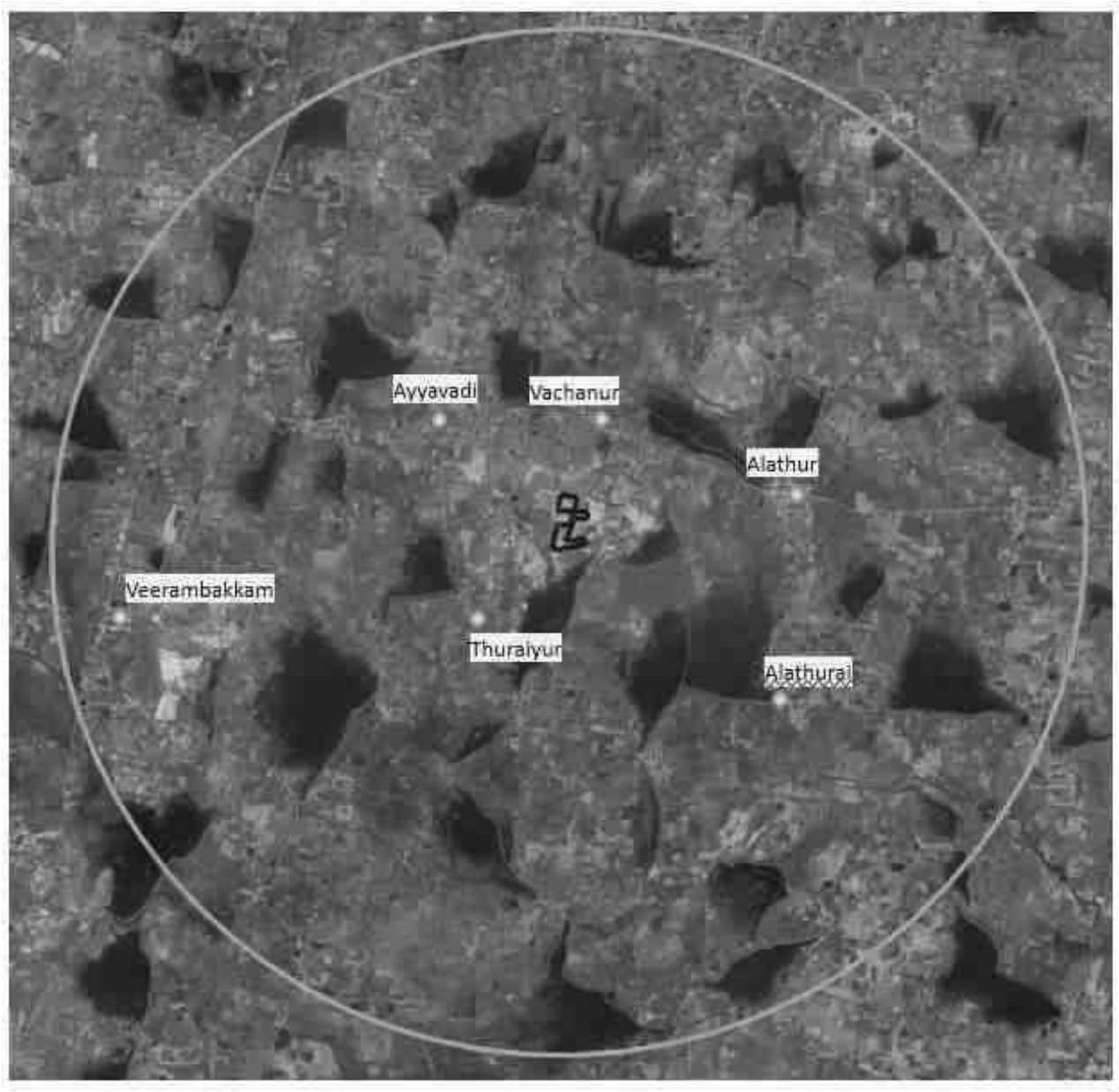


Figure 3-15 Ground Water Sampling Locations

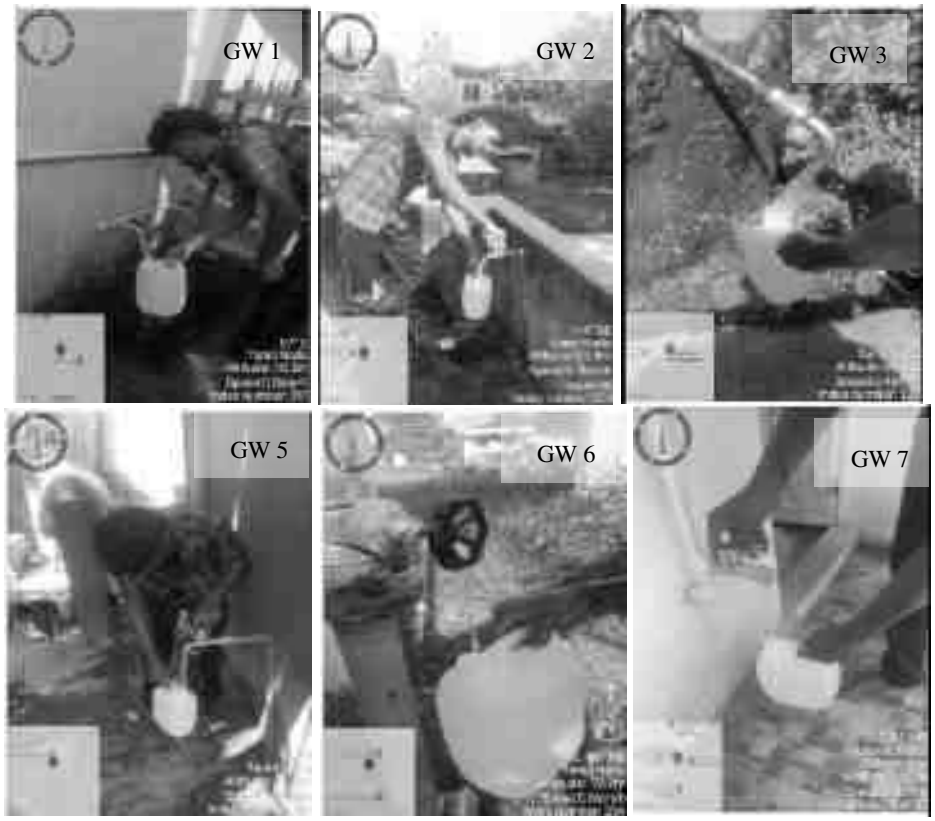


Figure 3-16 Ground water sampling photos

Table 3-6 Ground water sampling results

S. No	Parameters	GW 1	GW 2	GW 3	GW 4	GW 5	GW 6	GW 7
1	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
2	Turbidity	<1	<1	<1	<1.0	<1	<1	<1
3	pH at 25 ˚C	7.32	7.84	6.92	7.36	7.28	7.52	7.32
4	Electrical Conductivity	1020	395.6	712.4	1675	992.3	1149	1852
5	Total Dissolved Solids	612	238	430	1006	956	690	1120
6	Total hardness as $CaCO_3$	432	170	236	352	410	333	442
7	Calcium as Ca	82.4	42	56	65.2	75.6	72.1	76.8
8	Magnesium as Mg	54.2	15.6	23.0	45.4	53.0	36.7	60.2
9	Calcium as $CaCO_3$	206	105	140	163.0	189	180	192
10	Magnesium as $CaCO_3$	226	65.0	96.0	189.0	221.0	153	251
11	Total alkalinity as $CaCO_3$	318	145	158	324	252	253	301
12	Chloride as Cl^-	81.3	34.3	132	340	116	184	360

13	Free Residual chlorine as Cl^-	BDL(D.L-0.2)	BDL(D.L-0.2)	BDL (D.L -0.2)	BDL(D.L-0.2)	BDL(D.L-0.2)	BDL(D.L-0.2)	BDL (D.L-0.2)
14	Sulphates as SO_4^{2-}	122	13.2	72.2	206	112	210	352
15	Iron as Fe	0.08	0.06	0.02	0.12	0.1	BDL(D.L -0.01)	BDL(D.L -0.01)
16	Nitrate as NO_3	2.26	BDL(D.L-1.0)	3.15	2.06	2.74	1.97	3.05
17	Fluoride as F	0.32	0.23	0.25	0.36	0.25	0.54	0.66
18	Manganese as Mn	BDL(D.L-0.05)	BDL(D.L-0.05)	BDL (D.L -0.05)	BDL(D.L-0.05)	BDL(D.L-0.05)	BDL(D.L-0.05)	BDL(D.L-0.05)

Interpretation of results

Physical parameters of water

The basic physical parameters of the water include

Odour: The odour of the water is found to be agreeable in all the 7 monitoring locations.

pH:

Value observed in the project site: 7.32.

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

Turbidity:

Value observed in the project site: <1 NTU.

Acceptable and permissible limits:1 NTU & 5 NTU respectively. The value of turbidity generally indicates the presence of phytoplanktons and other sediments. The value in the project site indicates the water is not turbid and no any physical treatment is required to treat the turbidity of the water.

Total Dissolved Solids:

Value observed in project site: 612 mg/L.

Acceptable and permissible limits: 500 mg/L and 2000 mg/L respectively. The TDS is the presence of the inorganic salts and small amounts of organic matter present in the water. This is mainly due to the result of surface runoff as the cations and anions in the top soil is carried away by the water. As per the Guidelines of WHO, if the value of TDS is greater than 1200 mg/L, it is designated as unacceptable. Since the value of the TDS is less than 1200 mg/L, it will not cause any adverse impact.

Chemical parameters of water:

The chemical parameters of the drinking water include

Calcium:

Value observed in the project site: 206 mg/L.

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

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

Magnesium:

Value observed in the project site: 54.2 mg/L.

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

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

Chloride

Value observed in the project site: 81.3 mg/L.

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

The chloride level in the project site is less than the permissible limit. Hence it will not have any major impact.

Hardness:

Value observed in project site: 432 mg/L.

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

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

Secondary Data:

Following are the Analytical Results of samples collected from National Groundwater Monitoring Wells (May 2022)

S.No	District	Location	Latitude	Longitude	PH	EC *	TH*	Ca	Mg	Na	K	CO3	HCO3	Cl	SO4	NO3	F	U
																		ppb
441	Thiruvannamalai	vEECD	12.0944	79.4332	7.46	1276	150	44	10	221	4	0	427	156	39.3	0	0.67	0.72
442	Thiruvannamalai	Arnakkurai	12.3583	78.6029	7.09	1206	400	92	41	138	3	0	561	121	44	2	0.56	1.98
443	Thiruvannamalai	Arakandhanallur (Kalasapakkam) (N	12.0894	78.1642	7.29	1468	0.39	76	133	128	7	0	427	199	37	20	0.54	19.54
444	Thiruvannamalai	Arani	12.3389	79.2389	7.27	1600	400	112	41	163	10	0	476	220	34	10	0.56	2.89
445	Thiruvannamalai	Bagayam	12.3417	79.1417	7.41	670	240	60	23	78	1	0	366	50	12	14	0.46	0.37
446	Thiruvannamalai	Chengam	12.2917	78.7417	7.32	1900	1050	144	144	283	14	0	634	851	105	70	0.41	4.42
447	Thiruvannamalai	Chetpet	12.4611	79.3583	7.23	2996	710	176	141	110	11	0	549	992	359	94	0.63	1.14
448	Thiruvannamalai	Cheyyar	12.6583	79.5333	6.97	1445	720	88	74	179	16	0	598	213	30	44	0.31	1.77

Source: State Report on Groundwater Quality in Tamilnadu & U. T. of Puducherry by Government of India, Ministry of Jal Shakti Department of Water Resources, River Development & Ganga Rejuvenation Central Ground Water Board South Eastern Coastal Region, Chennai

3.7.2 Surface Water

Surface water was collected from Cheyyar River Upstream and Downstream. The results are summarized below:

Table 3-7 Surface Water Analysis Results

Parameter	SW1	SW2	CPCB Designated Best Use	
	Cheyyar (U/s)	Cheyyar (D/s)	Acceptable Limits	Permissible Limits
Odour	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity, NTU	1.3	2.1	2	5
pH at 25 ˚C	7.62	7.22	6.5- 8.5	No Relaxation
Electrical Conductivity, µS/cm	361.6	309.9	-	-
Total Dissolved Solids, mg/l	217	186	500	2000
Total hardness as $CaCO_3$, mg/l	143	103	200	600
Calcium as Ca, mg/l	39.6	33.3	75	200
Magnesium as Mg, mg/l	10.5	4.75	30.0	100
Calcium as $CaCO_3$, mg/l	99	83.2	-	-
Magnesium as $CaCO_3$, mg/l	43.6	19.8	-	-
Total alkalinity as $CaCO_3$, mg/l	152	111	200	600
Chloride as Cl^-, mg/l	17.7	20.7	250	1000
Free Residual chlorine as Cl^-, mg/l	BDL(D.L-0.2)	BDL(D.L-0.2)	0.2	1
Sulphates as SO_4^{2-}, mg/l	BDL (DL -5)	BDL (DL -5)	200	400
Iron as Fe, mg/l	BDL (DL – 0.01)	BDL (DL – 0.01)	0.3	No Relaxation
Nitrate as NO_3, mg/l	BDL (DL – 1.0)	BDL (DL – 1.0)	45	No Relaxation
Fluoride as F, mg/l	BDL (DL – 0.1)	BDL (DL – 0.1)	1	1.5
Manganese as Mn, mg/l	BDL (DL – 0.05)	BDL (DL – 0.05)	0.1	0.3
TSS, mg/l	BDL (DL – 2.0)	BDL (DL – 2.0)		
COD, mg/l	BDL(DL-4.0)	BDL(DL-4.0)	-	-
BOD, mg/l 3 days @ 27°C as O2	BDL(DL-2.0)	BDL(DL-2.0)	2.0	2.0
DO, mg/l	5.8	6.4	6.0	6.0

Inference: The test results of Cheyyar River (U/s) and (D/s) reveals that the water classified as B as per the CPCB Designated Best Use of Water. The water meets the standard of outdoor bathing (Organised) after preliminary treatment

3.8 Climatology & Meteorology

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

The year may broadly be divided into four seasons:

Winter season: December to February

Pre-monsoon season: March to May

Monsoon season: June to September

Post-monsoon season: October to November

i) Climate

The district enjoys a Sub tropical climate. The period from May to June is generally hot and dry. The weather is pleasant during the period from December to January. The relative humidity is on an average between 33.9% and 98.1%.

ii) Temperature

The average daily temperature ranges from a maximum of 35.9 °C to a minimum of 17 °C

iii) Rainfall:

The annual average rainfall is 815 mm.

	Total rainfall (mm)	**No. of Rainy Days**	**Average annual rainfall (mm)**
Rainfall	1.1	55	815

Summary of meteorological data

Parameters	**Min. Value**	**Max. Value**	**Mean Value**
Temperature (°C)	17	35.9	27.3
Wind Speed (m/s)	1	8.8	2.9
Relative Humidity (%)	33.9	98.1	71.8
Solar Radiation (W/m^2)	144.38	164.9	152.3

3.8.1 Meteorological data collection

The meteorological data is collected based on daily observations for three-month period, is used in the current report.

Wind Speed:

Wind speed was in the range of 1 Km/hr to 8.8 Km/hr. The wind speed was almost close to each other during the whole study period. The wind speed varied from 1 Km/hr to 8.8 Km/hr. The site-specific meteorological data for the study period (October 2024 – December 2024) is presented below. The maximum and minimum values for all the parameters except wind speed and wind direction are presented below.

Wind Rose Diagram

The wind rose denotes a class of diagrams designed to display the distribution of wind direction at a given location over a period of time. Wind roses are also useful as they project a large quantity of data in a simple graphical plot. The wind speed & wind direction data are taken and wind rose is plotted for October 2024 – December 2024.

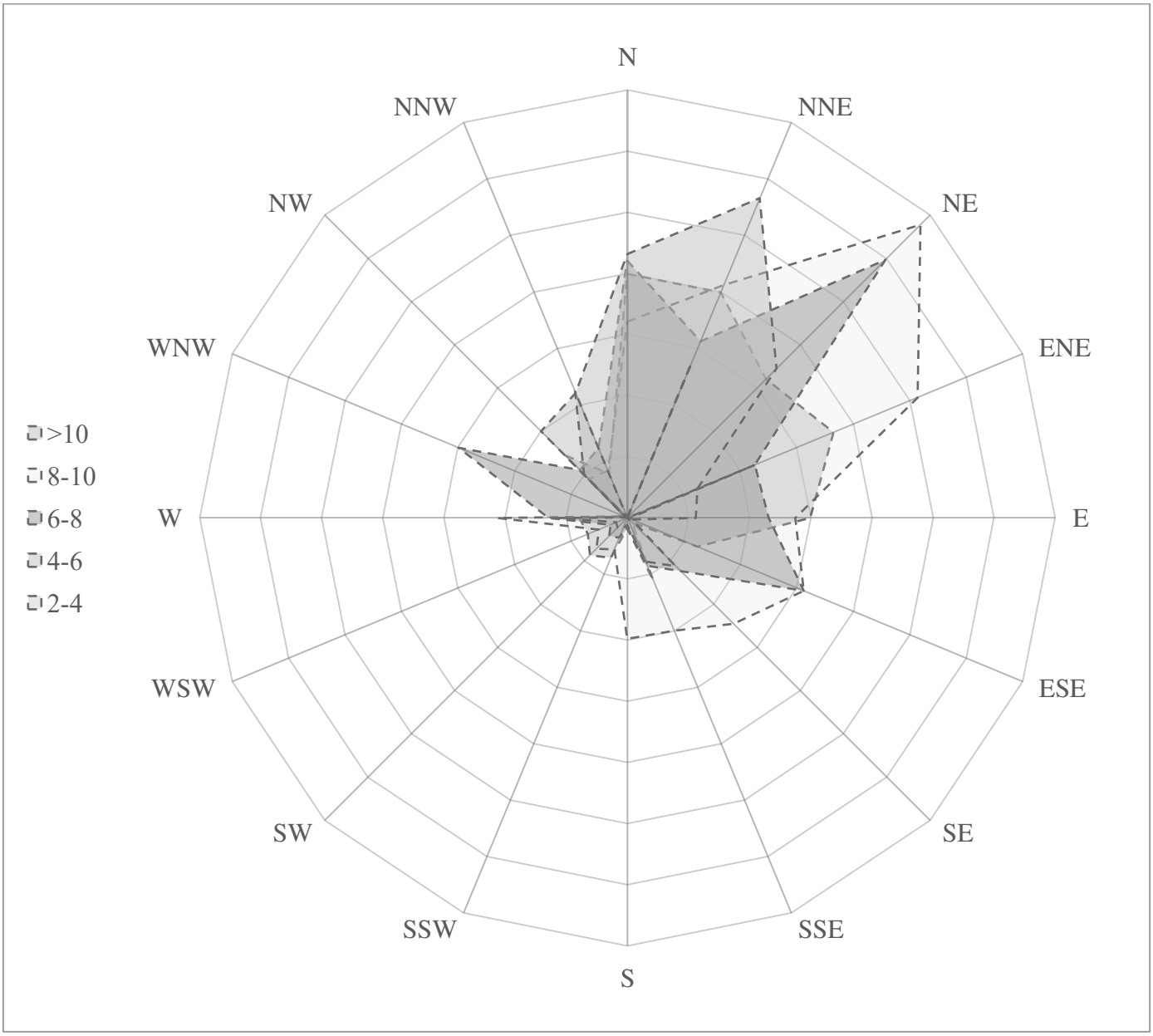


Figure 3-17 Wind Rose Diagram

3.8.2 Ambient Air Quality

Table 3-8 Environmental Parameters – Ambient Air

<table>
<tr><th colspan="4">Environmental Parameters: Ambient Air</th></tr>
<tr><td>Monitoring Period</td><td colspan="3">October 2024 – December 2024</td></tr>
<tr><td>Design Criteria</td><td colspan="3">The monitoring stations are selected based on factors like topography/terrain, prevailing meteorological conditions like predominant wind direction (October 2024 – December 2024), etc, play a vital role in selection of air sampling stations. Based on these criteria, air sampling stations were selected in the area as shown below.</td></tr>
<tr><td>Monitoring Locations</td><td colspan="3"><table>
<tr><th>Location</th><th>Distance from ML, km</th><th>Site Co-ordinates</th></tr>
<tr><td>Project Site</td><td>-</td><td></td></tr>
<tr><td>Ayyavadi</td><td>1.5</td><td>12°35'27.60"N, 79°39'1.99"E</td></tr>
<tr><td>Alathurai</td><td>2.7</td><td>12°33'59.33"N, 79°40'52.93"E</td></tr>
<tr><td>Veerambakkam</td><td>4.3</td><td>12°34'24.96"N, 79°37'21.38"E</td></tr>
<tr><td>Thuraiyur</td><td>1.2</td><td>12°34'24.48"N, 79°39'15.82"E</td></tr>
<tr><td>Vachanur</td><td>1.1</td><td>12°35'27.77"N, 79°39'54.58"E</td></tr>
<tr><td>Alathur</td><td>2.0</td><td>12°35'3.70"N, 79°40'57.92"E</td></tr>
</table></td></tr>
<tr><td>Methodology</td><td colspan="3">Respirable Particulate Matter (PM10) - Gravimetric (IS 5182: Part 23:2006)
Particulate MatterPM2.5 - Gravimetric (Fine particulate matter)
Sulphur Dioxide - Calorimetric (West & Gaeke Method) (IS 5182: Part 02: 2001)
Nitrogen Dioxide - Calorimetric (Modified Jacob & Hocheiser Method) (IS 5182: Part 06:2006)</td></tr>
<tr><td>Frequency of Monitoring</td><td colspan="3">2 days in a week, 4 weeks in a month for 3 months in a season.</td></tr>
</table>

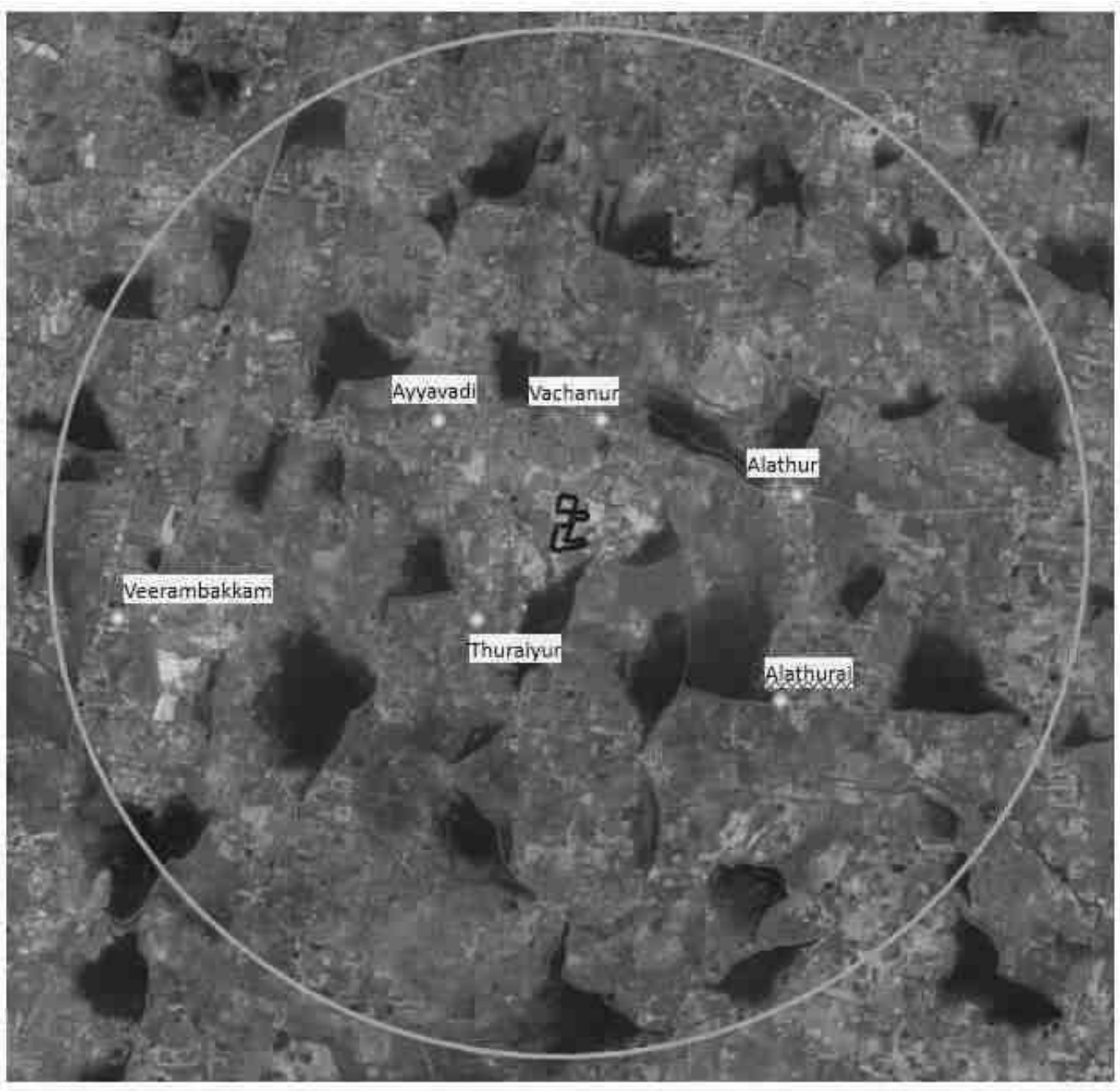


Figure 3-18 Ambient Air Quality Monitoring Stations

Monitoring Photos

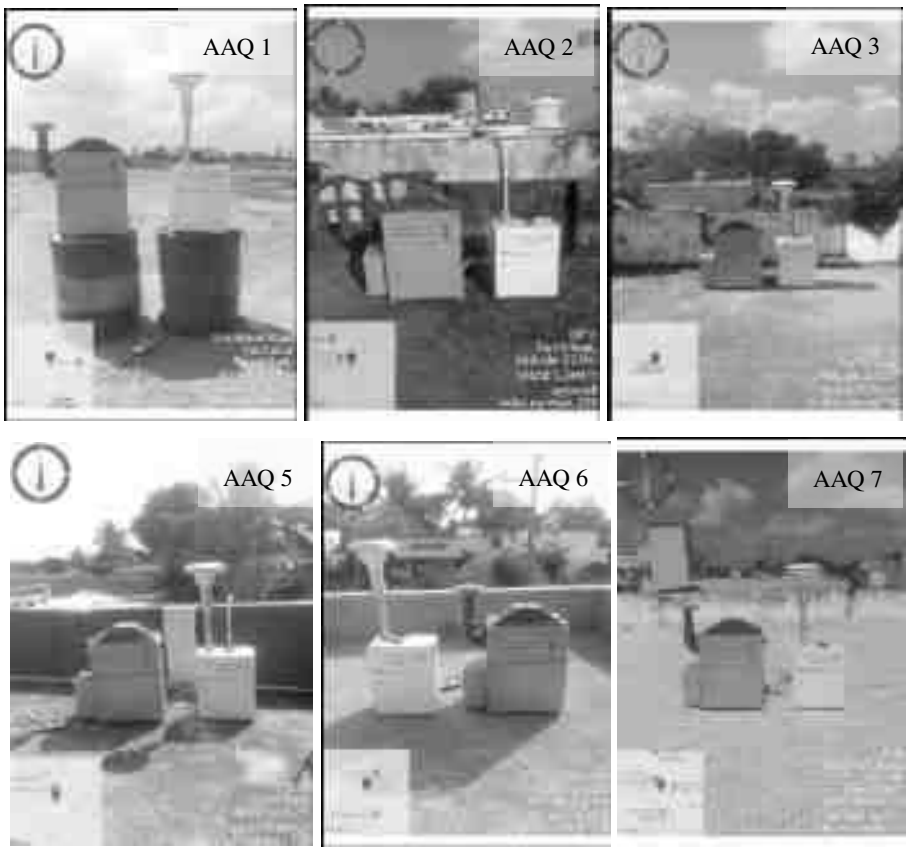


Figure 3-19 AAQ Monitoring Photos

Ambient Air Quality: Results & Discussion

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

Table 3-9 Ambient Air Quality – Baseline Monitoring Values

Code	PM 10 (µg/m$^{3)}$				PM 2.5 (µg/m$^{3)}$				SO2 (µg/m$^{3)}$				NOx (µg/m$^{3)}$			
	Max	Min	Avg	98 percentile	Max	Min	Avg	98 percentile	Max	Min	Avg	98 percentile	Max	Min	Avg	98 percentile
AAQ 1	70.0	50.0	61.1	69.8	33.0	23.6	28.7	32.9	8.9	5.7	7.1	8.7	12.4	9.5	10.7	12.078
AAQ 2	55.1	43.3	50.3	55.0	29.5	19.5	23.2	27.7	6.1	3.6	4.6	5.9	8.3	5.8	6.8	7.978
AAQ 3	57.0	45.7	50.0	56.4	29.5	20.6	24.0	28.2	6.2	3.9	4.8	6.1	9.2	7.2	8.1	9.154
AAQ 4	57.8	43.7	48.9	55.5	29.3	18.9	24.4	28.8	6.6	4.2	5.0	6.5	10.8	7.8	8.9	10.386
AAQ 5	60.8	46.0	52.8	59.5	30.4	20.8	25.3	30.0	8.6	4.0	6.0	8.0	12.9	8.2	10.0	12.4
AAQ 6	61.9	47.8	52.9	61.0	34.5	22.4	25.5	32.6	6.8	4.4	5.5	6.8	12.3	8.4	9.8	11.656
NAAQ Standards - Residential Area	100 (µg/m^{3})				60(µg/m^{3})				80 (µg/m$^{3)}$				80 (µg/m$^{3)}$			

Ambient Air Quality: Results & Discussion

To assess the impact, AAQ were monitored in project site and five locations in the upwind, downwind & crosswind direction. The values of the AAQ in terms of PM10 and SOx is maximum in the AAQ 1 than all other locations. The values of PM 2.5 and NOx is maximum in Alathur.

PM 2.5 and PM 10:

Table 3-10 Maximum and Minimum Values of PM 2.5 & PM 10

Description	PM 2.5	Location	PM 10	Location
Max	34.7	Alathur	70	Within Mine Lease Area
Min	18.9	Veerambakkam	43.3	Ayyavadi
Standard PM 2.5 - 60			**Standard PM 10 - 100**	

The main sources of PM include incomplete combustion, automobile emissions, Dust and also due to the chemical reactions in the atmosphere. From the monitoring locations, it is inferred that the maximum value of PM 10 is observed in Mine Lease Area &PM 2.5 is observed in Alathur. The main contributing factor is that there is other existing quarry located near the project site within 500 m radius, where the vehicular traffic will be more. Approximately 409 trucks will be used for the transportation of mined out mineral from all the two quarries. In Alathur, the monitoring location is situated in residential area, where in State Bank of India, Sri Varadharaja Perumal Temple, Shri Ponniyamman Koil, Alathur Primary and High School is located, due to which there will be movement of traffic, which may be an attributing factor.

The governing factors for the transport of PM are wind direction & wind speed. The baseline monitoring is done for the three months i.e., from October 2024 – December 2024. The predominant wind direction is blowing from North east to South West and the maximum wind speed is 4.2 mps. The greater values of Particulate matter will have its impacts on Human Health. Short term exposure may cause coughing, shortness of breath, tightness of the chest, irritation of the eyes. The Long-term exposure may lead to reduced lung function, development of respiratory diseases and also premature death of people with lung diseases.

SO_2:

Table 3-11 Maximum and Minimum Values of SO_2

Description	SO2	Location
Max	8.9	Within Mine Lease Area
Min	3.6	Ayyavadi
Standard SO2 - 80		

The main Source of SOx are Burning of fossil fuels such as coal, oil and natural gas. Sulfur dioxide emissions are released primarily as a result of generated electricity through fossil fuel burning power stations. Additional smaller sources of sulfur dioxide are released from industrial processes. These include extracting metal from ore and the burning of fuels with high sulfur content by locomotives. The maximum value is observed in mine lease area & the minimum value is observed in Ayyavadi.

The high value in mine lease area is attributed to crushers and existing mines present near the monitoring location – Thiru. JCK Mines (Existing).

The increased value of SOx can have detrimental effects on human health. Such effects include breathing problems, particularly in asthmatics, whereas short-term exposure can lead to chest tightness and coughing and wheezing. Continued exposure to sulfur dioxide has been linked with alterations of the lung's defenses and aggravation of existing cardiovascular disease.

Sulfur dioxide is a major precursor to particulate soot, which reduces air quality. Sulphur dioxide has an acidifying effect on the environment. Acidification harms plants and animals, both on land and in water. When the ground turns acidic, vital nutrients are leached from the soil, which eventually may result in reduced fertility of the soil.

NOx:

Table 3-12 Maximum and Minimum Values of NOx

Description	NOx	Location
Max	12.9	Thuraiyur and Alathur
Min	5.8	Ayyavadi
Standard NOx - 80		

The sources of NOx pollution include emissions by automobiles, trucks and various non-road vehicles (e.g., construction equipment). NOx is released into the atmosphere by combustion of fuels, such as hydrocarbons, in air; especially at high temperatures, such as in car engines. In areas of high motor vehicle traffic, the nitrogen oxides emitted can be a significant source of air pollution.

The maximum value is observed in Thuraiyur and Alathur. This is mainly due to more movement of vehicles and trucks in the area due to presence of communal property like schools, temple, banks and fuel station. Also, there are already is another operating mine present in the vicinity of the project site, where blasting operations will be carried out. The blasting of explosives may produce Nox, which will be dispersed in air by the wind, which may be an attributing factor.

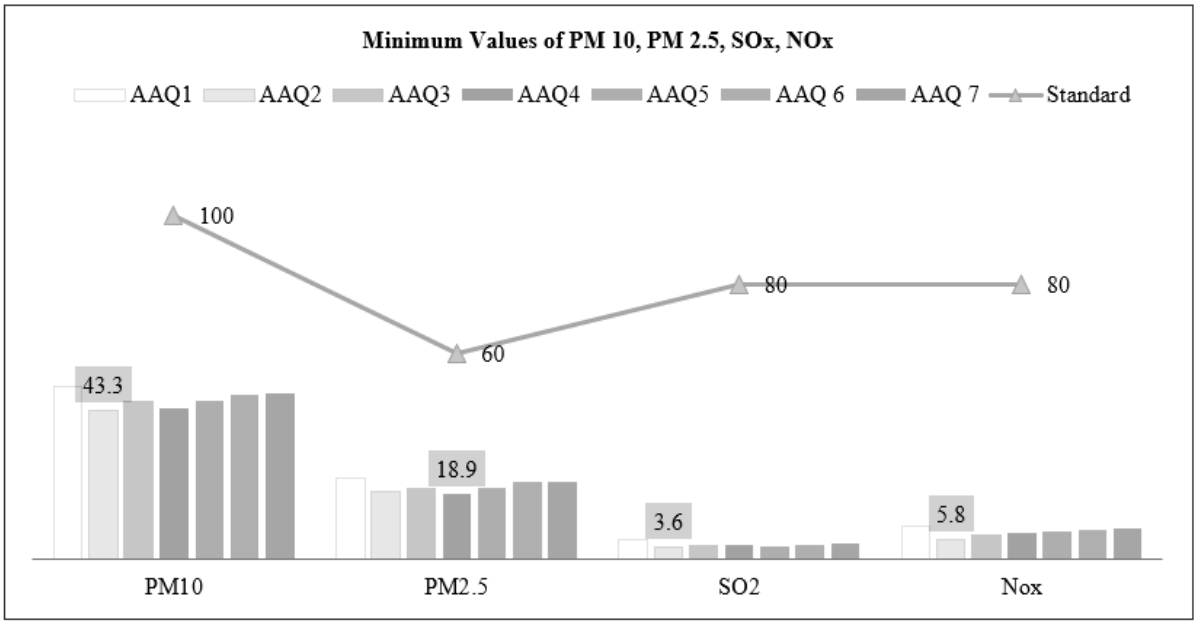


Figure 3-20 Minimum Values of PM10, PM2.5, SO_2, NOx

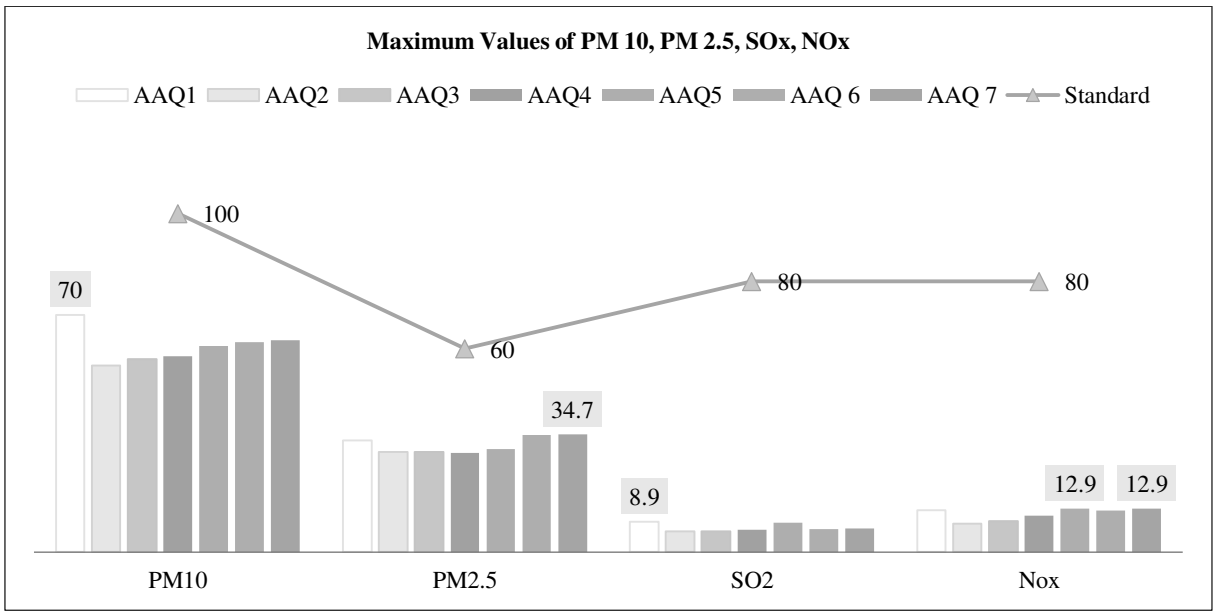


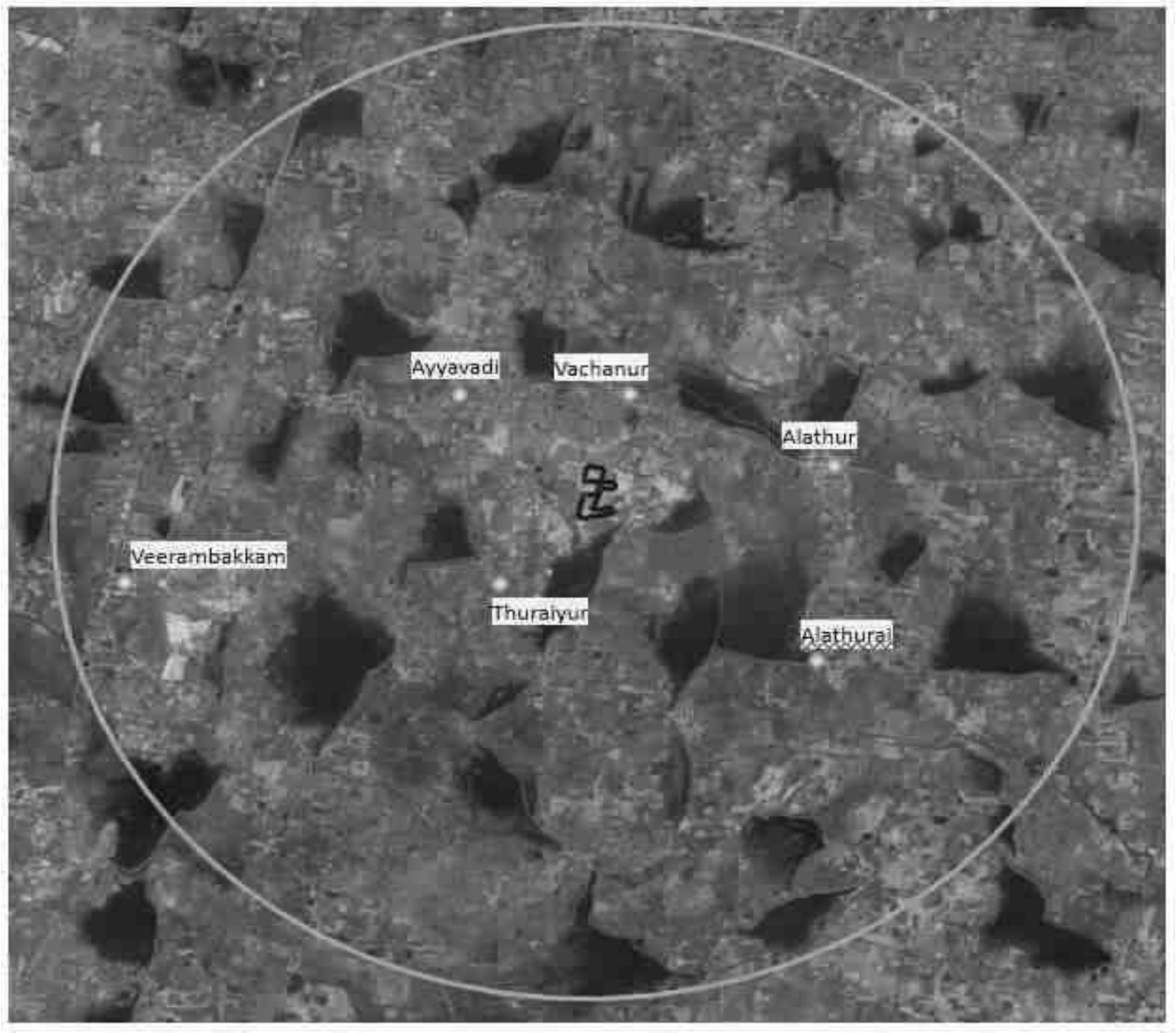
Figure 3-21 Maximum Values of PM10, PM2.5, SO_2, NOx

3.8.3 Noise Environment

Table 3-13 Noise Level Monitoring

Environmental Parameters: **Noise Analysis**			
Monitoring Period	October 2024 – December 2024		
Design Criteria	Based on the Sensitivity of the area		
Monitoring Locations	**Location**	**Distance from ML, km**	**Site Co-ordinates**

	Project Site	-	
	Ayyavadi	1.5	12°35'27.60"N, 79°39'1.99"E
	Alathurai	2.7	12°33'59.33"N, 79°40'52.93"E
	Veerambakkam	4.3	12°34'24.96"N, 79°37'21.38"E
	Thuraiyur	1.2	12°34'24.48"N, 79°39'15.82"E
	Vachanur	1.1	12°35'27.77"N, 79°39'54.58"E
	Alathur	2.0	12°35'3.70"N, 79°40'57.92"E
Methodology	Noise level measurements were taken at the selected locations using noise level meter both during day and night time. Noise level measurements were taken continuously for 24 hours at hourly intervals		
Frequency of Monitoring	Noise samples were collected from 7 locations - Once in a season		



Monitoring Photos

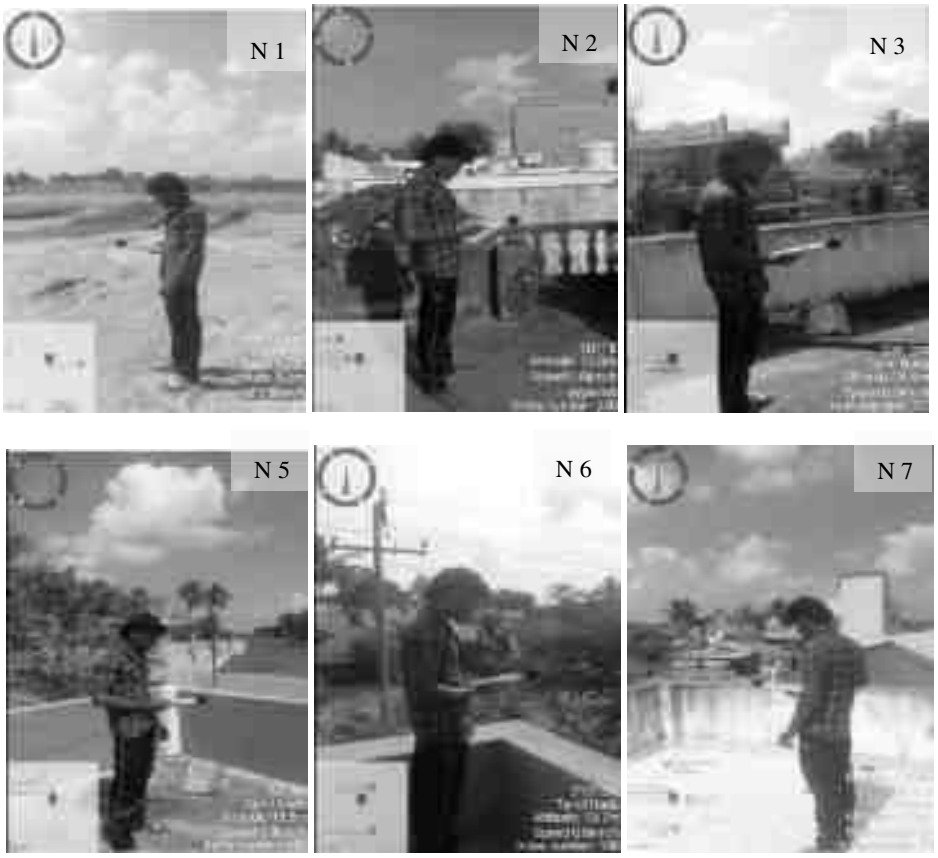


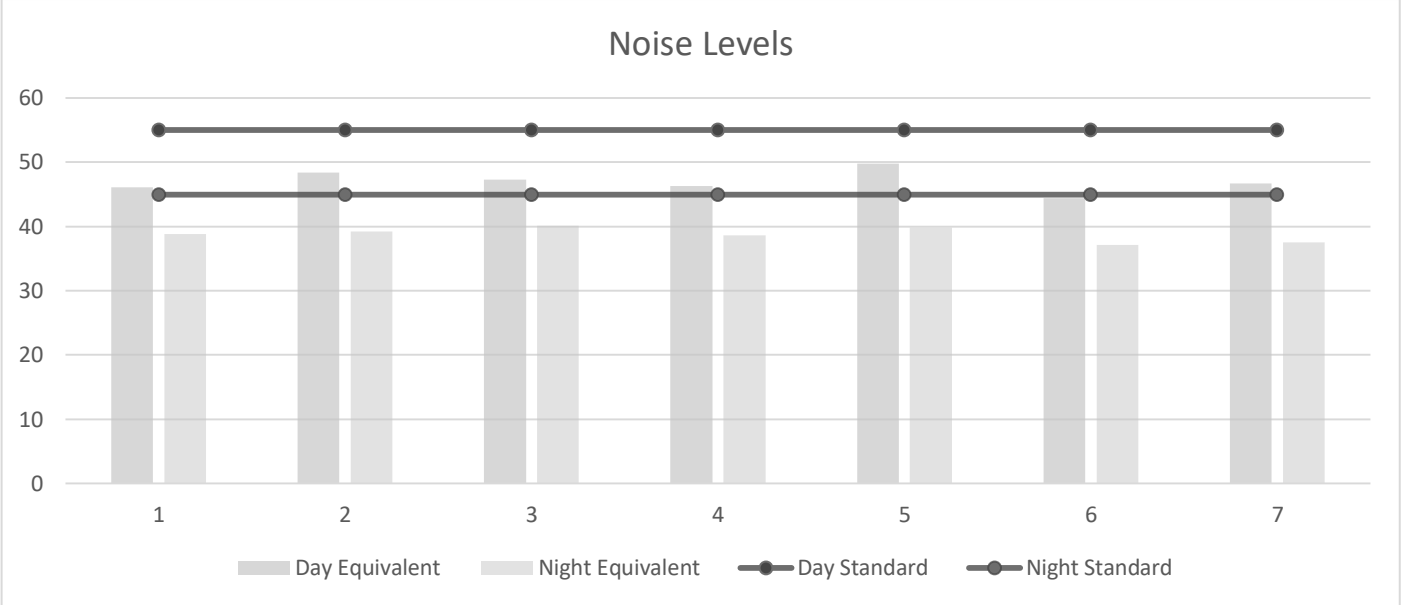
Figure 3-22 ANL Monitoring Photos

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

Day and Night Noise Level (Leq day)

Table 3-14 Day Noise Level (Leq Day)

Noise Levels	N1	N2	N3	N4	N5	N6	N7
Day Equivalent	46.1	48.4	47.3	46.3	49.8	44.4	46.7
Night Equivalent	38.8	39.2	40.1	38.6	39.8	37.1	37.5
Day Standard	55	55	55	55	55	55	55
Night Standard	45	45	45	45	45	45	45



Inference:

Day Noise Level: The maximum value is observed in Thuraiyur. Since the monitoring location is near Pinnathur – Vachanur Road, where the movement of trucks carrying the mined – out mineral will be more. In addition to that, Thuraiyur cricket ground is situated, where public movement will be there in the day-time which is also a contributing factor. Also, there is a temple and few earth mover shops are in the vicinity of the location.

The noise level in the project site is 53.7 dB (A) and the value is within the CPCB standards.

Night Noise Level:

The maximum night noise is observed in Alathurai. This is due to the movement of trains, which adjoins the monitoring location and also since the monitoring location is in the vicinity of various commercial settlements viz Lodge, Temple, travel agencies, where the vehicular traffic will be more even during night time.

The noise level in the Chidambaraperi is 43.9 dB(A) and the value is within the CPCB standards.

3.8.4 Soil Environment

The project area is surrounded by Vachanur, Alathur, Thuraiyur etc which are not prone to erosion. Sheet erosion is the uniform removal of soil in thin layers by the forces of raindrops and overland flow. In few places, slight sheet erosion can be seen. It can be a very effective erosive process because it can cover large areas of sloping land and go unnoticed for quite some time. The saline nature of the soil within 5 km radius is studied. The soil in the area is not affected.

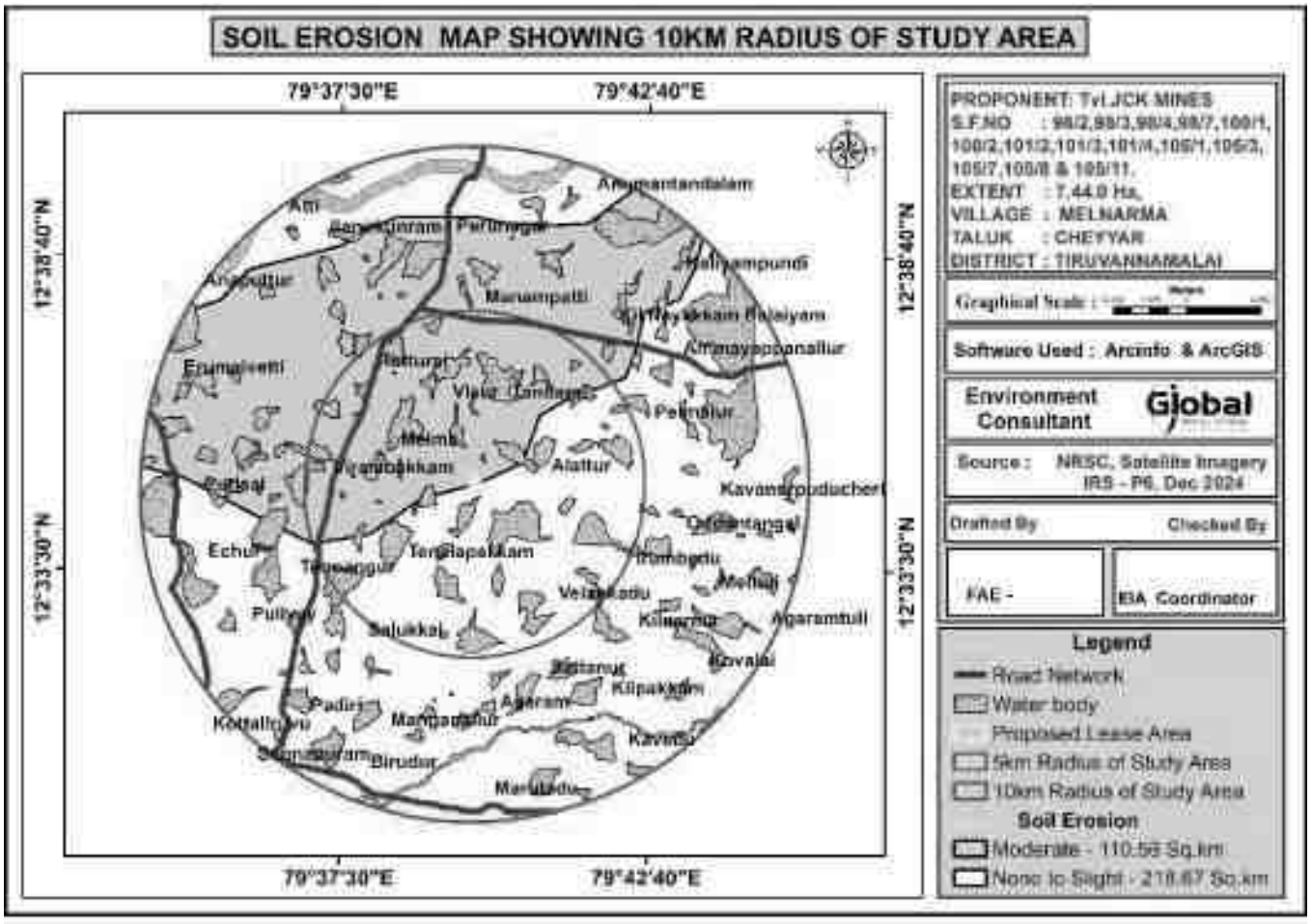


Figure 3-23 Soil Erosion pattern within 10km radius from the project site

Baseline Data

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

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

Table 3-15 Soil Quality Analysis

Environmental Parameters: **Soil Analysis**			
Monitoring Period	October 2024 to December 2024		
Design Criteria	Based on the Environmental settings in the study area		
Monitoring Locations	**Location**	**Distance from ML, km**	**Site Co-ordinates**
	Project Site	-	

	Ayyavadi	1.5	12°35'27.60"N, 79°39'1.99"E
	Alathurai	2.7	12°33'59.33"N, 79°40'52.93"E
	Veerambakkam	4.3	12°34'24.96"N, 79°37'21.38"E
	Thuraiyur	1.2	12°34'24.48"N, 79°39'15.82"E
	Vachanur	1.1	12°35'27.77"N, 79°39'54.58"E
	Alathur	2.0	12°35'3.70"N, 79°40'57.92"E
Methodology	Composite soil samples using sampling augers and field capacity apparatus		
Frequency of Monitoring	Soil samples were collected from 7 locations Once in a season		

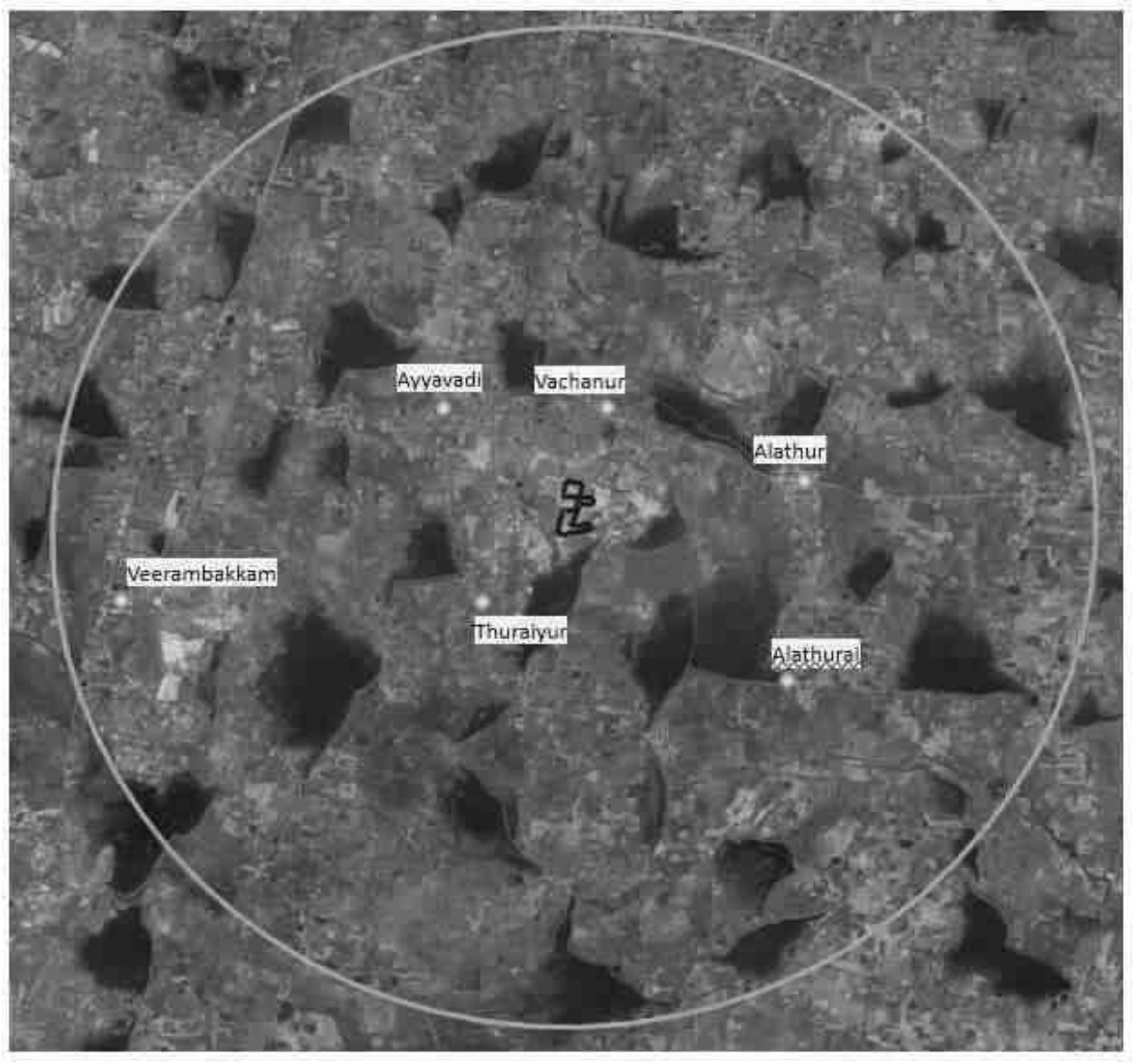


Figure 3-24 Soil Quality Monitoring Locations

Monitoring photos



Figure 3-25 Soil Quality Sampling Photos

To assess the soil quality of the study area, 6 monitoring stations were selected and the results are summarized below

Table 3-16 Soil Quality Analysis

S.No	Parameter	Unit	SQ1	SQ2	SQ3	SQ4	SQ5	SQ6
1	pH at 25 °C	-	7.58	6.9	6.89	6.97	7.02	7.46
2	Electrical Conductivity	µmhos/ cm	68.57	75.42	45.67	56.58	39.87	124.5
3	Dry matter content	%	99.54	92.15	97.64	98.96	96.54	94.58
4	Water Content	%	0.46	7.85	2.36	1.04	3.46	5.42
5	Organic Matter	%	0.48	0.56	0.72	0.79	1.21	0.96
6	Soil texture	-	LOAM	CLAY LOAM	loam	loam	loam	SANDY LOAM
7	Grain Size Distribution i. Sand	%	50.12 28.97	30.65 42.15	48.57 31.64	32.92 45.47	39.87 36.54	65.24 23.72
8	ii. Silt	%	20.91	27.2	19.79	21.61	23.59	11.04
9	iii.Clay	%	1.34	1.25	1.64	1.28	2.12	1.87
10	Phosphorous as P	mg/kg	664	542	420	370	410	462
11	Sodium as Na	mg/kg	345	310	628	586	654	290
12	Potassium as K	mg/kg	178	201	135	172	226	156

13	Nitrogen and Nitregenous Compounds	mg/kg	BDL (D.L.0.02)	BDL (D.L.0.02)	BDL (D.L.0.02)	BDL (D.L.0.02)	BDL (D.L.0.02)	BDL (D.L.0.02)
14	Total Soluble Sulphate	%	7.58	6.9	6.89	6.97	7.02	7.46
15	Porosity	%	68.57	75.42	45.67	56.58	39.87	124.5
16	Water Holding Cabacity	Inches/foot	99.54	92.15	97.64	98.96	96.54	94.58

Physical Properties:

Regular cultivation practices increase the bulk density of soils thus inducing compaction. This results in reduction in water percolation rate and penetration of roots through soils. The soils with low bulk density have favourable physical conditions whereas those with high bulk density exhibit poor physical conditions for agriculture crops. The bulk density of the soil in the study area ranged between 0.99 to 1.36 g/cc. The water holding capacity was found in the range of 92.15 Inches/Foot to 97.64 Inches/Foot

Chemical Properties:

Chemical characteristics of soils include pH, exchangeable cations and fertility status in the form of NPK values and organic matter. The value of the pH is acidic and alkaline and it ranges from 6.89 to 7.58. The organic matter varies from 0.48% to 1.21%, which indicates the soil is slightly fertile.

3.8.5 Ecology and Biodiversity

Ecology and Biodiversity is studied for 10 km radius around the project site. Project site is considered as core zone and from radius of 5 km radius, it is considered as buffer zone.

- Primary field survey is carried out for the assessment of flora and fauna
- In addition to that, Secondary data from Journals/Literature were studied and compiled to understand the species present

Survey Purpose and Approach:

The basic purpose is to explore the biological environment under Environment Impact Assessment (EIA) and to assist in the decision-making process and to ensure that the project options under consideration are bio-environmentally friendly. EIA identifies ways of improving project environmentally by preventing, minimizing, mitigating or compensating for adverse impacts before construction and development phase. The present study on the floral & faunal assessment of the proposed project is based on field survey of the area supported by secondary data from various governmental and non-governmental sources.

Objectives of the Study:

The objectives of this study were as follows:

- To conduct detail study for floral/faunal/avifaunal elements in the Study area.
- To assess scheduled species in the Study area (Rare, endangered, critically endangered, endemic and vulnerable).
- Baseline data for the study area along with a description of the existing terrestrial, wetland and aquatic vegetation.
- To identify impact of project on the biological environment, this will be discussed under Chapter 4.

Field Study and Methodology adopted

To assess the suitability of the methodology, random field survey was done. Field survey was conducted around 5 km radius from the project site and five locations were chosen based on the species density. Quadrat method is chosen for the proposed study as compared to other sampling methods, because they are relatively simple to use. Quadrat plots are uniform in size and shape and distributed randomly throughout the sample area, which makes the study design straightforward. They are also one of the most affordable techniques because they require very few materials.

Monitoring Locations

Table 3-17 Ecology & Biodiversity – Monitoring Locations

S. No	Location	Latitude	Longitude	No. of Quadrates		
				Trees (10mx10m)	Shrubs (5mx5m)	Herbs and grasses (1mx1m)
1.	Project Site					
2.	Ayyavadi	12°35'27.60"N,	12°35'27.60"N,	1	4	5
3.	Alathurai	12°33'59.33"N,	12°33'59.33"N,	1	4	5
4.	Veerambakkam	12°34'24.96"N,	12°34'24.96"N,	1	4	5
5.	Thuraiyur	12°34'24.48"N,	12°34'24.48"N,	1	4	5

Study outcome:

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

Sample plots were selected in such a way to get maximum representation of different types of vegetation and plots were laid out in different part of the study area of 5 km radius. Analysis of the vegetation will help in determining the relative importance of each species in the study area and to reveal if any economically valuable species is threatened in the process.

Calculation of Density, Frequency (%), Dominance, Relative Density, Relative Frequency, Relative Dominance & Important Value Index:

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

The details of trees, herbs and shrubs along with the Phytosociological parameters for the study area is shown below:

Table 3-18 Tree Species in the core zone

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Dominance	Relative Density	Relative Frequency	Relative Dominance	IVI
1	Pterocarpus santalinus	Senjantanam	2	2	6	0.33	33.33	1	0.28	1.74	2.20	4.45	8.39
2	Cocos nucifera	Thennai	2	2	6	0.33	33.33	1	0.07	1.74	2.20	1.11	5.05
3	Artocarpus heterophyllus	Palaa	4	4	6	0.67	66.67	1	0.28	3.48	4.40	4.45	12.33
4	Bombax ceiba	Sittan	4	4	6	0.67	66.67	1	0.50	3.48	4.40	7.92	15.79
5	Azadirachta indica	Veppam	1	1	6	0.17	16.67	1	0.15	0.87	1.10	2.29	4.26
6	Pterocarpus santalinus	Senjantanam	2	2	6	0.33	33.33	1	0.27	1.74	2.20	4.31	8.24
7	Butea monosperma	Parasa	3	3	6	0.50	50.00	1	0.23	2.61	3.30	3.61	9.51
8	Aegle marmelos	Vilvam	1	1	6	0.17	16.67	1	0.16	0.87	1.10	2.50	4.47
9	Causuarina equisetifolia	Savukku	10	5	6	1.67	83.33	2	0.13	8.70	5.49	1.98	16.17
10	Ficus Carica	Athi Maram	1	1	6	0.17	16.67	1	0.20	0.87	1.10	3.22	5.19
11	Cassia siamea	Manjal Konrai	12	6	6	2.00	100.00	2.00	0.15	10.43	6.59	2.39	19.42
12	Acacia nilotica	Karuvelai	2	2	6	0.33	33.33	1	0.18	1.74	2.20	2.85	6.79
13	Bambusa vulgaris	Moongil	4	4	6	0.67	66.67	1	0.08	3.48	4.40	1.27	9.14
14	Anacardium occidentale	Cashew	1	1	6	0.33	16.67	2	0.21	1.74	1.10	3.34	6.18
15	Delonix regia	Cemmayir-Konrai	1	1	6	0.17	16.67	1	0.21	0.87	1.10	3.34	5.31
16	Delonix elata	Perungondrai	5	1	6	0.83	16.67	5	0.17	4.35	1.10	2.62	8.06
17	Dalbergia sissoo	Shisham	2	2	6	0.33	33.33	1	0.44	1.74	2.20	6.96	10.89
18	Ficus benghalensis	Alai	2	2	6	0.33	33.33	1	0.08	1.74	2.20	1.19	5.13
19	Annona squamosa	Sitapalam	4	1	6	0.67	16.67	4	0.23	3.48	1.10	3.61	8.18
20	Carica papaya	Papaya	1	1	6	0.17	16.67	1	0.14	0.87	1.10	2.18	4.15
21	Ficus religiosa	Arasa maram	3	3	6	0.50	50.00	1	0.09	2.61	3.30	1.35	7.25
22	Polyalthia longifolia	Nettilinkam	5	3	6	0.83	50.00	1.67	0.14	4.35	3.30	2.18	9.83

23	Musa paradise	Vaazhai	3	3	6	0.50	50.00	1	0.08	2.61	3.30	1.19	7.09
24	Prosopis juliflora	Vaelikaruvai	3	3	6	0.50	50.00	1	0.21	2.61	3.30	3.34	9.25
25	Mangifera indica	Mamaram	8	6	6	1.33	100.00	1.333333	0.07	6.96	6.59	1.11	14.66
26	Terminalia catappa	Nattuvadamai	2	2	6	0.33	33.33	1	0.18	1.74	2.20	2.85	6.79
27	Morinda pubescens	Nuna	6	6	6	1.00	100.00	1	0.24	5.22	6.59	3.74	15.55
28	Thespesia populnea	Poovarasam	3	3	6	0.50	50.00	1	0.15	2.61	3.30	2.39	8.30
29	Tectona grandis	Thekku	3	3	6	0.50	50.00	1	0.12	2.61	3.30	1.88	7.79
30	Tamarindus indica	Puli	8	6	6	1.33	100.00	1.333333	0.20	6.96	6.59	3.09	16.64
31	Syzygium cumini	naval	1	1	6	0.17	16.67	1	0.11	0.87	1.10	1.79	3.75
32	Psidium guajava	Segapu	2	3	6	0.33	50.00	0.666667	0.09	1.74	3.30	1.43	6.47
33	Borassus flabelliformis	Panna maram	1	1	6	0.17	16.67	1	0.28	0.87	1.10	4.45	6.42
34	Citrus medica	Elumichai	2	2	6	0.33	33.33	1	0.23	1.74	2.20	3.61	7.54
	Total		**115**	**91**					**6.35**				

Table 3-19 Shrubs in the study area

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Relative Density	Relative Frequency	IUCN Conservation Status
1	Jatropagossypifolia	Kaatamanaku	28	17	24	1.17	0.71	1.65	14.43	17.17	Not Assessed
2	Lantana trifolia	Shrub verbana	10	3	24	0.42	0.13	3.33	5.15	3.03	Not Assessed
3	Robiniapseudoacacia	Black locust	17	5	24	0.71	0.21	3.4	8.76	5.05	Least Concern
4	Lantana camara	Unnichedi	9	6	24	0.38	0.25	1.5	4.64	6.06	Not Assessed
5	Calotropis gigantea	Erukam	14	12	24	0.58	0.50	1.17	7.22	12.12	Not Assessed
6	Stachytarpheaurticifolia	Rat tail	15	9	24	0.63	0.38	1.67	7.73	9.09	Not Assessed
7	Datura metal	Ummattangani	5	4	24	0.21	0.17	1.25	2.58	4.04	Not Assessed

8	Hibiscus rosa sinensis	Sembaruthi	3	2	24	0.13	0.08	1.5	1.55	2.02	Not Assessed
9	Tabernaemontanadivaricata	Crepe Jasmine	3	3	24	0.13	0.13	1	1.55	3.03	Not Assessed
10	Chloromolaena odorata	Venapacha	9	6	24	0.38	0.25	1.5	4.64	6.06	Least Concern
11	Euphorbia geniculata	Amman Pacharisi	3	3	24	0.13	0.13	1	1.55	3.03	Not Assessed
12	Catharanthus roseus	Nithyakalyani	3	3	24	0.13	0.13	1	1.55	3.03	Not Assessed
13	Woodfordiafruiticosa	Velakkai	3	3	24	0.13	0.13	1	1.55	3.03	Least Concern
14	Morindapubescens	Mannanunai	2	2	24	0.08	0.08	1	1.03	2.02	Not Assessed
15	Acalypha indica	Kuppaimeni	20	8	24	0.83	0.33	2.5	10.31	8.08	Not Assessed
16	Parthenium hysterophorous	Vishapoondu	50	13	24	2.08	0.54	3.85	25.77	13.13	Not Assessed

Table 3-20 Herbs & Grasses in the core zone

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Relative Density	Relative Frequency	IUCN Conservation status
1	Plumbago zeylanica	Chittiramoolam	3	3	30	0.10	0.10	1	1.19	3.23	Not assessed
2	Mimosa pudica	Thottacherungi	6	5	30	0.20	0.17	1.2	2.38	5.38	Least concern
3	Sida acuta	Malaidangi	10	3	30	0.33	0.10	3.33	3.97	3.23	Not assessed
4	Scrophularia nodosa	Sarakkothini	15	7	30	0.50	0.23	2.14	5.95	7.53	Not assessed
5	Helicteresisora	Valampuri	2	2	30	0.07	0.07	1	0.79	2.15	Not assessed
6	Cynodondactylon	Arugu	12	6	30	0.40	0.20	2	4.76	6.45	Not assessed
7	Sporobolus fertilis	Giant Parramatta Grass	9	4	30	0.30	0.13	2.25	3.57	4.30	Not assessed

8	Viburnum dentatum	Viburnum	5	5	30	0.17	0.17	1	1.98	5.38	Least concern
9	Heraculem spondylium	Hog Weed	20	10	30	0.67	0.33	2	7.94	10.75	Not assessed
10	Laportea canadensis	Peruganchori	30	20	30	1.00	0.67	1.5	11.90	21.51	Not assessed
11	Euphorbia hirta	Amman Pacharisi	5	4	30	0.17	0.13	1.25	1.98	4.30	Not assessed
12	Tridax procumbens	Vettukaayathalai	5	4	30	0.17	0.13	1.25	1.98	4.30	
13	Tephrosia purpurea	Kavali	20	4	30	0.67	0.13	5	7.94	4.30	
14	Sida cordifolia	Maanikham	45	4	30	1.50	0.13	11.25	17.86	4.30	
15	Tridax procumbens	Cuminipachai	15	4	30	0.50	0.13	3.75	5.95	4.30	
16	Ruelliastrepens	Grandinayagam	25	4	30	0.83	0.13	6.25	9.92	4.30	
17	Senna occidentalis	Nattamsakarai	25	4	30	0.83	0.13	6.25	9.92	4.30	

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

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

Table 3-21 Biodiversity Indices

Description	Formula
Species diversity – Shannon – Wiener Index	$H=\Sigma[(p_i)*\ln(p_i)]$ Where p_i : Proportion of total sample represented by species i:number of individuals of species i/ total number of samples

Evenness	H/H_{max} H_{max} = ln(s)= maximum diversity possible S=No. of species
Species Richness by Margalef	RI = S-1/ln N Where S = Total Number of species in the community N = Total Number of individuals of all species in the community

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

Table 3-22 Species Diversity for trees

Scientific Name	Common Name	No. of Species	Pi	ln (Pi)	Pi x ln (Pi)
Ficus carica	Athi maram	2	0.017857	-4.02535	-0.07188
Cassia siamea	ManjalKonrai	2	0.017857	-4.02535	-0.07188
Acacia nilotica	Karuvelai	4	0.035714	-3.3322	-0.11901
Bambusa vulgaris	Moongil	4	0.035714	-3.3322	-0.11901
Anacardium occidentale	Cashew	2	0.017857	-4.02535	-0.07188
Alstoniascholaris	Elilaipalai	2	0.017857	-4.02535	-0.07188
Butea monosperma	Parasa	3	0.026786	-3.61989	-0.09696
Aegle marmelos	Vilvam	1	0.008929	-4.7185	-0.04213
Causuarinaequisetifolia	Savukku	2	0.017857	-4.02535	-0.07188
Albizia amara	Wunja	1	0.008929	-4.7185	-0.04213
Cocos nucifera	Thennai	15	0.133929	-2.01045	-0.26926
Artocarpus heterophyllus	Palaa	2	0.017857	-4.02535	-0.07188
Bombax ceiba	Sittan	4	0.035714	-3.3322	-0.11901
Azadirachta indica	Veppam	10	0.089286	-2.41591	-0.21571
Delonix regia	Cemmayir-Konrai	1	0.008929	-4.7185	-0.04213
Delonixelata	Perungondrai	1	0.008929	-4.7185	-0.04213
Dalbergia sissoo	Shisham	1	0.008929	-4.7185	-0.04213
Ficus benghalensis	Alai	2	0.017857	-4.02535	-0.07188
Annona squamosa	Sitapalam	1	0.008929	-4.7185	-0.04213
Citrullus colocynthis	Kumatti	1	0.008929	-4.7185	-0.04213
Ficus religiosa	Arasamaram	3	0.026786	-3.61989	-0.09696
Polyalthia longifolia	Nettilinkam	5	0.044643	-3.10906	-0.1388
Musa paradise	Vaazhai	3	0.026786	-3.61989	-0.09696
Prosopis juliflora	Vaelikaruvai	3	0.026786	-3.61989	-0.09696
Mangifera indica	Mamaram	8	0.071429	-2.63906	-0.1885
Terminalia catappa	Nattuvadamai	2	0.017857	-4.02535	-0.07188
Morindapubescens	Nuna	6	0.053571	-2.92674	-0.15679
Thespesia populnea	Poovarasam	3	0.026786	-3.61989	-0.09696
Tectona grandis	Thekku	3	0.026786	-3.61989	-0.09696
Tamarindus indica	Puli	8	0.071429	-2.63906	-0.1885
Syzygiumcumini	naval	1	0.008929	-4.7185	-0.04213

Psidium guajava	Segapu	3	0.026786	-3.61989	-0.09696
Ziziphus mauritiana	Elandai	1	0.008929	-4.7185	-0.04213
Citrus medica	Elumichai	2	0.017857	-4.02535	-0.07188
Total		112			-3.22

H (Shannon Diversity Index) =3.22

Table 3-23 Species Diversity for Shrubs

Scientific Name	Common Name	No. of Species	Pi	ln (Pi)	Pi x ln (Pi)
Jatropagossypifolia	Kaatamanaku	28	0.14433	-1.93565	-0.27937
Lantana trifolia	Shrub verbana	10	0.051546	-2.96527	-0.15285
Robiniapseudoacacia	Black locust	17	0.087629	-2.43464	-0.21335
Lantana camara	Unnichedi	9	0.046392	-3.07063	-0.14245
Calotropis gigantea	Erukam	14	0.072165	-2.6288	-0.18971
Stachytarpheaurticifolia	Rat tail	15	0.07732	-2.55981	-0.19792
Datura metal	Ummattangani	5	0.025773	-3.65842	-0.09429
Hibiscus rosa sinensis	Sembaruthi	3	0.015464	-4.16925	-0.06447
Tabernaemontanadivaricata	Crepe Jasmine	3	0.015464	-4.16925	-0.06447
Chloromolaena odorata	Venapacha	9	0.046392	-3.07063	-0.14245
Euphorbia geniculata	Amman Pacharisi	3	0.015464	-4.16925	-0.06447
Catharanthus roseus	Nithyakalyani	3	0.015464	-4.16925	-0.06447
Woodfordiafruiticosa	Velakkai	3	0.015464	-4.16925	-0.06447
Morindapubescens	Mannanunai	2	0.010309	-4.57471	-0.04716
Acalypha indica	Kuppaimeni	20	0.103093	-2.27213	-0.23424
Parthenium hysterophorous	Vishapoondu	50	0.257732	-1.35584	-0.34944
		194			-2.3656

H (Shannon Diversity Index) =2.36

Table 3-24 Species Diversity for Herbs

Scientific Name	Common Name	No. of Species	Pi	ln (Pi)	Pi x ln (Pi)
Plumbago zeylanica	Chittiramoolam	3	0.011905	-4.43082	-0.05275
Mimosa pudica	Thottacherungi	6	0.02381	-3.73767	-0.08899
Sida acuta	Malaidangi	10	0.039683	-3.22684	-0.12805
Scrophularia nodosa	Sarakkothini	15	0.059524	-2.82138	-0.16794
Helicteresisora	Valampuri	2	0.007937	-4.83628	-0.03838
Cynodondactylon	Arugu	12	0.047619	-3.04452	-0.14498
Sporobolus fertilis	Giant Parramatta Grass	9	0.035714	-3.3322	-0.11901
Viburnum dentatum	Viburnum	5	0.019841	-3.91999	-0.07778

Heraculem spondylium	Hog Weed	20	0.079365	-2.5337	-0.20109
Laportea canadensis	Peruganchori	30	0.119048	-2.12823	-0.25336
Euphorbia hirta	Amman Pacharisi	5	0.019841	-3.91999	-0.07778
Tridax procumbens	Vettukaayathalai	5	0.019841	-3.91999	-0.07778
Tephrosia purpurea	Kavali	20	0.079365	-2.5337	-0.20109
Sida cordifolia	Maanikham	45	0.178571	-1.72277	-0.30764
Tridax procumbens	Cuminipachai	15	0.059524	-2.82138	-0.16794
Ruelliastrepens	Grandinayagam	25	0.099206	-2.31055	-0.22922
Senna occidentalis	Nattamsakarai	25	0.099206	-2.31055	-0.22922
		252			-2.56298

H (Shannon Diversity Index) =2.56

Table 3-25 Evenness and Species Richness by Margalef

Details	H	Hmax	Evenness	Species Richness (Margalef)
Trees	3.22	3.5	0.9	7
Shrubs	2.36	2.77	0.85	2.84
Herbs	2.56	2.83	0.9	2.89

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

Frequency Pattern

To understand the frequency pattern, the observed frequency is compared with the Raunkiaer's frequency. Any deviation from Raunkiaer's frequency implies disturbed community.

Classes of species in a community and normal value of class according to Raunkiaer

Class	Frequency (%)	Normal Value in the class
A	1-20	53
B	21-40	14

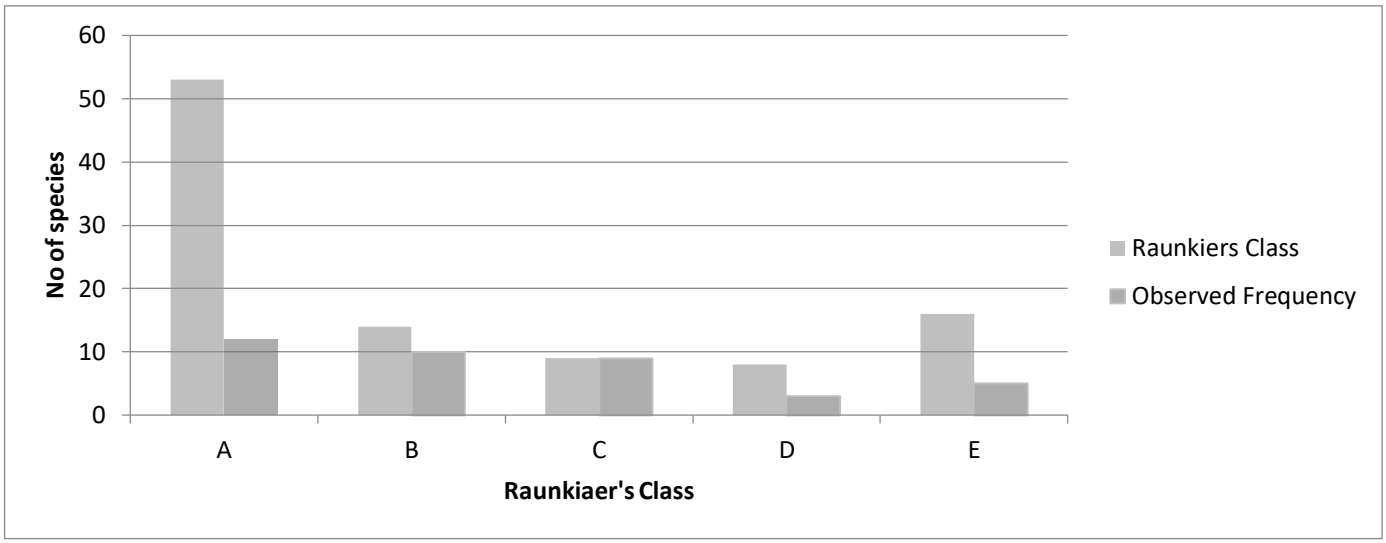
C	41-60	9
D	61-80	8
E	81-100	16

Where A>B>C>=<D<E

Raunkiaer's class for the observed species

S. No.	Scientific Name	Local Name	Frequency (%)	Class as per Raunkiaer's Law
1.	Ficus carica	Athi maram	33.33	B
2.	Cassia siamea	ManjalKonrai	33.33	B
3.	Acacia nilotica	Karuvelai	66.67	D
4.	Bambusa vulgaris	Moongil	66.67	D
5.	Anacardium occidentale	Cashew	33.33	B
6.	Alstoniascholaris	Elilaipalai	33.33	B
7.	Butea monosperma	Parasa	50.00	C
8.	Aegle marmelos	Vilvam	16.67	A
9.	Causuarinaequisetifolia	Savukku	33.33	B
10.	Albizia amara	Wunja	16.67	A
11.	Cocos nucifera	Thennai	100	E
12.	Artocarpus heterophyllus	Palaa	33.33	B
13.	Bombax ceiba	Sittan	66.67	D
14.	Azadirachta indica	Veppam	100	E
15.	Delonix regia	Cemmayir-Konrai	16.67	A
16.	Delonixelata	Perungondrai	16.67	A
17.	Dalbergia sissoo	Shisham	16.67	A
18.	Ficus benghalensis	Alai	33.33	B
19.	Annona squamosa	Sitapalam	16.67	A
20.	Citrullus colocynthis	Kumatti	16.67	A
21.	Ficus religiosa	Arasamaram	50.00	C
22.	Polyalthia longifolia	Nettilinkam	50.00	C
23.	Musa paradise	Vaazhai	50.00	C
24.	Prosopis juliflora	Vaelikaruvai	50.00	C
25.	Mangifera indica	Mamaram	100	E
26.	Terminalia catappa	Nattuvadamai	33.33	B

27.	Morindapubescens	Nuna	100	E
28.	Thespesia populnea	Poovarasam	50.00	C
29.	Tectona grandis	Thekku	50.00	C
30.	Tamarindus indica	Puli	100	E
31.	Syzygiumcumini	naval	16.67	A
32.	Psidium guajava	Segapu	50.00	C
33.	Ziziphus mauritiana	Elandai	16.67	A
34.	Citrus medica	Elumichai	33.33	B



Interpretation: The observed frequency is A>B>C<D>E, which follows Raunkiaer's Distribution Frequency and hence the ecology is undisturbed.

Floral study in the Buffer Zone:

Economically important Flora of the study area

Agricultural crops: Paddy, Maize are the main crop grown. Different fruits like Banana, papaya, mangoes, guava and vegetables like brinjal, drumsticks, onion, Coriander also grown by the local people.

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

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

Faunal Communities

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

- Point Survey Method: Observations were made in each site for 15 minutes duration.
- Road Side Counts: The observer traveled by motor vehicles from site to site, all sightings were recorded (this was done both in the day and night time). An index of abundance of each species was also established.
- Pellet and Track Counts: All possible animal tracks and pellets were identified and recorded (South Wood, 1978).

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

Methodology Adopted:

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

Study in the core zone:

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

Study in the core Zone

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

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

Table 3-26 List of faunal Species

Scientific Name	Common Name	Schedule of wild life protection act	IUCN conservation status
Mammals			
Funambulus pennanti	Palm Squirrel	IV	Least Concern
Mus rattus	Indian rat	IV	Not listed
Funambulus palmarum	Three stripped palm squirrel	IV	Least Concern
Herestes edwardsii	Common Mangoose	IV	Not listed
Mus musculus	Common Mouse	IV	Least Concern
Bandicota indica	Rat	IV	Least Concern
Lepus nigricollis	Indian Hare	IV	Least Concern

Felis catus	Cat	Not listed	Not listed
Canis lupus familiaris	Indian dog	Not listed	Not listed
Bos Indicus	Indian Cow	Not listed	Not listed
Bubalus bubalis	Buffalo	I	Not listed
Sus scrofa domesticus	Domestic pig	Not listed	Not listed
Birds			
Milvus migrans	Black kite	IV	Least concern
Saxicoloides fulicatus	Indian Robin	IV	Least concern
Phragamaticola aedon	Thick billed warbler	IV	Least concern
Pericrocotus cinnamomeus	Small Minivet	IV	Least concern
pseudibis papillosa	Black Ibis	IV	Least concern
Ergetta garzetta	Little Erget	IV	Least concern
Psittacula krameni	Rose ringed parakeet	IV	Least concern
Bubulcus ibis	Cattle Erget	IV	Least concern
Dicrurus marcocercus	Black drongo	IV	Least concern
Streptopelia chinensis	Spotted dove	IV	Least concern
Columba livia	Rock pigeon	IV	Least concern
Corvus splendens	House crow	IV	Least concern
Cypsirurus balasiensis	Asian palm swift	IV	Least concern
Ardeola grayii	Pond heron	IV	Least concern
Elanus caeruleus	Black-winged kite	IV	Least concern
Alcedo atthis	Small blue kingfisher	IV	Least concern
Cuculus canorus	Common Cukoo	IV	Least concern
Centropus sinensis	Greater coucal	IV	Least concern
Passer domesticus	House sparrow	IV	Least concern
Reptiles & Amphibians			
Chameleon zeylanicum	Chameleon	IV	Not listed
Calotes versicolor	Common garden lizard	II	Not listed
Bungarus caeruleus	Common krait	IV	Not listed
Ophisops leschenaultia	Snake eyed lizard	--	Not listed
Bufo melanostictus	Toad	IV	Least concern
Ptyas mucosa	Rat snakes	IV	Least concern
Hemidactylus sp.	House lizard	--	Not listed
Butterflies			
Danaus chrysippus	Plain Tiger	--	Not listed
Papilio demoleus	Common lime	--	Not listed

Euploea core	Common crow	--	Least concern
Danaus genutia	Common tiger	--	Not listed
Eurema brigitta	Small grass yellow	--	Least concern

3.9 Demography and Socio-Economics

The demography survey study is done within 10km from the project site. The population, Household, Sex ratio, Literacy rate, SC, ST details for all the villages in the study area is listed below,

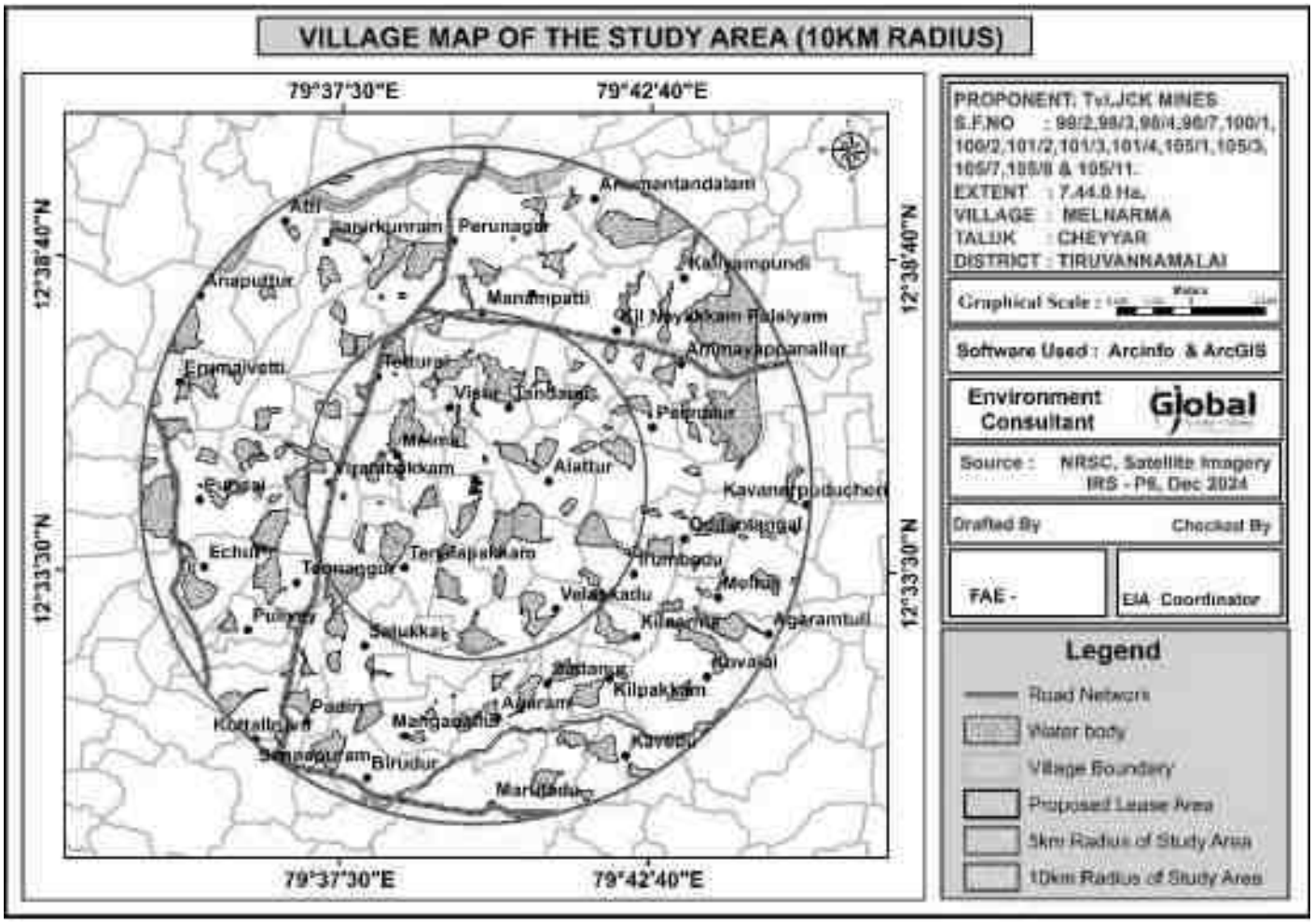


Figure 3-26 Villages around 10 km of the project site

Table 3-27 Demographic Profile – Study area

Sl.No.	Name of the Block	Census Town				Municipality			
			Total	Male	Female	Municipality	Total	Male	Female
1	Tiruvannamalai	Vengikkal	18244	9278	8966	Tiruvannamalai	145278	72406	72872
2	Arni	Sevur	10299	5213	5086	Arni	63671	31268	32403
		S.V.Nagaram	5894	2946	2948	Cheyyar	37802	18773	19029
		Paiyur	7555	3723	3832	Vandawasi	31320	15566	15754
3	West Arni	Mullipattu	4956	2537	2419	**Total**	**278071**	**138013**	**140058**
		Devikapuram	9800	4926	4874				
4	Cheyyar	Kilpupakkam	6912	3466	3446				
		Dusi	5577	2811	2766				
	District Total	**Census Town**	**69237**	**34900**	**34337**				

Source: Census of India, 2011

The Population of the district was 24,64,875 comprising 1235889 Men and 1228986 women as per 2011 census. The urban population is 494945 constituting 20 % of the total Population, the remaining 80% ie.1969930 is rural population. The density of population per sq.km was 398 persons in the 2011 census. The total literate among male are 909803 and that of female are 717010

TIRUVANNAMALAI DISTRICT PROFILE -2023-24			
Table No.	**GEOGRAPHICAL POSITION**		
1	1.North Latitude Between		Between 11.55 and 13.15'
	2.East Longitude Between		Between 78.20 and 79.50'
2	**AREA AND POPULATION**		
	1.Area in Square Kms		6188
	2.Total Population (As Per2011 Census)	2468875	
		a) Male	1235889
		b) Female	1228986
		c) Rural	1969930
		d) Urban	498945
	3.Density / Sq. Km		398
	4.Literate		
		a) Male (%)	83.11
		b) Female (%)	65.32
	5.Main workers (As Per 2011 Census) 970972		
		a) Total workers	1238137
		b) Male workers	738995
		c) Female workers	499182
		d) Rural workers	1048646
		e) Urban workers	189531
		f) Cultivators	265185
		g) Agricultural laborers	351310
		h) Household Industry	37020
		i) Other workers	316559
	j) Marginal workers		268105
	6.Non Workers		1229698
	7.Language spoken in the District		Tamil
3	**VITAL STATISTICS**		
	1.Birth		11.4
	2.Death		5.6
	3.Infant Death (%)		9.9
	4.Birth Rate (Per 1000 Population)		
	a) Rural		11.9
	b) Urban		8.0
	c) Combined		11.4
	5.Death Rate (Per 1000 Population)		
	a) Rural		5.6
	b) Urban		4.7
	c) Combined		5.0
	6.Infant Mortality Rate (Per 1000 Population)		
	a) Rural		10.4
	b) Urban		5.2
	c) Combined		9.9
	7.Expectation of Life at Birth		
	a) Male		-
	b) Female		-
	8.No.Of Deaths of Women due to problems related to child birth		
	a) At the time of delivery		0
	b) During Pregnancy		4
	c) After Child birth (within 42 days)		8
	d) Abortion		3

Source: District Statistical Handbook 2023-2024

Socio-economic survey methodology

Purposive sampling methods were used for selecting respondents (male and female) for household survey. For official information of village, Gram Panchyat member has been chosen. Structured questionnaire was used for survey. For group discussion, Panchyat bhavan, Aanganwadi bhavan, community halls were used. Out of total 40 villages, 5 villages

(13%) were surveyed for which selection criteria is based on proximity to the project site and area with dense and scarce populations were chosen. The chosen villages for the study include: **Vachanur, Alathurai, Thiraiyur, Ayyavadi and Veerambakkam.**

Table 3-28 Consolidated Report – Key Socio-Economic Indicator in the study area

S. No	Indicator	Percentage/Nos.
1	People below age 18	28
2	People age limit above 18	75
3	Literates	90
4	Illiterates	15
5	% of people employed in company	45
6	% of people self employed	32
7	% of people seasonally employed	4
8	% of people unemployed	12
9	% of houses covered with LPG Cooking gas	92
10	% of houses covered with toilet facility	85
11	% of houses covered with piped water supply	59

Salient Features in the study area

House pattern: It is notable that nearly 98% of the houses were pakka at survey area.

Employment: Main occupation of the people in the study area was agriculture

Fuel: All the households use LPG for cooking purpose

Main Crops: The cash crops include cotton, sugarcane, oilseeds, coffee, tea, rubber, coconut, gingelly and chillies. The important horticultural products are bananas and mangoes.

Migration: During survey, it was found that local population were migrating for employment purpose. Since due to the presence of various industrial units, migration from other places were also noted.

Sanitation: All the households were having toilet facilities in their houses. Drainage system was maintained in the study area.

Drinking Water Facilities: Ground water is the major source of drinking water in the villages wherein hand pumps, tap water and dug wells are installed.

Transportation Facility: For transportation purpose Auto, Public and Private Bus services

were available. Transportation facilities were frequently available in the study area and connecting major cities. Private vehicles like Bicycles & Motor Cycles were mostly used by villagers for transportation purpose

4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 Introduction

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

4.2 Environmental Impacts

Environmental Impacts can be group into Primary impacts & Secondary Impacts

Primary Impacts: These impacts are directly attributed by the project

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

Assessment of impacts is done for the following Environmental Parameters:

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

Table 4-1 Impact & Mitigation measures on Land Environment

<table>
<tr><th>Aspect</th><th>Impact</th><th>Mitigation Measures</th></tr>
<tr><td>Quarrying operation</td><td>The proposed 7.44.00 Ha mine is quarrying of 8,68,060m3 of rough stone 1,00,452m3 of Gravel formation. The quarry operation is proposed to carry out with Opencast, Semi-mechanized Mining with a bench height of 5m and bench width of 5m is proposed. At the end of 5 years, mining lease area will be converted into ultimate pit of
<table>
<tr><th>Pit No.</th><th>Length (m)</th><th>Width (m)</th><th>Depth (m)</th></tr>
<tr><td>I</td><td>140</td><td>130</td><td>57</td></tr>
<tr><td>II</td><td>128</td><td>52</td><td>22</td></tr>
<tr><td>III</td><td>249</td><td>99</td><td>47</td></tr>
</table>
This may lead to soil erosion, degradation & resource loss

The main impact of open cast mining on land-use is land degradation. The land is bound to be excavated for mining of Rough Stone and Gravel Quarry.</td><td>The proposed project site is not prone to any kind of soil erosion. In addition, garland drainage of 1m x 1m will be provided to avoid storm water run- off.

It is proposed to plant 4000 Nos. of local tree species (Neem, Magizham, Tamarind, Elandhai and Vilvam) along the roads, outer periphery of the mining area which enhances the binding property of the soil. It is proposed to improve the affected land wherever possible for better land use, so as to support vegetation and creation of water reservoir in the ultimate pit after quarrying

The overburden in the form of Gravel, after the excavation gravel will be directly loaded into tipper to the needy buyers for road project and construction works for filling and leveling of low-lying areas.</td></tr>
</table>

	Impact on soil of the study area will be minimal as there is no wastewater generated, heavy metal infusion, stack emissions. Impact due to transformation of terrain characteristics over the large area results in soil degradation. Solid waste will be generated from the mining activity as there will be refuse also generation of domestic waste. If it not properly managed, may cause odor and health problem to the workers.	The source of dust generation is majorly due to drilling, blasting, loading & unloading of the mined-out mineral, the impact will be mitigated by water sprinkling regularly once in 3hrs. The proposed mining activity is carried out in almost hilly terrain where the contour level difference is 9m. The 100% recovery is achieved by extracting the entire mineable reserve. Hence there will be no refuse generation due to the mining activity. Apart from that, a very meagre quantity of domestic waste will be generated in the project, which will be handed over to the local body on daily basis.

Table 4-2 Impact & Mitigation measures on water environment

Aspect	Impact	Mitigation Measures
Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.	The mining in the area may cause ground water contamination due to intersection of the water table and mine runoff.	The water table will not be intersected during mining, as the ultimate depth is limited up to 57-meter BGL, whereas the ground water table is at 68m below the ground level. The municipal wastewater will be disposed into septic tanks followed by soak pit. No chemicals consisting of toxic elements will be used for carrying out mining activity.

		For the management of surface run-off, rain water harvesting plan will be proposed. The total harvested rainfall is 26,548 Cum [(7.44.00 Ha x 0.98 x 0.35) + (0.3 Ha x 0.98 x 0.35)]. 10% will be evaporated and the remaining 23,893 Cum. will be harvested in two sumps each of capacity 12,000 Cu.m
	The ground water depletion may occur due to mining activity	The ground water table is at a depth of 68m the mining operation will not affect the aquifer. The ultimate pit at the end of the mining operation will be used for rain water storage, the stored water will be used for greenbelt development and further the stored water will be used for domestic purposes (other than drinking) after proper treatment.
	Chemicals consisting of nitrate used for blasting may pollute the surface run off	Further, the run-off water will be stored in sumps and after proper treatment; water will be used in the mining operation for dust suppression.
	Improper management of Domestic wastewater in the Mine lease may create unhygienic conditions in the site thereby causing health impacts to the labours	Provision of urinals/Latrines along with septic tank followed by soak pit arrangement will be provided in the Mine Lease area for the proper management of wastewater
Drainage	Mine drainage is surface water or groundwater that drains from an active or abandoned mine. One of the	As per the approved mining plan the ultimate pit limit is 57 m (BGL) for first five years. The ground water table is reported as 68m BGL.

	adverse impacts of mine drainage is it will contaminate the ground water.	The depth is safe and economic for the quarrying operation. Hence the quarrying operation may not affect the ground water.

Table 4-3 Impact and mitigation measures on air environment

Aspect	Impact	Mitigation Measures
Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.	During mining operation, fugitive dust and other air pollutants like particulate matter (PM10 & PM 2.5) will be generated. The main source of pollutants arises due to drilling and blasting. 6 Nos. of Tipper will be used for loading nd unloading, 2 Nos. of Excavator (0.90 m bucket capacity (with rock breaker attachment) will be used for excavation of the mineral which contributes to the generation of fugitive dust. In addition, blasting will be done using explosives leading to the generation of dust. <u>Effect on Human</u>	It is proposed to plant 3000 Nos of local species (with 600 Nos each year) along the haul roads, outer periphery within the lease area to prevent the impact of dust in consultation with Forest department for the plantation of trees (Neem, Magizham, Tamarind, Elandhai and Vilvam) in two tier to combat air pollution and with herbs (Nerium) in between the tree species. 1000 Nos. of tree species will be planted outside the mine lease area Planning transportation routes of the mined-out mineral, so as to reach the nearest paved roads (an approach road) by shortest route connecting Kurambur-Melma Road Alternatively, paved road will be constructed between mine lease area and nearest paved road connectivity. The speed of trucks plying on the haul road will be limited to 20km/hr to avoid generation of dust. The trucks will be covered by tarpaulin. Overloading will be avoided.

	Adverse effect on human health of working labourers and neighboring villagers like effect on breathing and respiratory system, damage to lung tissue, influenza or asthma. Dust generation due to loading and unloading of mineral and due to transportation can also affect the workers as well as nearby villagers <u>Effect on Plants</u> Stomatal index may be minimized due to dust deposit on leaf.	Personal Protective Equipments (PPEs) like eye goggles, dust mask, leather gloves, safety shoes &boots will be provided to the workers engaged at dust generation points like excavation and loading points. 3 kLD of water will be proposed for sprinkling on unpaved roads to avoid dust generation during transportation.

AERMOD Modelling:

Impact Prediction: Impact prediction is a very important phenomenon in evaluating the environmentally potential adverse impacts for any proposed mine project. The impact prediction is always carried out under worst possible conditions so as to mitigate or to eliminate the environmental hazards. These predictions thus calculated are superimposed over the baseline data to calculate the net impact on the environment after the proposed mine Project comes into production.

Air Emissions: The impacts on air environment from a mining activity depend on various factors like production capacity, machinery involved, operations and maintenance of various equipment and vehicle. Apart from these, there will be other activities associated viz transportation of mineral and waste, stocking facilities and dump management within the mine lease area that may contribute to pollution.

The air-borne particulate matter generated by quarrying operations and transportation is mainly PM10 and PM2.5, and emissions of sulfur dioxide (SO2) and oxides of nitrogen (NO2) due to excavation/loading equipment and vehicles plying on haul roads are the cause of air pollution in the project area.

Furthermore, the loading, unloading, and transportation of rough stone, as well as wind erosion of the exposed area and movement of light vehicles, will cause pollution within a 500-meter radius of the project area due to quarrying activities. This has a cumulative impact on the ambient air environment around the project area.

Quantitative Estimation of Impacts on Air Environment: An attempt has been made to predict the incremental rise of various ground level concentrations above the baseline status in respect of air pollution due to proposed production of 8,68,060m3 of Rough Stone and 1,04,452m3 of gravel by the open-cast mechanized mining method.

The pollutants released into the atmosphere will disperse in the down wind direction and finally reach the ground at farther distance from the source. The concentration of ground level concentrations mainly depends upon the strength of the emission source and micrometeorology of the study area.

In order to estimate the ground level concentrations due to the emission from the proposed project, EPA approved Industrial Source Complex ISC AERMOD View Model has been employed.

The mathematical model used for predictions on air quality impact in the present study is ISC-AERMOD View-6.8.6. It is the next generation air dispersion model, which incorporates planetary boundary layer concepts.

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

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

Special features of AERMOD include its ability to treat the vertical in homogeneity of the planetary boundary layer special treatment of surface releases, irregularly shaped area sources, a plume model for the convective boundary layer, limitation of vertical mixing in the stable boundary layer, and fixing the reflecting surface at the stack base.

The AERMET is the meteorological preprocessor for the AERMOD. Input data can come from hourly cloud cover observations, surface meteorological observations and twice-a-day upper air soundings. Output includes surface meteorological observations and parameters and vertical profiles of several atmospheric parameters.

The AERMAP is a terrain preprocessor designed to simplify and standardize the input of terrain data for the AERMOD. Input data include receptor terrain elevation data. Output includes, for each receptor, location and height scale, which are elevations used for the computation of airflow around hills.

Salient features of the AERMOD model are given hereunder:

- ♣ Excavation operations are considered as area sources.
- ♣ Transportation of material on haulage roads has been considered as line source

The predicted ground level concentrations for study period computed using AERMOD model are plotted as isopleths.

Sources of Dust Emission:

The proposed mining is carried out by semi mechanized opencast method. The air borne particulate matter generated by ore handling operations, transportation and screening of ore is the main air pollutant. The emissions of sulphur dioxide (SO2), Oxides of Nitrogen (NOx) contributed by diesel operated excavation/loading equipment and vehicles plying on haul roads are marginal. Prediction of impacts on air environment has been carried out taking into consideration proposed production and net increase in emissions. Based on the various operations involved in the production of minerals, the various emission sources have been identified as given below.

a. Area sources.
b. Line sources.

Extraction of mineral from mine, are considered as area sources. Transportation of material from mining benches to various end points are considered as line sources. The impact of above sources on air environment is discussed below:

The other sources of air pollution are the dust generated during the movement of tippers on the haul road. Water tankers with spraying arrangement will be used for regular water sprinkling on the haul roads to ensure effective dust suppression. The tippers are well maintained so that exhaust smoke does not contribute abnormal values of noxious gases and un-burnt hydrocarbons.

Emission Details:

All the emissions discussed above are quantified for proposed maximum production of is 8,68,060m3 of Rough Stone and 1,04,452m3 of gravel by the open-cast mechanized mining method by the open-cast semi-mechanised mining method. The existing air quality levels are covered in the baseline scenario. Excavation, loading and transportation through tippers are the major sources, which are of significance. Therefore, the emissions considered for modeling are from drilling blasting, excavation & transportation rough stone.

The emissions are computed based on AP-42 emission factors. Operational hours, activity rate, wind speed and moisture content have been considered for estimation of emissions from point and area sources. For line source, apart from operational hours, activity rate, moisture, silt content and vehicle weight have been considered.

Predictions are carried out for the worst-case scenario of simultaneous operation of excavators (area sources) and tippers for transportation from mine pit to loading pit (line sources) over a distance of 500 m.

The number of working days has been taken at 300 days per year with 8 hours of operation/day, hence the concentrations predicted are considered to be the worst case. With control measures, the emissions have been taken at 30% of uncontrolled emissions for handling and 10% of uncontrolled emissions for transportation.

Meteorological Data: The meteorological data recorded continuously during the month of October 2024 – December 2024 on hourly basis on wind speed, wind direction and temperature has been processed to extract the 24- hourly mean meteorological data as per the guidelines of IMD and MoEF for application of AERMOD model. Stability classes computed for the mean hours is based on guidelines issued by CPCB on modelling. Mixing heights representative of the region have been taken from the available published literature.

Summary of Predicted Ground Level Concentrations: Ground level concentrations due to the mining activities have been estimated to know the incremental raise and extent of impact in the study area.

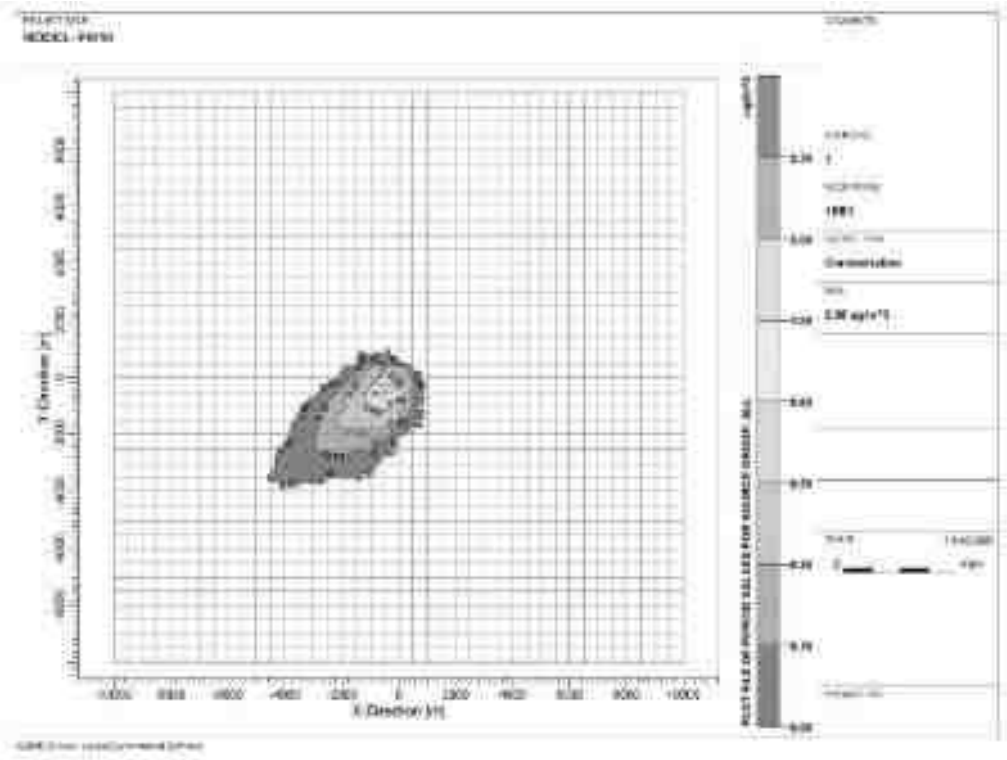


Figure 4-1Isopleth of GLC Prediction for PM10

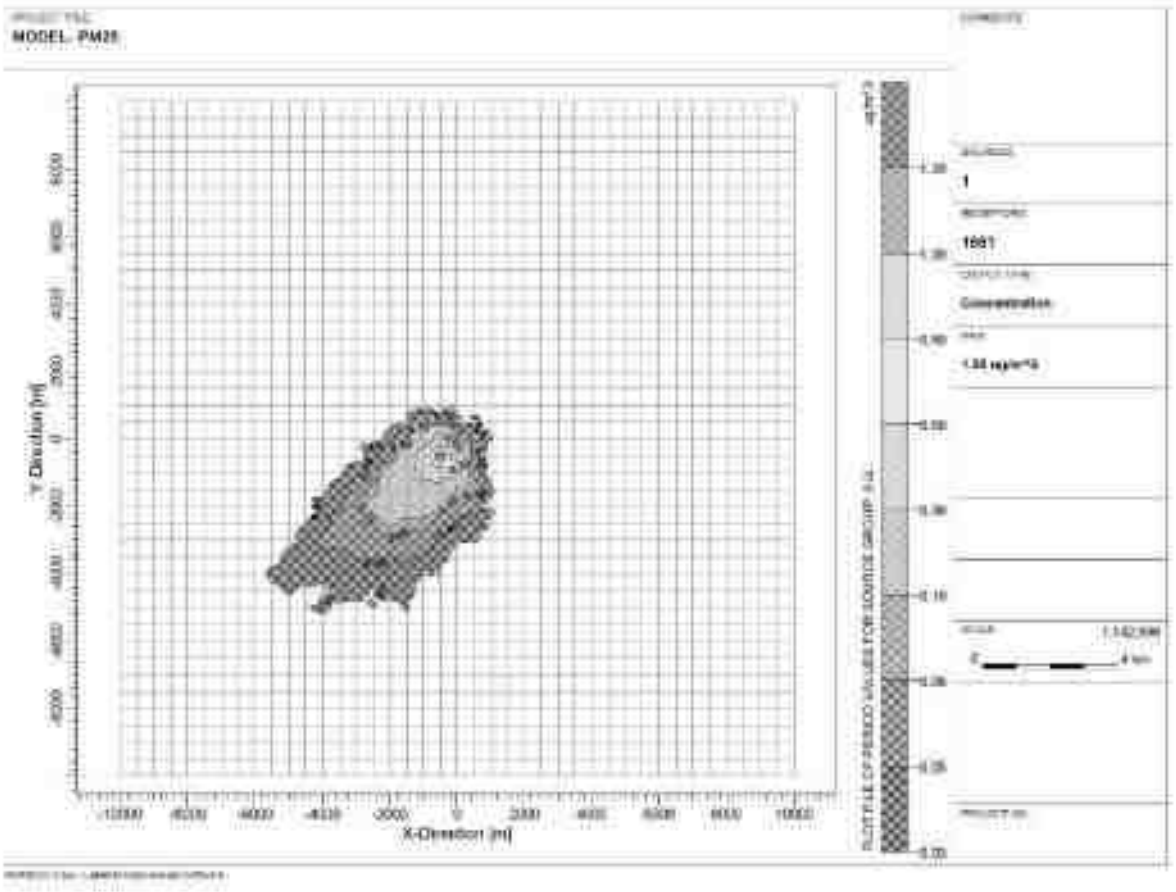


Figure 4-2Isopleth of GLC Prediction for PM2.5

Predicted Ambient Air Quality:

The post project Concentrations of PM10, PM2.5, (GLC) (base line + incremental) after adopting necessary control measures is given in Table No. 4-4 & 4-5

Table 4-4 Concentrations of PM10 after Project Implementation

S. No.	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in µg/m^3
1.	Project Site	70.0	<1	71.0	100
2.	Ayyavadi	55.1	<1	56.1	
3.	Alathurai	57.0	<1	58.0	
4.	Veerambakkam	57.8	<1	58.8	

5.	Thuraiyur	60.8	<1	61.8	
6.	Vachanur	61.9	<1	62.9	
7.	Alathur	62.5	<1	63.5	

Table 4-5 Concentrations of PM2.5 after Project Implementation

S. No.	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in µg/m^3
1.	Project Site	33.0	<1	34.0	60
2.	Ayyavadi	29.5	<1	30.5	
3.	Alathurai	29.5	<1	30.5	
4.	Veerambakkam	29.3	<1	30.3	
5.	Thuraiyur	30.4	<1	31.4	
6.	Vachanur	34.5	<1	35.5	
7.	Alathur	34.7	<1	35.7	

The above result seems that, even in the worst-case scenario, the resultant added concentrations with baseline figures show that the values of ambient air quality for PM10 are within the statutory limits in each case.

Table 4-6 Impact & Mitigation measures on Noise Environment and vibration

Aspect	Impact	Mitigation Measures
Loading and unloading, Transportation of the excavated mineral.	Usage of Equipments (Excavator – 82 dBA, Tipper - , Jack Hammer), Machinery and trucks used for transportation will generate noise. Noise from the machinery can cause hypertension, high stress level, hearing loss, sleep disturbance etc due to prolonged exposure. Number of vehicles will be increased due to the proposed mining activity hence vehicle may collate which may result in unwanted sound and can also cause impact on human health like breathing and respiratory system, damage to lung tissue, influenza or asthma.	• The machinery will be maintained in good running condition so that noise will be reduced to minimum possible level. • Awareness will be imparted to the workers once in six months about the permissible noise level and effect of maximum exposure to those levels. Adequate silencers will be provided in all the diesel engines of vehicles. • It will be ensured that all transportation vehicles carry a valid PUC Certificates. • Speed of trucks entering or leaving the mine will be limited to moderate speed (20km/hr) to prevent undue noise from empty vehicles. The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipment. • It is proposed to plant 4000 Nos. of local species (Neem, Mandharai, Athi, Ashoka and Villam) to reduce the impact of noise in the study area. The development of green belts around the periphery of the mine will be implemented to attenuate noise.

		• The trucks will be diverted on two roads and a District Road to avoid traffic congestion. • Health checkup camps will be organized once in six months. • Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas. • Provision of quiet areas, where employees can get relief from workplace noise.
Mining activities such as blasting, drilling and movement of machinery	Though vibration will be only felt by the people working inside the lease area it is usually undesired. Vibration may also cause flyrocks. It may frighten the birds and small insects in the lease area. However, it will be felt only for a short period.	• The DG set will be kept within the acoustic enclosure made by the stone blocks. • Drills will be equipped with sharp bits and wet drilling will be adopted. • A well-planned green belt is proposed for the mining to reduce noise level. • Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured. • Regular maintenance of the machineries and vehicles to reduce the noise level. • Use of ear muffs by the workers with occupational exposure to noise. • Carrying out blasting on limited scale, only from 12:00 PM to 2:00 PM

		• Control of fly rock and vibration by maintaining peak particle velocity within the standard as prescribed by the DGMS and MOEF & CC. • Shallow depth jackhammer drilling and blasting is proposed to be carried out with minimum use of explosive. • Supervising blasting by competent and statutory Foreman/ Mines Manager.

Table 4-7 Impact on Socio-economic Environment

Aspect	Impact	Mitigation Measures
Proposed implementation of Mining activity	Land acquisition for the implementation of the project may result in loss of assets, which in return will make the PAP to shift, losing their normal routine and livelihood	The proposed project is a Patta land registered in the name of Tmt. Santhi, Thiru. Sudhakaran, Thiru. Seenivasan, Thiru. Gopalan, Thiru. Boopalan, Thiru. Vetrivelan, Tmt. Sowmiya and Tmt. Parvathi vide patta no. 612, 623, 515, 641, 557, the applicant obtained consent from the pattadars and the land is vacant where there is no human settlement within 300m radius. Hence the project does not involve Rehabilitation and resettlement
Loading and Transportation of the mined-out mineral	The mining activities may cause dust emission, noise pollution thereby causing disturbance to the local habitat	No human activity is envisaged near the project site. The nearest human settlement is observed in Vachanur, which is 800m away from the project site.

Grazing and Rearing activities in the nearby villages	The Grazing and rearing of local animals like Sheep, Goat and cows is observed in the nearby villages, which may be affected due to the project as the movement of the vehicles may affect/injure the animals	It is proposed to use graveled road and nearest paved road and preferred not to use unpaved roads. In addition to that, the speed of trucks will be limited to 20km/hr to avoid any accidents
Employment opportunity	The project will improve the livelihood of the local people	After the development of the proposed mine, it will improve the livelihood of local people and also provide the direct and indirect employment opportunities. The rough stone for the infrastructural development in the area will be made available from the local markets at reasonably lower price.
Corporate Environmental Responsibility	The proposed project will help in natural resource augmentation & Community resource development	As a part of CER, Rs. 8,00,000 will be allocated. The detailed agenda, which is to be executed, has been framed. The salient features of the programme are as follows: Provision of Library, Plantation of trees and other developmental facilities to the Panchayat Union Middle School, Melnarma

Table 4-8 Impact & mitigation measures on Biological Environment

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

Planting of trees	Development of afforestation in the mine lease area will have a positive impact as the land was initially a barren.	7.5m safety distance will be provided all along the boundary of the mine lease area. This will attract avifauna thus enhancing the existing ecological environment.
Mining activities such as drilling, blasting etc.	The mining activity such as drilling, blasting etc. may affect the fauna due to noise and vibration	Sirens will be blown before blasting in the mines. To reduce noise levels, plantation will be done. Blasting will be carried out only in the allotted time.
	Accidental falling of animals	To prevent entry of animals, the mine lease surrounding area will be properly fenced with barbed wire.

Table 4-9 Impact & mitigation measures on occupational Health and safety

S. No	Aspect	Impact	Mitigation measure
1.	Risk due to the proposed mining	Accidents may occur in the mine area	Proper PPE kit (Safety jacket, Helmet, Safety Shoes, Gloves) etc will be provided to each and every employee in the mine lease concerning the safety of each labour
2.	Screening of Labors	Labors will be checked for health condition before employing them in mining activity	All the labours will be checked and screened for health before employing them After employing them, periodical medical checkups will be held once in every six months
3.	Blasting	Injury to the labours due to the blasting activity	Alarm system in the form of Siren will be engaged in the project site to caution the blasting activity. In addition to that, the blasting activity will be scheduled at particular time – 4.30 P.M to 5.30 P.M (or whenever required) so that the employees will be aware of the activity. Smoking

			will be banned in the site and sign boards will be displayed in various places at site

5 ANALYSIS OF ALTERNATIVES

5.1 Introduction

Analysis of alternative is a significant aspect in planning and designing any project. Cost benefit analysis should be work out along with other parameters while choosing an alternative in such a way that the production is maximum and the mining operation is environment friendly and cost effective. The mine plan and mine closure plan has been approved prior to submission of the Form-1 and PFR.

ToR issued by the SEIAA-TN vide ToR Identification No. TO24B0108TN5594899N Dated: 27/12/2024. The study for alternative analysis involves in-depth examination of site and technology.

5.2 Analysis for Site Alternative

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

5.3 Alternatives for Mining Technologies

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

Sr. No.	Particular	Alternative Option 1	Alternative Option 2	Remarks
1.	Technology	Opencast semi mechanized mining	Opencast mechanized mining	Opencast semi-mechanized mining is preferred
2.	Employment	Local employment.	Outsource employment	Local employment is preferred Benefits: Provides employment to local people along with financial benefits No residential building/ housing is required.
3.	Labour transportation	Public transport	Private transport	Local labors will be deployed from nearby villages so they will either reach mine site by bicycle or by foot. Benefits: Cost of transportation of labors will be negligible

4.	Material transportation	Public transport	Private transport	Material will be transported through trucks/trolleys on the contract basis Benefits: It will give indirect employment.
5.	Water	Private Tankers	Ground water	Water will be supplied from private tankers

6 ENVIRONMENTAL MONITORING PROGRAM

6.1 Introduction

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

Regular monitoring is as important as control of pollution since the efficacy of control measures can only be determined by monitoring. The project proponent will carry out the post project environmental monitoring (PPM) and timely compliance report submission to various regulatory authorities.

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

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

Table 6-1 Monitoring Schedule during mining

S. No.	Attributes	Parameters	Frequency	Location
1.	Ambient Air Quality at Mine Site & Fugitive Dust Sampling	PM 10, PM 2.5, SO_2, NO_X	Once in a Month	Project Site & Vachanur
2.	Ground water Quality	Drinking Water Parameters, as per IS - 10500: 2012	Half yearly	Project Site & Vachanur
3.	Surface Water Quality	Class will be assessed as per the CPCB Guidelines	Half yearly	Project Site & Vachanur
4.	Soil Quality	(Organic matter, Texture, pH, Electrical Conductivity, Permeability, Water holding capacity, Porosity)	Half yearly	Project Site & Vachanur
5.	Noise Level Monitoring	Noise level in dB(A) Quarterly/half yearly	Half yearly	Project Site & Vachanur

6.2 MEASUREMENT METHODOLOGY

Table 6-2 Measurement Methodology

Ambient Air Quality	Ambient air quality will be monitored for SO_2, NO_x, PM_{10} and $PM_{2.5}$. The instruments like high volume air samplers and Respirable dust samplers would be used for this purpose. These parameters will be monitored as mentioned in the monitoring schedule previously.
Water Quality	Water quality analysis will be done quarterly and the monitored parameters include pH, Temperature, TDS, etc. as specified by SPCB from time to time.
Noise Monitoring	Noise level will be monitored in working environment mainly noise producing sources over the boundary and around the mining area.
Green Belt and Afforested area	Continuous vigilance and monitoring of green belt will be done for performance and survival rate of the saplings. Watch and ward personnel will properly guard the plantation. Provision will be made for fertilizers application and watering on schedule.
Socio-Economics	Socio-economic of the core and buffer zone details elaborated in Chapter-3.

Reports to be generated

The Project Proponent will maintain records of each test and its interpretation so as to formulate an adequate Environmental Management Plan. The set of records planned to be maintained by Project Proponent are given in below table 6.2.

Table 6-3 Important records to be maintained by PP

S. No.	Particulars
1	Monitoring results for Air, Water & Soil.
2	Records of slope failure, land erosion & drainage.
3	Plantation Records
4	Environmental and related standards/ norms
5	Records pertaining to statutory consents, approvals.
6	Periodic Medical examination (PME) records.
7	Complain register (Environmental pollution)
8	Records on water and electricity consumption
9	Periodic progress records.
10	Environmental Expenses Records

7 ADDITIONAL STUDIES

7.1 General

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

7.2 Public Consultation

As the proposed mining project falls under 1(a), Category B1 – Cluster Mining, the project involves the Public Consultation and the same will be conducted under SPCB (TN) in Tiruvannamalai District. The proceedings of the same will be incorporated in the Final EIA Report

7.3 Risk Assessment and Management

Mining and allied activities are associated with several potential hazards both to the employees and the public at large. A worker in a mine should be able to work under conditions that are adequately safe and healthy. At the same time the environmental conditions should be such as not to impair his working efficiency. The various safeguards to be taken to ensure the safety of the mine and that of employees are provided in the Mines Act, 1952. Risk involves the occurrence or potential occurrence of some accidents consisting of an event or sequence of events. The risk assessment study covers the following:

- Identification of potential hazard areas
- Identification of representative failure cases
- Assess the overall damage potential of the identified hazardous events and the impact zones from the accidental scenarios
- Assess the overall suitability of the site from hazard minimization and disaster mitigation point of view
- Furnish specific recommendations on the minimization of the worst accident possibilities
- Preparation of broad DMP, On-site and Off-site Emergency Plan, which includes Occupational Health and Safety Plan

The complete mining will be carried out under the management control and direction of a qualified mine manager holding a manager's certificate of competency.

Moreover, mining staff will be sent to refresher courses from time to time to keep them alert. However, following natural/industrial hazards may occur during normal operation:

- Accident due to explosives
- Accident due to heavy mining equipment; and
- In order to take care of above hazard/disasters, the following control measures will be adopted.

- All safety precautions and provisions of the Mine Act, 1952, the MMR, 1961 and the Mines Rules, 1955 will be strictly followed during all mining operations
- Entry of unauthorized persons will be prohibited
- Firefighting and first-aid provisions in the mine's 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
- Training and refresher courses for all the employees working in hazardous premises; under mines rules all employees of mines will have to undergo the training at a regular interval working of mine, as per approved plans and regularly updating the mine plans.
- Cleaning of mine faces will be regularly done.
- Handling of explosives, charging and blasting will be carried out by competent persons only.
- Regular maintenance and testing of all mining equipment as per manufacturer's guidelines.
- Suppression of dust on the haulage roads. Adequate safety equipment will be provided at explosive magazine
- Increasing the awareness of safety and disaster through competitions, posters and other similar drives. For any type of above disaster, a rescue team will be formed by training the mining staff with specialized training.

7.3.1 Identification of hazards in open cast mining

There are various factors, which can cause disaster in the mines. These hazards are as follows: Identification of Hazards in Opencast Mine is given in below,

- Drilling
- Blasting
- Overburden handling
- Heavy Machinery

Drilling:

The drilling is carried out using jack hammers with a diameter of hole is 32-36 mm up to 1.5m long drilling will be utilized. The breakages of drill rods may blast injuring the nearby personnel. These can be easily remedied as follows:

- Maintain and operating the equipment's as per the manufacturer's manual.
- Compressor is kept at a safe distance from the main operation area and operated, so that in the event of any disruption the personnel in the operating area are safe.

Blasting:

Most of the accidents from blasting occur due to the projectiles, as they may sometimes go even beyond the danger zone, mainly due to overcharging of the shot-holes as a result of certain special features of the local ground. Flying rocks are

encountered during initial and final blasting operations. Vibrations also lead to displacement of adjoining areas. Dust and noise are also problems commonly encountered during blasting operations.

The blasting is the predominating method of breaking rocks in various surface and underground mines. At the same time some damaging impacts on environment are evident: noise, gas, dust, fly rock and ground vibration.

The considering factor is most important for safety of natural objects in the vicinity of mining area.

The ground vibration parameters, crucial for safety of endangered objects have a significant correlation with charge weight and distance of blasting.

This study tried to associate the main vibration parameter, particle velocity with blasting parameters and properties of vibration medium.

- Precautionary Measures to Avoid Accidents due to Blasting
- The lessee is advised to store the explosives as per the Indian Explosive act, 1958
- The explosives to be used in mines being a small quantity, the district collector may be approached to keep the stocks not exceeding 5kgs at time or any other quantity permined by the concerned authorities in a portable magazine of S & B types.
- The lessee is advised to engage an authorized explosive agency to carry out proposed control blasting.
- The Proposed Control Blasting time at a day is proposed to 5PM to 6 PM.
- First Aid Box will be keeping ready at all the time.
- Necessary precautionary announcement will be carried out before the proposed Control Blasting operation.

Overburden handling

The overburden in the form of Gravel, after the excavation gravel will be directly loaded into tipper to the needy buyers for road project and construction works for filling and levelling of low-lying areas.

Heavy machinery

Most of the accidents during transport of tippers and other heavy vehicles are often attributable to mechanical failures and human errors.

7.3.2 Precautionary Measures to Prevent Accidents due to Trucks and Dumpers

All transportation within the main working shall be carried out directly under the supervision and control of the management.

The vehicles must be maintained in good condition and checked thoroughly at least once a week by the competent person authorized for the purpose by the Management.

Road signs shall be provided at each and every turning point especially for the guidance of the drivers at the night.

To avoid danger while reversing vehicles especially at the embankment and tipping points, all areas for reversing of lorries should as far as possible be made man free.

A statutory provision of the fences, constant education, training etc. will go a long Way in reducing the incidents of such accidents.

A Load consisting of large rocks must not be over the edge. This is unsafe and may damage equipment.

The movement of the dumpers will be governed under the Code of Traffic rule.

Storage of explosives

There will not be any storage of explosives during the operation of the quarry. The blasting will be done by contractors authorized by the Government.

Safety measures at site

- Adequate care has been taken in deciding the size of the bench for the working as well as ultimate pit.
- Adequate drainage system at the top of the pit and also on the benches shall be made to prevent erosion of the benches.
- The quarries will be protected by garland drains around the periphery for storm water drainage.

7.4 Disaster Management Plan:

7.4.1 Objective

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. For effective implementation of the disaster management plan, it should be widely circulated and personnel training through rehearsals/drills. 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:

- Effect the 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;
- Identify any dead;
- Provide for the needs of relatives;
- Provide authoritative information to the news media;
- 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 effect, it is to optimize operational efficiency to rescue rehabilitation and render medical help and to restore normalcy.

EMERGENCY ORGANIZATION (EO):

It is recommended to setup an emergency organization. A senior executive (mine manager) who has control over the affairs of the mine would be heading the emergency organization. He would be designated as site controller. As per the general organization chart, in the mines, the mines manager would be designated as the Incident Controller (IC). The incident controller would be reporting to the site controller. Each incident controller, for him-self, organizes a team responsible for controlling the incidence with the personnel under his control. Shift In-charge would be the reporting officer, who would bring the incidence to the notice of the incidence controller and site controller. Emergency coordinators would be appointed who would undertake the responsibilities like firefighting, rescue, rehabilitation, transport and provide essential and support services. For this purposes, Security in-charge, personnel department, essential services personnel would be engaged. All these personnel would be designated as key personnel.

In each shift, electrical supervisor, electrical fitters, pump house in-charge and other maintenance staff would be drafted for emergency operations. In the event of power or communication system failure, some of staff members in the mine offices would be drafted and their services would be utilized as messengers for quick passing of communications. All these personnel would be declared as essential personnel.

EMERGENCY COMMUNICATION (EC):

Whoever notices an emergency situation such as fire, growth of fire etc. would inform his immediate superior and Emergency Control Center (ECC). The person on duty in the emergency control center would appraise the site controller. Site Controller verifies the situation from the incident controller of that area or the Shift In-charge and takes a decision about an impending on site emergency. This would be communicated to the entire incident controllers, emergency coordinators. Simultaneously, the emergency warning system would be activated on the instructions of the site controller.

EMERGENCY RESPONSIBILITIES:

The responsibilities of the key personnel are appended below:

Site Controller:

On receiving information about emergency, he would rush to emergency control center and take charge of ECC and the situations which all are given below:

Assesses the magnitude of the situation on the advice of incident controller and decides;

- Whether the affected area needs to be evacuated;
- Whether personnel who are at assembly points need to be evacuated;
- Declares Emergency and orders for operation of emergency siren;

- Organizes announcement by public address system about location of emergency;
- Assesses which areas are likely to be affected, or need to be evacuated or are to be alerted;
- Maintains a continuous review of possible development and assesses the situation in consultation with Incident Controller and other Key Personnel as to whether shutting the mine operation required and if evacuation of persons is required;
- Directs personnel for Rescue, rehabilitation, transport, fire, brigade, medical and other designated mutual support systems locally available, for meeting emergencies;
- Controls evacuation of affected areas, if the situation is likely to go out of control or effects are likely to go beyond the mine boundary, informs to District Emergency Authority, Police, Hospital and seeks their intervention and help;
- Informs the statutory authorities;
- Gives a public statement if necessary;
- Keeps record of chronological events and prepares an investigation report and preserves evidence; and
- On completion of On-Site Emergency and restoration of normalcy, declares all clear and orders for all clear warning.

Incident Controller:

- Assembles the incident control team;
- Directs operations within the affected areas with the priorities for safety to personnel; minimize damage to property and environment and minimize the loss of materials;
- Directs the shutting down the operations and areas likely to be adversely affected by the emergency;
- Ensures that all key personnel help is sought;
- Provides advice and information to the Fire and Security Officer and the Local Fire Services as and when they arrive;
- Ensures that all non-essential workers/staff of the affected areas evacuated to the appropriate assembly points, and the areas are searched for causalities;
- Has regard to the need for preservation of evidence so as to facilitate any inquiry into the cause and circumstances which caused or escalated the emergency;
- Co-ordinates with emergency services at the site;
- Provides tools and safety equipment to the team members;
- Keeps in touch with the team and advise them regarding the method of control to be used; and
- Keeps the Site Controller of Emergency informed of the progress being made.

Emergency Coordinator – Rescue, Fire Fighting

- On knowing about emergency, rushes to ECC;

- Helps the incident Controller in containment of the emergency;
- Ensure fire pumps in operating conditions and instructs pump house operator to ready for any emergency with standby arrangement;
- Guides the firefighting crew i.e. firemen, trained mine personnel and security staff;
- Organizes shifting the firefighting facilities to the emergency site, if required;
- Takes guidance of the Incident Controller for firefighting as well as assesses the requirements of outside help;
- Arranges to control the traffic at the incident area;
- Directs the security staff to the incident site to take part in the emergency operations under his guidance and supervision;
- Evacuates the people in the mine or in the nearby areas as advised by Site Controller;
- Searches for casualties and arranges proper aid for them;
- Assembles search and evacuation team;
- Arranges for safety equipment for the members of this team;
- Decides which paths the evacuated workers should follow; and
- Maintains law and order in the area, and if necessary, seeks the help of police.

Emergency Coordinator – Medical, Mutual Aid, Transport and Communication. In the event of failure of electric supply and thereby internal telephone, sets up communication point and establishes contact with the Emergency Control Center (ECC).

- Organizes medical treatment to the injured and if necessary, will shift the injured to nearby hospitals;
- Mobilizes extra medical help from outside, if necessary;
- Keeps a list of qualified first aiders of the mines and seek their assistance;
- Maintains first aid and medical emergency requirements;
- Makes sure that all safety equipment is made available to the emergency team;
- Assists Site Controller with necessary data and to coordinate the emergency activities;
- Assists Site Controller in updating emergency plan, organizing mock drills verification of inventory of emergency facilities and furnishing report to Site Controller;
- Maintains liaison with Civil Administration;
- Ensure availability of canteen facilities and maintenance of rehabilitation center;
- He will be in liaison with Site Controller/Incident Controller;
- Ensure transportation facility;
- Ensures availability of necessary cash for rescue/rehabilitation and emergency expenditure;
- Controls rehabilitation of affected areas on discontinuation of emergency; and
- Makes available diesel/petrol for transport vehicles engaged in emergency operation.

Emergency Coordinator – Essential Services:

He would assist Site Controller and Incident Controller;
Maintains essential services like Diesel Generator, Water, Fire Water, power supply for lighting;
Gives necessary instructions regarding emergency electrical supply, isolation of certain sections etc. to shift in-charge and electricians; and
Ensures availability of adequate quantities of protective equipment and other emergency materials, spares etc.

GENERAL RESPONSIBILITIES OF EMPLOYEES DURING AN EMERGENCY:

During an emergency, it becomes more enhanced and pronounced when an emergency warning is raised, the workers in-charge, should adopt safe and emergency shut down and attend any prescribed duty as essential employee. If no such responsibility is assigned, he should adopt a safe course to assembly point and await instructions. He should not resort to spread panic. On the other hand, he must assist emergency personnel towards objectives of Disaster Management Plan.

EMERGENCY FACILITIES:

Emergency Control Center (ECC): The Mine Office Block is identified as Emergency Control Center. It would have external Telephone, Fax, and Telex facility. All the Site Controller/ Incident Controller Officers, Senior Personnel would be located here. Also, it would be an elevated place.

The following information and equipment are to be provided at the Emergency:

Control Center (ECC):

- Intercom, telephone;
- Safe contained breathing apparatus;
- Fire suit/gas tight goggles/gloves/helmets;
- Hand tools, wind direction/velocities indications;
- Public address megaphone, hand bell, telephone directories;
- Mine layout, site plan;
- Emergency lamp/torch light/batteries;
- Plan indicating locations of hazard inventories, sources of safety equipment, work road plan, assembly points, rescue location vulnerable zones, escape routes;
- Hazard chart;
- Emergency shut-down procedures;
- Nominal roll of employees;
- List of key personnel, list of essential employees, list of Emergency Coordinators;
- Duties of key personnel;

- Address with telephone numbers and key personnel, emergency coordinator, essential employees; and
- Important address and telephone numbers including Government agencies, neighbouring industries and sources of help, outside experts, population details around the Mine.

Assembly Point:

Number of assemblies depending upon the mine location would be identified wherein employees who are not directly connected with the disaster management would be assembled for safety and rescue. Emergency breathing apparatus, minimum facilities like water etc. would be organized. In view of the size of mine, different locations should be ear marked as assembly points. Depending upon the location of hazard, the assembly points are to be used.

Emergency Power Supply:

Mine facilities are connected to power supply from the SEB. In the event of any grid supply failure, Diesel Generator will be provided at the mine, which is operated as soon as any power failure occurs. Thus water pumps, mine lighting and emergency control center, administrative building and other auxiliary services are connected to emergency power supply. In all the blocks flame proof type emergency lamps would be provided.

Fire Fighting Facilities:

First aid firefighting equipment suitable for emergency should be maintained in each operation areas of the mine as per statutory requirements.

Location of Wind Sock:

On the top of the administration block, windsocks would be installed to indicate direction of wind for emergency escape.

Emergency Medical Facilities:

Stretchers, gas masks and general first aid materials for dealing with chemical burns, fire burns etc. would be maintained in the medical center as well as in the emergency control room. Private medical practitioners help would be sought. Government hospital would be approached for emergency help.

First aid facilities would be augmented. Names of medical personnel, medical facilities in the area would be prepared and updated. Necessary specific medicines for emergency treatment of burns patients and for those affected by toxicity would be maintained.

Breathing apparatus and other emergency medical equipment would be provided and maintained. The help of nearby industrial managements in this regard would take on mutual support basis.

Ambulance:

An ambulance with driver availability in all the shifts, emergency shift vehicle would be ensured and maintained to transport injured or affected persons. Number of persons would be trained in first aid so that, in every shift first aid personnel would be available.

EMERGENCY ACTIONS:

Emergency Warning:

Communication of emergency would be made familiar to the personnel inside the mine and people outside. An emergency warning system would be established.

Evacuation of Personnel:

In the event of an emergency, unconnected personnel have to escape to assembly point. Operators have to take emergency shutdown procedure and escape. Time Office maintains a copy of deployment of employees in each shift. If necessary, persons can be evacuated by rescue teams.

All Clear Signal:

Also, at the end of an emergency, after discussing with Incident Controllers and Emergency coordinators, the Site Controller orders an all-clear signal. When it becomes essential, the site controller communicates to the district emergency authority, police and fire service personnel regarding help required or development of the situation into an Off-Site Emergency

GENERAL:

Employee Information:

During an emergency, employees would be warned by raising siren in specific pattern. Employees would be provided with information related to fire hazards, antidotes and first aid measures. Those who would designate as key personnel and essential employees should be given training to emergency response.

Co-ordination with Local Authorities:

Keeping in view of the nature of emergency, two levels of coordination are proposed. In the case of an On-Site Emergency, resources within the organization would be mobilized and, in the event, extreme emergency local authorities help should be sought.

In the event of an emergency developing into an offsite emergency, local authority and District emergency Authority (normally the Collector) would be appraised and under his supervision, the Off-Site Disaster Management Plan would be exercised. For this purpose, the facilities that are available locally, i.e. medical, transport, personnel, rescue accommodation, voluntary organizations etc. would be mustered. Necessary rehearsals and training in the form of mock drills should be organized.

Mutual Aid:

Mutual aid in the form of technical personnel, runners, helpers, special protective equipment, transport vehicles, communication facility etc. should be sought from the neighbouring industrial management's.

Mock Drills:

Emergency preparedness is an important aspect of planning in Industrial Disaster Management. Personnel would be trained suitably and prepared mentally and physically in emergency response through carefully planned, simulated procedures. Similarly, the key personnel and essential personnel should be trained in the operations.

Important Information

Important information such names and addresses of key personnel, essential employees, medical personnel, transporters address, address of those connected with Off Site Emergency such as Police, Local Authorities, Fire Services, District Emergency Authority should be prepared and maintained.

The Unit Head is in charge for disaster management and monitors all activities related to disaster management/risk assessment in case of any such situations.

Care and maintenance during temporary discontinuance:

In case, of any temporary closure or discontinuous of mining operations, the following steps are proposed.

a. Notice to be served to all concerned authority.

b. The mining pit area shall be covered by temporary fencing.

c. Watchman will be posted round the clock to prevent any unauthorized or inadvertent entry of public.

d. Works on stabilization of dumps to provided vegetal cover would be taken up.

e. Construction of garland or retaining walls around the dumps will be attempted.

f. Watering of plants in the afforested area will be considered.

g. All safety precautions shall be taken care off as per rule.

7.5 Cumulative Environmental Impact Assessment Study

The cumulative production load of existing and proposed rough stone quarries within cluster is shown in below table.

Description		P1	P2
Name of the Quarry		Tvl. JCK Mines	Tvl. JCK Mines
Geological Resources in m3	Rough stone	24,28,305	40,89,195
	Gravel	88,302	1,48,698

Mineable Reserves in m3	Rough stone	11,93,870	8,68,060
	Gravel	75,280	1,00,452
Five years plan period as in the approved mining plan	Rough stone	11,93,870	8,68,060
	Gravel	75,280	1,00,452
Production per day in Tonne	Peak Production	2229.54	1857.48
Lorry Loads per day in Nos	-	223	186
Employment in Nos		33	35
Proposed Depth in meters		57 m	57 m
Status of the quarry		Existing	Proposed

Based on the above production quantities the emissions due to various activities in all the 2 mines (1 Existing + 1 Proposed) includes various activities like ground preparation, excavation, handling and transport.

Emission Estimation from Cluster

The AERMOD atmospheric dispersion modeling (AERMOD Cloud remote version) is used for assessment of incremental Ground level concentration (GLC) for the cluster area. Area source model taken into consideration taking into consideration of wet drilling and loading of the cluster mines. Further line source model was taken into consideration for transportation through haul road. Baseline meteorological studies were conducted for the period of October - December 2024. The following sources are considered.

Emission sources & Quantification of the cluster area:

Various point and non-point sources of emissions from Proposed Rough Stone and Gravel Quarry of Tvl. JCK Mines is quantified and presented below:

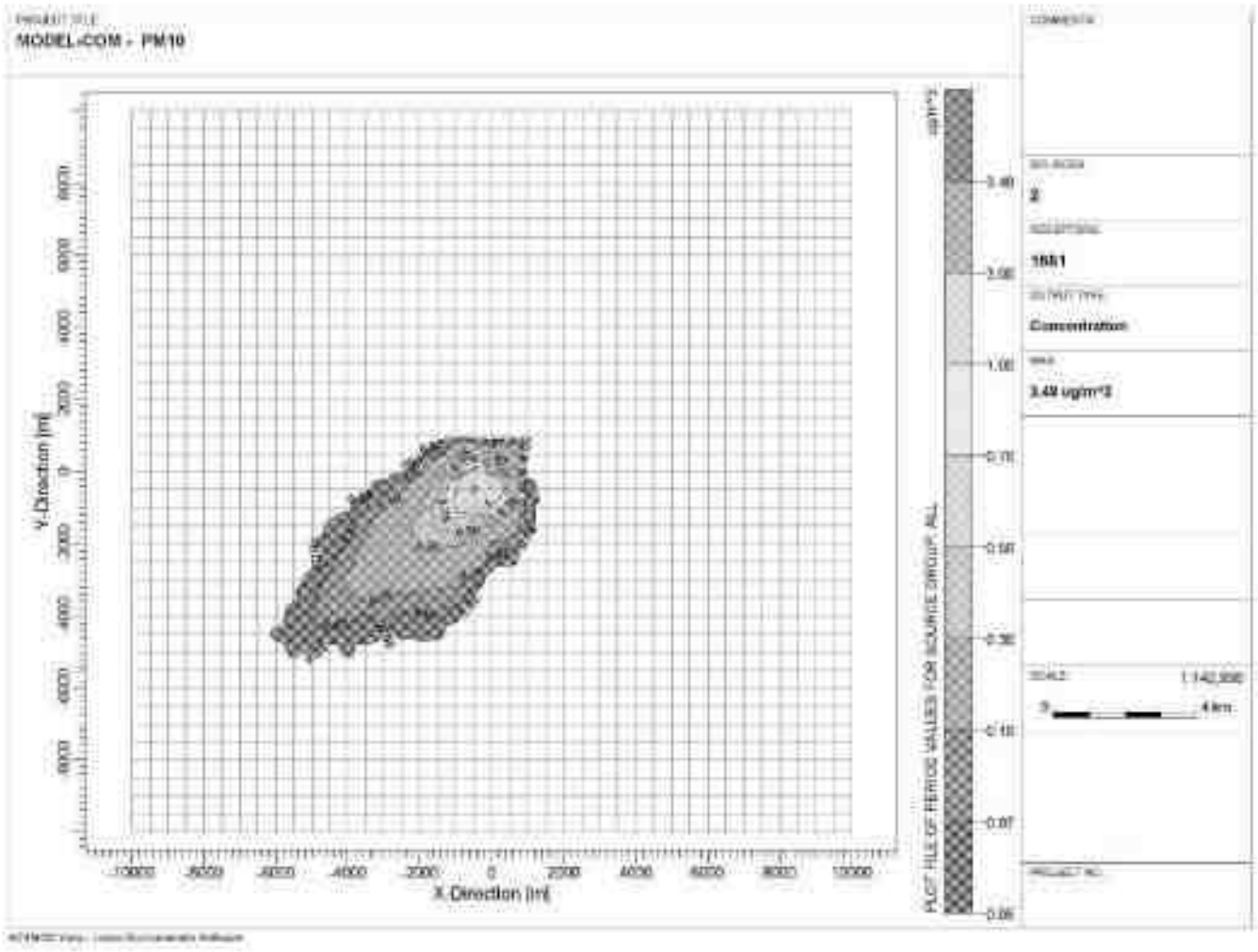


Figure 7-1 Isopleth of GLC Prediction – Cumulative for PM 10

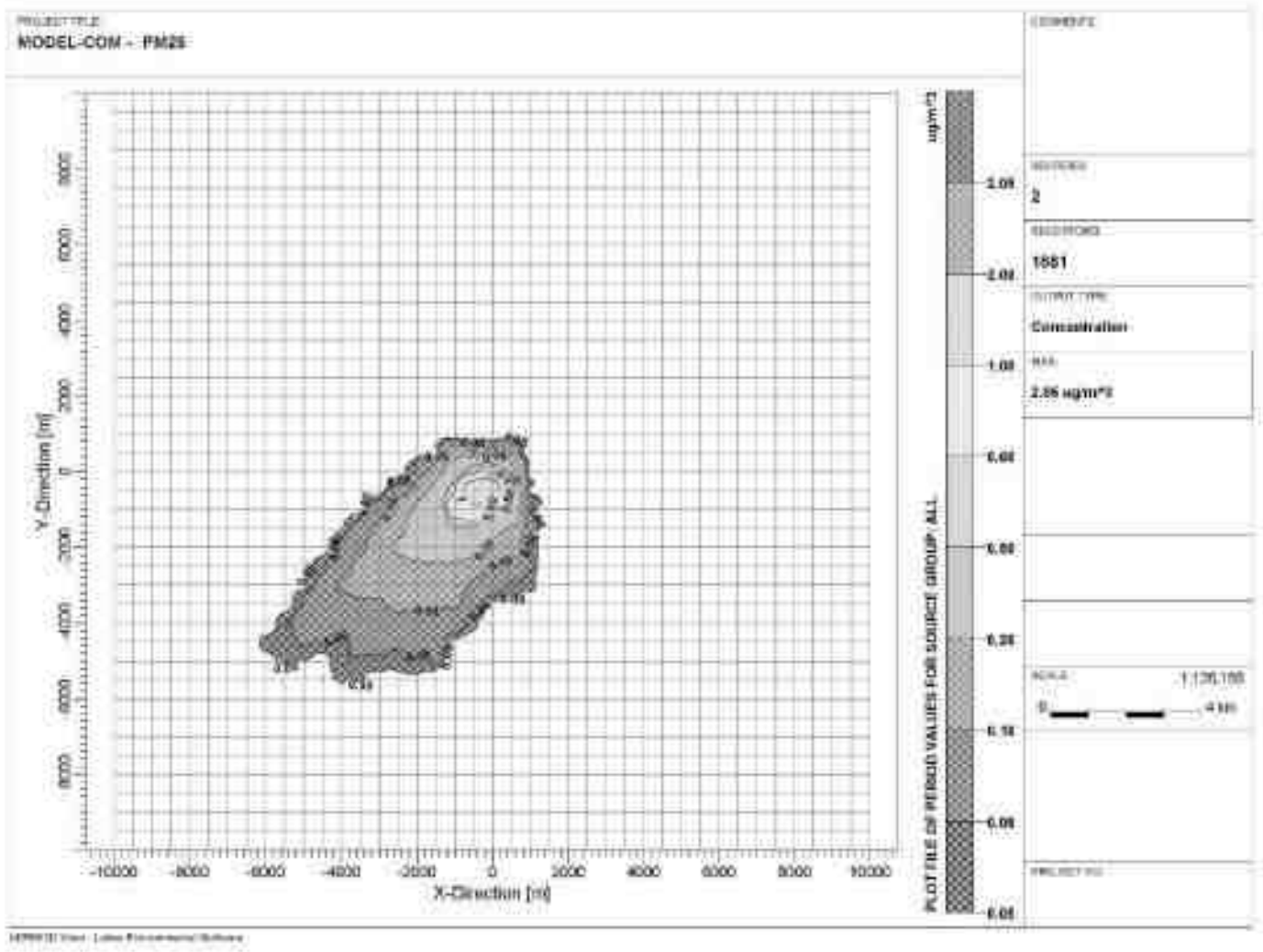


Figure 7-2 Isopleth of GLC Prediction – Cumulative for PM 2.5

Predicted Ambient Air Quality:

The post project Concentrations of PM10, PM2.5, (GLC) (base line + incremental) after adopting necessary control measures is given in Table No. 7-1 & 7-2

Table 7-1 Concentrations of PM 10 after Project Implementation

S. No.	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in µg/m^3
1.	Project Site	70.0	<1	71.0	100
2.	Ayyavadi	55.1	<1	56.1	
3.	Alathurai	57.0	<1	58.0	

4.	Veerambakkam	57.8	<1	58.8	
5.	Thuraiyur	60.8	<1	61.8	
6.	Vachanur	61.9	<1	62.9	
7.	Alathur	62.5	<1	63.5	

Table 7-2 Concentrations of PM 2.5 after Project Implementation

S. No.	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in µg/m^3
1.	Project Site	33.0	<1	34.0	60
2.	Ayyavadi	29.5	<1	30.5	
3.	Alathurai	29.5	<1	30.5	
4.	Veerambakkam	29.3	<1	30.3	
5.	Thuraiyur	30.4	<1	31.4	
6.	Vachanur	34.5	<1	35.5	
7.	Alathur	34.7	<1	35.7	

The above results seem that, even in the worst-case scenario, the resultant added concentrations with baseline figures show that the values of ambient air quality for PM10 are within the statutory limits. The mitigation measures undertaken in the mine for control of air pollution are given below.

- Wet drilling will be practiced in drilling operation.
- Water sprinkling will be done in haul roads & loading etc.
- The mines workers are provided with the dust masks.
- DG sets shall be periodically maintained as per manufacturer's specifications.

7.6 Progressive Mine Closure Plan

There is no proposal for back filling, reclamation and rehabilitation. The quarried pits after the end of the life of lease will be fenced to prevent inherent entry of public and cattles. Measures will be taken as per the Acts and Rules. The quarried pit will be fenced by using Barbed wire fencing to prevent inherent entry of public and cattle. Drilling will be

carried out by wet drilling mode to control the dust propagation into the air. Blasting will be carried out on limited scale. Mist Water spraying on haul road is proposed to prevent the dust propagation into the air.

7.7 Slope Stability Study

The proposed quarry is a very small quarry and the production is also less. Opencast Semi-mechanized mining with a bench height of 5m and bench width of 5m and 45° Slope is proposed. The depth of mining is proposed as 57m (BGL), which is the ultimate pit limit. Also, there is no overburden since the entire mined out material will be utilized.

As far as technical factors are concerned, the following precautionary measures will be adopted:

- ♣ Strict adherence to DGMS norms
- ♣ Frequent inspection by Mines-in-charge/Mines Manager

7.8 Natural Resource Conservation

There are no natural resources within the premises. The conservation strategies for energy will be followed in the proposed mine lease area. The pollutants of the mine will be minimized by adopting appropriate mitigation measures as mentioned Chapter 4 to prevent the effects on nearest water bodies. No surface runoff from the project site will be let into the nearby waterbody.

7.9 Reclamation and Rehabilitation:

It is a fresh mining lease applied area. Reclamation and rehabilitation will be carried out at the end of the life of the mine. The mined-out pit is proposed to be used as small reservoir for storing much needed rainwater at the end of the life of the mine when the mine reaches its ultimate pit limit. Since the surrounding areas are dry and experiences low rainfall, any amount of storage of water will be beneficial for recharging the groundwater in the adjacent areas. Along the permanent roads and vacant places, afforestation is being carried out at present. Before closure of the mine, barbed fencing wire will be constructed to prevent inadvertent entry of cattle and human beings. A watchman (Security guard) will be posted around the clock to prevent inherent entry of public and cattle which are growing in and around the area

8 PROJECT BENEFITS

8.1 General

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

8.2 Improvements in the physical infrastructure

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

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

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

c. Enhancement of Green Cover & Green Belt Development: As a part of reclamation plan, native tree species will be planted along the safety boundary (2.44.00 Ha) of the mine lease area. A suitable combination of trees that can grow fast and also have good leaf cover will be adopted to develop the green belt. It is proposed to plant 4000 numbers of native species along with some fruit bearing and medicinal trees during the mining plan period.

8.3 Improvements in the Social Infrastructure

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

As a part of CER, Rs. 8 Lakhs will be allocated. The detailed agenda, which is to be executed has been framed. The salient features of the programme are as follows:

Provision of Library, Plantation of trees and other developmental facilities to the Panchayat Union Middle School, Melnarma

8.4 Employment potential – Skilled; Semi-skilled and unskilled

The proposed project will create direct and indirect employment within nearby areas, depending upon the availability of skilled and unskilled manpower. During mining, about 35 people will be employed.

8.5 Other tangible benefits

As mentioned above, the project will have employment & trade opportunities with the inception of the quarrying activities. Thus, these considerable employment & trade opportunities will eventually result in appreciable economic benefits to the local people & businesses/contractors.

8.5.1 Corporate Social Responsibility

The CER funds will be utilised for the following activities to Panchayat Union Middle School, Melnarma

S. No.	Proposed CER Activities	Cost in Lakhs
1	♣ Establishment of Library with racks ♣ Plantations inside the school premises (50 Nos.) ♣ Providing computer & printer ♣ Providing black board, lights, fans, tables, chairs, writing tables, sitting tables & cupboards ♣ Providing RO water purifier, water motor & sports materials ♣ Construction of toilet and maintenance of the same for the entire lease period	8.00
	Total CER Cost	8.00



Figure 8-1 Copy of letter from Panchayat Union Middle School, Melnarma Village

9 ENVIRONMENTAL COST BENEFIT ANALYSIS

As per EIA Notification 2006 (amended from time to time), this chapter of the 'Environmental Cost Benefit Analysis' is applicable only if it is recommended at the Scoping stage. However, as per the standard TORs awarded by the (EAC), the Environmental Cost Benefit Analysis is not asked for and hence has not been prepared

10 ENVIRONMENTAL MANAGEMENT PLAN

10.1 Introduction

This chapter will provide information about Environmental Management Plan (EMP), which includes the administrative and technical setup, summary matrix of EMP, the cost involved to implement the EMP, both during the construction and operational phase. This chapter will also describe the proposed post-monitoring scheme for effective implementation of the mitigation measures.

10.2 Administrative and Technical Setup

The project proponent has taken extensive measures to delineate the environmental monitoring plan for compliance of various environmental regulations. The Environment Management Plan (EMP) will consist of all mitigation measures for each component of the environment due to the activities increased during the entire life cycle to minimize adverse environmental impacts resulting from the activities of the project.

Since this is a very small quarry, the mines in-charge will take care of all environment related aspects. He will ensure effective implementation of environment management plan and to ensure compliance of environmental statutory guidelines through Mine Management Level. The action plan for monitoring consists of monitoring of following environmental components.

- 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.

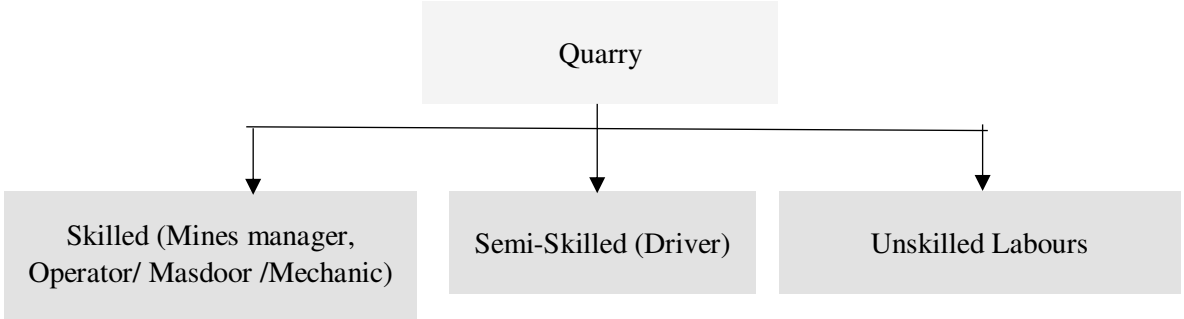


Figure 10-1 Organization Chart

Table 10-1Detailed Environmental Management Plan

S. No	Impacts on Environment	Activity /Aspect	Anticipated impacts	Mitigation measures
1.	Air	Fugitive emissions during operation activity	Due to quarrying activity, fugitive dust and other air pollutants like particulate matter (PM10 & PM 2.5) will be generated.	Trees will be planted along the safety distance of the Mine Lease area. Water will be sprinkled in the site as dust suppression measure. Sharp drill bits will be used for drilling and regrinding will be done periodically to minimize the generation of dust. Wet drilling to suppress the dust emission from drill machine
			Blasting of explosive may result in increase of nitrogen oxides, which may get diluted by the wind	Controlled blasting and optimization of use of explosive energy will help in reducing the above emissions
		During Loading	Dust emission during loading operation	Latest loading equipment like hydraulic excavators of large capacity will be used with dumpers. This reduces the number of buckets to fill from height and thus comparatively less dust generation
		During transportation	Dust emission during transportation	All the haulage roads including the main ramp from crusher to mines pit will be kept wide, leveled, compacted and properly maintained and watered regularly during the shift operation to prevent generation of dust due to movement of dumpers, and other vehicles.
				Periodic air quality survey will be carried out to monitor the changes consequent upon mining activities as per the norms of TNPC Board.
2.	Water	Wastewater generation	Improper management of Domestic wastewater in the Mine lease may create unhygienic conditions in the site thereby causing health impacts to the labors	Provision of urinals/Latrines along with septic tank followed by soak pit arrangement will be provided in the Mine Lease area for the proper management of wastewater

		Surface water runoff due to rain	Improper management of surface runoff may pollute the nearest waterbody	Storm water drains will be provided. Rainwater harvesting pits will be proposed to capture the surface run-off
3.	Noise	Mining activities like drilling, blasting, loading and transportation	Noise from the machinery can cause hypertension, high stress level, hearing loss, sleep disturbance etc due to prolonged exposure. Apart from Mining activities like drilling, blasting may generate noise	Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas
4	Vibration	Ground Vibration and Fly Rock Control	The quarrying activity such as drilling and blasting may cause ground vibration, which in turn can disturbance to the local public	Controlled blasting using delay detonators will be carried out to maintain the PPV value well within the prescribed standards of DGMS. Drilling and blasting will be carried under the supervision of qualified persons.
4.	Land	Improper management of Storm water Runoff	Storm water Runoff may result in Soil Erosion	Garland drainage of 1m x 1m will be provided to avoid storm water run- off.
4.	Social Responsibility	Mining workers	Unhygienic site sanitation facilities may cause health damage to workers.	The objective is to ensure health and safety of the workers with effective provisions for the basic facilities of sanitation, drinking water, safety of equipments or machinery etc. The following will be done in the site ✓ By complying with the safety procedures, norms and guidelines (as applicable) as outlined in the National Building Code of India, Bureau of Indian Standards. ✓ Provide adequate number of decentralized latrines and urinals ✓ Providing Septic tank along with Soak pit arrangement ✓ Providing First Aid room, conducting frequent health checkups to labor and conducting free medical camps ✓ Providing safety helmet, Gloves, Jacket & Boots

				✓ Providing measures to prevent fires. Firefighting extinguishers and buckets of sand will be provided in the construction site
6.	Building materials resource conservation	Building Material consumption	Use of farfetched construction materials than the locally available construction materials may lead to over exploitation of natural resources & increase in carbon footprint.	• Use of locally available construction materials.

10.3 Environmental Policy

- The Project Proponent has stipulated a well-defined Environmental policy by which the lessee is committed to conducting business with a strong environmental conscience towards the community, customers, and employees. The Environment policy is given as below.
- The Environment policy of "Rough Stone and Gravel Quarry of Tvl. JCK Mines is that the rules and commitment are driven towards conservation of the environment.
- The lessee is committed to efficient use of natural resources based on the reduce, recycle and reuse method.
- The project is committed to the identification of possible impacts and will take the necessary management steps to mitigate the impacts.
- Environment performance will be regularly monitored and reported for continual improvement of our environment and health performance.

Table 10-2 Budgetary allocation - EMP

Activities	Mitigation Measure	Capital cost	Recurring Cost per Annum
Air Environment	Compaction, gradation and drainage on both sides for Haulage Road	0.74	0.74
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	8.00	0.50
	Muffle blasting – To control fly rocks during blasting	0.00	0.05
	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	2.00	0.20
	No overloading of trucks/tippers/tractors	0.00	0.19
	Stone carrying trucks will be covered by tarpaulin	0.00	0.10
	Enforcing speed limits of 20 km/hr within ML area	0.30	0.03
	Regular monitoring of exhaust fumes as per RTO norms	0.00	0.05
	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	0.00	1.49
	Installing wheel wash system near gate of quarry	0.50	0.20
	Sub-Total (A)	**11.54**	**3.55**
Noise Environment	Provision for Portable blaster shed	0.50	0.02
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	0.00	22.84
	Sub-Total (B)	**0.50**	**22.86**
Waste Management	Provision for domestic waste collection and disposal through authorized agency	0.25	0.20
	Installation of dust bins	0.05	0.02

	Sub-Total (C)	**0.30**	**0.22**
Mine Closure	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	0.74	0.05
	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum	14.88	0.10
	Plantation inside ML area (1800 Nos.)	6.00	0.90
	Plantation outside ML area (200 Nos.)	2.25	0.23
	Sub-Total (D)	**23.87**	**1.28**
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	0.10	0.01
	Air, Water, Noise and Soil Quality Sampling every 6 Months for Compliance Report of EC Conditions	0.00	0.50
	Workers will be provided with Personal Protective Equipment's	1.40	0.35
	Health checkup for workers will be provisioned	0.00	0.35
	First Aid facility Provision	0.00	0.15
	Signage & boards for safety precautions	0.10	0.02
	No parking will be provided on the transport routes. Separate provision on the south side of the hill will be made for vehicles.	3.72	0.10
	Installation of CCTV cameras in the mines and mine entrance	0.30	0.05
	Implementation as per Mining Plan and ensure safe quarry working	0.00	10.80
	Slope Stablitiy Action plan	2.00	0.00
	Sub-Total (E)	**7.62**	**12.33**
	Grant Total	**43.84**	**40.23**

Table 10-3 Budgetary allocation – EMP for five years

Sl. No	Year	Capital cost (Lakhs)	Recurring Cost @ 5% Escalation (Lakhs)
1	1st Year	43.84	40.23
2	2nd Year	0.0	42.24
3	3rd Year	0.0	44.35
4	4th year	0.0	46.57
5	5th year	0.0	48.90
Total		43.84	**222.30**
Grand Total (Lakhs)		**266.13**	
The total EMP Cost is 266.13 Lakhs for a period of Five years have been proposed. i.e., Capital cost of Rs. 43.84 Lakhs + Recurring cost of Rs. 222.30 lakhs.			

11 SUMMARY AND CONCLUSION

11.1 Prelude

This chapter gives the overall summary of the proposed Rough Stone and Gravel Quarry at S.F.Nos. 98/2, 98/3,98/4,98/7, 100/1, 100/2, 101/2, 101/3,101/4,105/1, 105/3, 105/7,105/8 and 105/11 over an extent of 7.44.0 Ha in Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu (Cluster Area: 11.91.0 Ha)

11.2 Project Overview

Table 11-1 Project Overview

<table>
<tr><th>S. No.</th><th>Particulars</th><th>Details</th></tr>
<tr><td>1.</td><td>Proponent Name</td><td>Tvl. JCK Mines represented by Thiru. J. K. Vettrivelan (Partner)</td></tr>
<tr><td>2.</td><td>Proposed project</td><td>Rough Stone & Gravel Quarry of Tvl. JCK Mines</td></tr>
<tr><td>3.</td><td>Extent</td><td>7.44.0 Ha and the cluster area within 500 m radius including the proposed mine is 11.91.0 Ha > 5 Ha</td></tr>
<tr><td>4.</td><td>Location</td><td>S.F. Nos. 98/2, 98/3,98/4,98/7, 100/1, 100/2, 101/2, 101/3,101/4,105/1, 105/3, 105/7,105/8 and 105/11 of Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu</td></tr>
<tr><td>5.</td><td>Co-ordinates of the project site</td><td>
<table>
<tr><th rowspan="2">Corners</th><th colspan="2">Co- ordinates</th></tr>
<tr><th>Latitude</th><th>Longitude</th></tr>
<tr><td>1</td><td>12° 34' 47.32"N</td><td>79° 39' 39.29"E</td></tr>
<tr><td>2</td><td>12° 34' 50.95"N</td><td>79° 39' 39.78"E</td></tr>
<tr><td>3</td><td>12° 34' 50.89"N</td><td>79° 39' 39.93"E</td></tr>
<tr><td>4</td><td>12° 34' 54.82"N</td><td>79° 39' 41.21"E</td></tr>
<tr><td>5</td><td>12° 34' 54.20"N</td><td>79° 39' 43.80"E</td></tr>
<tr><td>6</td><td>12° 34' 54.86"N</td><td>79° 39' 45.03"E</td></tr>
<tr><td>7</td><td>12° 34' 58.88"N</td><td>79° 39' 45.75"E</td></tr>
<tr><td>8</td><td>12° 34' 58.82"N</td><td>79° 39' 40.79"E</td></tr>
<tr><td>9</td><td>12° 35' 00.84"N</td><td>79° 39' 41.23"E</td></tr>
<tr><td>10</td><td>12° 35' 04.08"N</td><td>79° 39' 41.66"E</td></tr>
<tr><td>11</td><td>12° 35' 03.51"N</td><td>79° 39' 44.74"E</td></tr>
<tr><td>12</td><td>12° 35' 03.09"N</td><td>79° 39' 47.03"E</td></tr>
<tr><td>13</td><td>12° 34' 58.87"N</td><td>79° 39' 46.01"E</td></tr>
<tr><td>14</td><td>12° 34' 58.83"N</td><td>79° 39' 46.81"E</td></tr>
<tr><td>15</td><td>12° 34' 58.33"N</td><td>79° 39' 50.78"E</td></tr>
<tr><td>16</td><td>12° 34' 56.30"N</td><td>79° 39' 50.11"E</td></tr>
<tr><td>17</td><td>12° 34' 56.56"N</td><td>79° 39' 48.10"E</td></tr>
<tr><td>18</td><td>12° 34' 56.43"N</td><td>79° 39' 48.05"E</td></tr>
<tr><td>19</td><td>12° 34' 56.64"N</td><td>79° 39' 46.15"E</td></tr>
<tr><td>20</td><td>12° 34' 52.85"N</td><td>79° 39' 45.00"E</td></tr>
</table>
</td></tr>
</table>

			21	12° 34' 49.46"N	79° 39' 43.30"E
			22	12° 34' 49.70"N	79° 39' 49.67"E
			23	12° 34' 48.23"N	79° 39' 49.83"E
			24	12° 34' 47.92"N	79° 39' 47.22"E
			25	12° 34' 47.79"N	79° 39' 47.22"E
			26	12° 34' 47.51"N	79° 39' 44.76"E
			27	12° 34' 47.09"N	79° 39' 44.71"E
			28	12° 34' 47.55"N	79° 39' 42.60"E
			29	12° 34' 46.23"N	79° 39' 42.12"E
6.	Topography	Plain Terrain			
7.	Site Elevation above MSL	≃ 93 m from above MSL			
8.	Topo Sheet No.	57 P/10			
9.	Minerals of Mine	Rough Stone & Gravel			
10.	Proposed production in m^3	100452 Cu.m of Gravel and 868060 Cu.m of Rough Stone			
11.	Ultimate Depth of mining	57m (AGL)			
12.	Method of Mining	Opencast, Semi-Mechanized Mining with a bench height of 5m and bench width of 5m is proposed			
13.	Drilling/Blasting	Drilling and controlled Blasting is proposed			
14.	No. of Working days	300 Days			
15.	Water requirement & Source	9.5 kLD and will be sourced from local vendors			
16.	Manpower	35 Nos.			
17.	Project Cost	Rs. 509.346 lakhs			
18.	Mining Plan Approval	Joint Director (A/c), O/o. Assistant Director, Dept. of Geology & Mining, Tiruvannamalai vide Rc.No. 549/Kanimam/2024 dated 23.09.2024.			
19.	Safety Zone	2.44.00 Ha will be maintained as safety zone and tree saplings will be planted in this area			
20.	Ground water level	68 m BGL			

Table 11-2 Environmental Settings of the Project

S. No.	Particulars	Details
1.	Nearest Highway	(NH-179B) Tiruvannamalai-Chennai – 24.00km (SE) (SH-116) Kancheepuram – Vandavasi – 3.8km (W)
2.	Interstate boundary	Nil within 10 km radius
3.	Nearest Railway Station	Pakkam – 24.0km, SE
4.	Nearest Airport	Chennai - 72 km, NE

5.	Nearest Port	Chennai - 85 km, NE
6.	Nearest Village	Vachanur – 680m, N
7.	Water bodies	• Odai – 560m (NE) • Kuttai – 435m (W) • Kulam – 550m (NE) • Melnarma Tank – 270m (S) • Thukkuvadi Tank – 420m (SE) • Thuraiyur Tank – 1.0km (SW) • Vachanur Tank- 930m (NW) • Alathur Chitheri – 980m (NE) • Uthiramerur Lake – 7.2km (NE) • Cheyyar River – 8.7km (N) • Subam River - 7.2km (SE)
8.	Reserved Forest	Venkunam RF – 7.3 km (SW)
9.	Eco Sensitive Zone and Wildlife Sanctuary (Notified)	Nil within 10km Radius Karikili Bird Sanctuary – 19.0 km (E
10.	Archaeological important places	Nil within 10 km radius
11.	Defense Installations	Nil within 10 km radius
12.	Nearest Port	Nil within 10 km radius
13.	Seismic Zone	Nil within 10 km radius

11.3 Baseline Status

Season: Post-Monsoon

Period of Collection: October to December 2024

Number of Monitoring Locations

Parameters	No. of Monitoring Locations
Meteorology	01
Ambient Air Quality	07
Surface Water Quality	
Ground Water Quality	07
Ground Water Level	02

Noise Level	07
Soil Quality	06

Meteorological Parameters

Parameters	Min. Value	Max. Value	Mean Value
Temperature (°C)	17	35.9	27.3
Wind Speed (m/s)	1	8.8	2.9
Relative Humidity (%)	33.9	98.1	71.8
Solar Radiation (W/m^2)	144.38	164.9	152.3

Rainfall Data:

	Total rainfall (mm)	No. of Rainy Days	Average annual rainfall (mm)
Rainfall	1.1	55	815

Predominant wind direction during monitoring period: North East

Ambient Air Quality

Core Zone	Pollutant	Unit	Min	Max	Mean	Standards
Core Zone	PM10	Micro Gram per Meter Cube	50.0	70	61.1	100
Core Zone	PM2.5	Micro Gram per Meter Cube	23.6	33.0	28.7	60
Core Zone	SO2	Micro Gram per Meter Cube	5.7	8.9	7.1	80
Core Zone	NOx	Micro Gram per Meter Cube	9.5	12.4	10.7	80

Buffer Zone	Pollutant	Unit	Min	Max	Mean	Standards
Buffer Zone	PM10	Micro Gram per Meter Cube	43.3	61.9	50.3	100
Buffer Zone	PM2.5	Micro Gram per Meter Cube	18.9	34.5	24.4	60
Buffer Zone	SO2	Micro Gram per Meter Cube	3.6	4.4	5.0	80
Buffer Zone	NOx	Micro Gram per Meter Cube	5.8	12.9	8.9	80

Ground Water Quality

Buffer Zone	Pollutant	Unit	Observed Value		Standard Desirable Limits	Standard Permissible Limits
			From	To		
Buffer Zone	pH	-	6.92	7.84	6.5	8.5
Buffer Zone	TDS	Micro Gram per Litre	238	1120	500	2000
Buffer Zone	Total Hardness	Micro Gram per Litre	170	442	200	600
Buffer Zone	Chlorides	Micro Gram per Litre	34.3	360	250	1000
Buffer Zone	Fluoride	Micro Gram per Litre	0.23	0.66	1	1.5
Buffer Zone	Iron	Micro Gram per Litre	0.02	0.12	0.3	No relaxation

Core Zone	Pollutant	Unit	Observed Value		Standard Desirable Limits	Standard Permissible Limits
			From	To		
Core Zone	pH	-	7.32	7.32	6.5	8.5
Core Zone	TDS	Micro Gram per Litre	612	612	500	2000
Core Zone	Total Hardness	Micro Gram per Litre	432	432	200	600
Core Zone	Chlorides	Micro Gram per Litre	81.3	81.3	250	1000
Core Zone	Fluoride	Micro Gram per Litre	0.32	0.32	1	1.5
Core Zone	Iron	Micro Gram per Litre	0.08	0.08	0.3	No relaxation

Ground Water Level (Phreatic Surface)

motoring Location	Range of Water Table Pre-monsoon Season (in m below ground level)		Range of Water Table Post-Monsoon Season (in m below ground level)	
Buffer Zone	**From (Pre-monsoon)**	**To (Pre-monsoon)**	**From (post-monsoon)**	**To (post-monsoon)**
Buffer Zone	**66**	**67**	**67**	**68**

motoring Location	Range of Water Table Pre-monsoon Season (in m below ground level)		Range of Water Table Post-monsoon Season (in m below ground level)	
CORE ZONE	From (Pre-monsoon)	To (Pre-monsoon)	From (Post-monsoon)	To (Post-monsoon)
CORE ZONE	66	67	67	68

Noise Level

Monitoring Location	Category	Observed Noise Level(dB(A))				Prescribed Standard(dB(A))	
Buffer Zone		Day Time Level		Night Time Level		Day Time Level	Night Time Level
		From	To	From	To		
Buffer Zone	Residential area	44.4	49.8	37.1	40.1	55	45
Monitoring Location	Category	Observed Noise Level(dB(A))				Prescribed Standard(dB(A))	
Buffer Zone		Day Time Level		Night Time Level		Day Time Level	Night Time Level
		From	To	From	To		
Core	Industrial area	46.1	46.1	38.8	38.8	75	70

Soil Quality

Monitoring Location	Soil Texture	Particle Size Distribution (%)			Water Holding Capacity (%)	Porosity (%)
		Sand	Silt	Clay		
Buffer Zone	Clay	31.64	19.79	1.64	8.2	56.58
Monitoring Location	Soil Texture	Particle Size Distribution (%)			Water Holding Capacity (%)	Porosity (%)
		Sand	Silt	Clay		
Core Zone	Loam	28.97	20.91	1.34	8.2	68.57

Chemical Properties

Monitoring Location	Criteria Parameter	Observed Value		Unit	Permissible Standard
Buffer Zone		From	To		

Monitoring Location	Criteria Parameter	Observed Value		Unit	Permissible Standard
Buffer Zone		From	To		
Buffer Zone	Phosphorus	370	542	mg	-
Buffer Zone	Potassium	135	226	mg	-
Buffer Zone	Nitrogen	BDL	BDL	mg	-

Monitoring Location	Criteria Parameter	Observed Value		Unit	Permissible Standard
Core Zone		From	To		
Core Zone	Phosphorus	664	664	mg	-
Core Zone	Potassium	178	178	mg	-
Core Zone	Nitrogen	BDL	BDL	mg	-

11.4 Anticipated Impacts and mitigation measures

The potential impacts and appropriate mitigation measures are listed below:

Table 11-3Anticipated impacts & suggestive mitigation measures

S. No.	Potential Impact	Mitigation Measures
1.	The main impact in the air environment is dust emission during various mining activities such drilling, blasting, excavation, loading and transportation. The dust emission may affect the quality of ambient air in the and around the mine area. The increased emission may cause respiratory & Cardiovascular problems in human health	Proper mitigation measures like water sprinkling on haul roads will be adopted to control dust emissions. To control the emissions regular preventive maintenance of equipment will be carried out on contractual basis. Plantation will be carried out along approach roads & mine premises.

2.	Waste water will be generated due to mining activity and from other domestic activities. These may contaminate the ground water leading to ground water. The mining activity may affect the ground water table	No waste water will be generated from the mining activity of minor minerals as the project only involves lifting of over burden from mine site. The wastewater generated from the domestic activity will be disposed off safely through the proposed septic tank. Mining will not intersect ground water table. Hence the water table will not be impacted due to the proposed project
3.	Noise will be generated in the mine area during various mining activities such as blasting, drilling, excavation. During transportation of the mined-out mineral, there may be noise generation due to the movement of vehicles. This may impact the health condition of the workers by creating headache	Periodical monitoring of noise will be done. No other equipment except the transportation vehicles and Excavator (as & when required) for loading will be allowed at site. Noise generated by these equipment shall be intermittent and does not cause much adverse impact. Plantation will be carried out along approach roads. The plantation minimizes propagation of noise and also arrest dust.
4.	Solid waste will be generated from the mining activity as there will be refuse after 95% recovery and also generation of domestic waste	The 100% recovery is achieved by extracting the entire mineable reserve. Hence there will be no refuse generation due to the mining activity. Apart from that, a very meagre quantity of domestic waste will be generated in the project, which will be handed over to the local body on daily basis.
5.	During mining activities, there are chances of workers getting health issues or may be prone to accidents	Dust masks will be provided as additional personal protection equipment to the workers working in the dust prone area. Periodical trainings will be conducted to create awareness about the occupational health hazards due to activities like blasting, drilling, excavation. Worker's health related problem if any, will be properly addressed.

11.5 Environmental Monitoring program

A monitoring programme for all the physical environment, which includes Ambient Air Quality, Surface & Ground Water & Wastewater Quality and Noise as per CPCB/MoEF&CC/Tamil Nadu Pollution Control Board (TNPCB) shall be maintained.

11.6 Disaster Management Plan

No high-risk accidents are anticipated as it is small scale mechanized Quarry with essential light machinery. The area is not prone for landslides, seismic activities, subsidence, floods, inundation etc. As there are no rivers and habitation in

the vicinity of probable disaster from the mine lease area. Elaborate description in respect of Risk Assessment and disaster Management plan are detailed in Chapter – 7.

11.7 Project benefits

The proposed project benefits the local community by providing them employment opportunity. Total 35 Nos. will be employed in the proposed quarrying activity. It also provides indirect job opportunity to many people, thereby improving the standard of living. Quarrying activity produces materials gravel, rough stone, sand which are used in construction and other industries, thereby contributing to the economic development of the local region. CER fund of Rs. 8 Lakhs will be used for the development of school in the study area.

11.8 Conclusion

To carry out the EIA study, 10km buffer zone was considered around the proposed site. Studies were conducted within the buffer zone, to obtain the information regarding the existing status of environment, for predicting the impacts if any due to proposed expansion activity and EMP regarding the project.

The studies done on different environmental parameters mandated by CPCB/ IS10500:2012/NAAQMS for noise, water, soil and air.

Appropriate models and techniques were used to predict the impact of the proposed project and to minimize impacts at every level of development, mitigation measures were suggested.

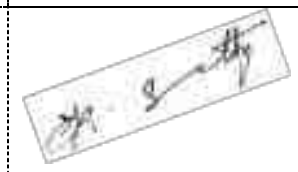
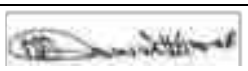
It can be concluded on a positive note that after the implementation of the mitigation measures and environmental management plans, the proposed project would result in minimal and controlled impacts during the operational phase.

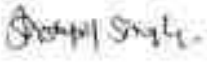
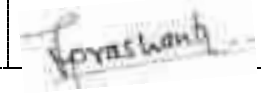
12 DISCLOSURE OF CONSULTANT

In order to assess the potential environmental impacts due to the proposed Rough Stone and Gravel Quarry at S.F.Nos. 98/2, 98/3,98/4,98/7, 100/1, 100/2, 101/2, 101/3,101/4,105/1, 105/3, 105/7,105/8 and 105/11 over an extent of 7.44.0 Ha in Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu (Cluster Area: 11.91.0 Ha), the project proponent has engaged M/s. Global Mining Solutions, Salem to undertake EIA study. The nature of consultancy service rendered covers terrestrial environmental assessment.

Table 12-1 Declaration of Experts

S. No.	Functional areas	Name of the expert/s	Involvement (Period and task)	Signature and date
1.	AP	Dhanalakshmi Ramanathan	1. Selection of Baseline Monitoring stations based on the wind direction 2. Interpretation of Baseline data by comparing it with standards prescribed by CPCB against the type of area 3. Identification of sources of air pollution and suggesting mitigation measures to minimize impact Period: Oct 24 to Dec 24	
2.	WP	Abirami Kaliaperumal	1. Selection of baseline Monitoring Locations for Ground water analysis and also identifying nearest surface water to be studied 2. Interpretation of baseline data collected 3. Identification of impacts based on the baseline study conducted and also to the ground water and nearby surface water due to the proposed project 4. Preparation of suitable and appropriate mitigation plan Period: Oct 24 to Dec 24	
5.	SHW	Ramadoss N	1. Identification of nature of solid waste generated 2. Categorization of the generated waste and estimating the quantity of	

			waste to be generated based on the per capita basis. Identification of impacts of SHW on Environment 3. Suggesting suitable mitigation measures by recommending appropriate disposal method for each category of waste generated Period: Oct 24 to Dec 24	
4.	SE	Sarasvathy K	1. Primary data collection through the census questionnaire 2. Obtaining Secondary data from authenticated sources and incorporating the same in EIA report. 3. Impact assessment & proposing suitable mitigation plan 4. CSR budget allocation by discussing with the local body and allotting the same for need based activity. Period: Oct 24 to Dec 24	
5.	EB	Saravanan S	1. Primary data collection through field survey and sheet observation for ecology and biodiversity 2. Secondary Collection through various authenticated sources 3. Prediction of anticipated impacts and suggesting appropriate mitigation measures. Period: Oct 24 to Dec 24	
6.	HG	Ravinthiran N	1. Study of existing surface drainage arrangements in the core and buffer zone, impact due to mining on these drainage courses and suggestion of mitigative measures 2. Determination of groundwater use pattern, development of rainwater harvesting program. 3. Storm water management through garland drainage system. Period: Oct 24 to Dec 24	
7.	GEO	Valliappan Meyyappan	Field survey for assessing regional and local geology, aquifer distribution,	

			Determination of groundwater use pattern, development of rainwater harvesting program. Period: Oct 24 to Dec 24	
8.	SC	Shisupal Sing	1. Interpretation of baseline report 2. Identification of possible impacts on soil, prediction of soil conservation and suggesting suitable mitigation measures. Period: Oct 24 to Dec 24	
9.	AQ	Srilatha Thiruveedhula	1. Collection of Meteorological data for the baseline study period 2. Plotting wind rose plot and thereby selecting the monitoring locations based on the wind pattern 3. Estimation of sources of air emissions and air quality modelling is done 4. Interpretation of the results obtained 5. Identification of the impacts and suggesting suitable mitigation measures. Period: Oct 24 to Dec 24	
10.	NV	Dhanalakshmi Ramanathan	1. Selection of monitoring locations 2. Interpretation of baseline data 3. Prediction of impacts due to noise pollution and suggestion of appropriate mitigation measures Period: Oct 24 to Dec 24	
11.	LU	Srilatha Thiruveedhula	1. Collection of Remote sensing satellite data to study the land use pattern. 2. Primary field survey and limited field verification for land categorization in the study area 3. Preparation of Land use map using Satellite data for 10km radius around the project site. Period: Oct 24 to Dec 24	
4.	RH	S.V. Prashant	1. Identification of the risk 2. Interpreting consequence contours	

			3. Suggesting risk mitigation measures Period: Oct 24 to Dec 24	

I, hereby, certify that I was a part of the EIA team in the following capacity that developed the above EIA.

EIA Coordinator: Manikandan Manickam

Signature and Date:

Period of involvement: October 2024 to December 2024

Contact information: M/s. Global Mining Solutions
Plot No. 6, SF NO. 13/2, A2, VS City,
RC Chettypatty, Kottamettupatty,
Omalur, Salem,
Tamil Nadu – 636 455

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

I, Prabhu, hereby, confirm that the above-mentioned experts prepared the EIA report of Proposed Mining of Rough stone and Gravel Quarry Over an Extent of 7.44.0 Ha by Tvl. JCK mines. I also confirm that the consultant organization shall be fully accountable for any mis-leading information mentioned in this statement.

Signature:

Name:

Designation:

Name of the EIA consultant organization:

NABET Certificate No. & Issue Date:

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1 INTRODUCTION

1.1 Preamble

Environment Impact Assessment (EIA) is a process used to identify the environmental, social & economic impacts of a project prior to decision making. It seeks to anticipate environmental effects early in the planning and design process, identify strategies to mitigate negative effects, adapt projects to the local environment, and provide the proponent with the predicted choices. Economic and environmental benefits can be obtained through the use of EIA. The project's overall time and cost can be reduced by taking into account environmental effects, including prediction and mitigation, early benefits in project design, environmental protection, and optimal resource utilization.

1.2 General Information on Mining of Minerals

The charnockite series includes rocks of many different types, some being felsic and rich in quartz and microcline, others mafic and full of pyroxene and olivine, while there are also intermediate varieties corresponding mineralogical to norites, quartz-norites and diorites.

A special feature, recurring in many members of the group, is the presence of strongly pleochroic, reddish or green orthopyroxene (formerly known as hypersthene).

(Source: District Survey Report - Tiruvannamalai)

1.3 Purpose of the report

Tvl. JCK Mines, Thiru J. K. Kathirvelan (Partner) proposes to establish a Rough Stone & Gravel Quarry at S.F. Nos. 98/2, 98/3,98/4,98/7, 100/1, 100/2, 101/2, 101/3,101/4,105/1, 105/3, 105/7,105/8 and 105/11 over an extent of 7.44.0 Ha in Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State. The area of the proposed mine is 7.44.0 Ha> 5.00 Ha. In this regard, Form-I and Pre-Feasibility Report has been submitted on 13.11.2024 and the ToR was granted by the SEIAA vide ToR Identification No. TO24B0108TN5594899N. The copy of the ToR is enclosed as Annexure - 1. The Geological Resources of rough stone in the proposed Mine Lease area is 40,89,195 m^3 and Gravel is 1,48,698 m3 for the ultimate depth of 57m BGL. As per the ToR, the proposed production is 8,68,060m3 of Rough Stone and 1,04,452m3 of gravel for the period of five years. The proposal for ToR was considered by the State Expert Appraisal Committee in its 516th meeting held on 06.12.2024 for prescribing Terms of Reference (ToR) for preparation of the Environmental Impact Assessment (EIA) report.

The purpose of the EIA study is to assess the baseline environmental conditions and to anticipate the possible environmental impacts during operation of the project, thereby suggesting appropriate mitigation measures to control the same. The EIA report has been prepared in line with the Terms of Reference issued by SEIAA vide ToR Identification No. TO24B0108TN5594899N.

1.4 Identification of the project and project proponent

1.4.1 About the Project:

The applicant Tvl. JCK Mines, proposed to quarry for the period of five years in Patta land over an area of 7.44.0 Ha located in S.F.No. 98/2, 98/3,98/4,98/7, 100/1, 100/2, 101/2, 101/3,101/4,105/1, 105/3, 105/7,105/8 and 105/11 of Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State. It is a Patta land in the name of Tmt. Santhi, Thiru. Sudhakaran, Thiru. Seenivasan, Thiru. Gopalan, Thiru. Boopalan, Thiru. Vettrivelan, Tmt. Sowmiya and Tmt. Parvathi vide Patta Nos. 515, 557, 672, 623 and 641. The Pattadars has given the consent to Thiru. J. K. Vettrivelan (Applicant), Partner of Tvl. JCK Mines and the same has been registered. The copy of the Patta, Adangal, and A-Register and consent registration document are enclosed as Annexure - 6. The copy of the Precise area communication letter received from the Joint Director (A/c), O/o. Assistant Director, Department of Geology and Mining, Tiruvannamalai enclosed as Annexure – 2.

1.4.2 About the Project Proponent:

Table 1-1 Details of Project Proponent

Name of the Project Proponent	Tvl. JCK Mines, Thiru. J. K. Vettrivelan (Partner)
Communication Address	No. 782, Mariamman Kovil Street, Jambodai Village, Azhividaithangi post, Vembakkam taluk, Tiruvannamalai District – 604402.
Mobile No.	9786228697
Email - ID	tvljckmines@gmail.com

1.5 Brief description of nature, size and location of the project

Table 1-2 Salient Features of the project

S. No.	Particulars	Description
1.	Nature	Mining of Rough Stone and Gravel Quarry
2.	Location	S.F.No. 98/2, 98/3,98/4,98/7, 100/1, 100/2, 101/2, 101/3,101/4,105/1, 105/3, 105/7,105/8 and 105/11 of Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
3.	Size (Extent)	7.44.0 Ha
4.	Project Cost	Rs. 509.346 Lakhs (Including EMP and CER Cost)

1.6 Details of Quarries within cluster area of 500m radius

The details of the quarries within 500 m radius are given below:

Table 1-3 Details of Quarry within 500m radius

S. No	Name and address of the lessee	Village & S. F. Nos	Extent in Hectare	Lease Period
i. Abandoned Quarries				
Nil				
ii. Existing Quarries				
1.	Tvl. JCK Mines No. 782, Mariyamman Koil Street, Jambodai Village, Azhividaithangal Post, Vembakkam Taluk	Melnarma Village, S.F.Nos. 100/3, 100/5, 100/6, 100/7, 100/8, 100/9, 100/10, 100/11, 100/12 & 100/13	4.47.00 Ha	15.07.2020 to 14.07.2025
iii. Proposed Quarries				
1	Tvl. JCK Mines Partner Thiru.J.K. Vettrivelan No. 782 Mariamman Kovil Street, Jambodai Village, Azhividaithangi Post, Tiruvannamalai District	Melnarma Village, S.F.Nos. 98/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7, 105/8 and 105/11	7.44.00 Ha	Proposed Area

The total lease within the 500m radius (Proposed + Existing) (1 no + 1 no) works out to 11.91.00 Ha including this lease area.

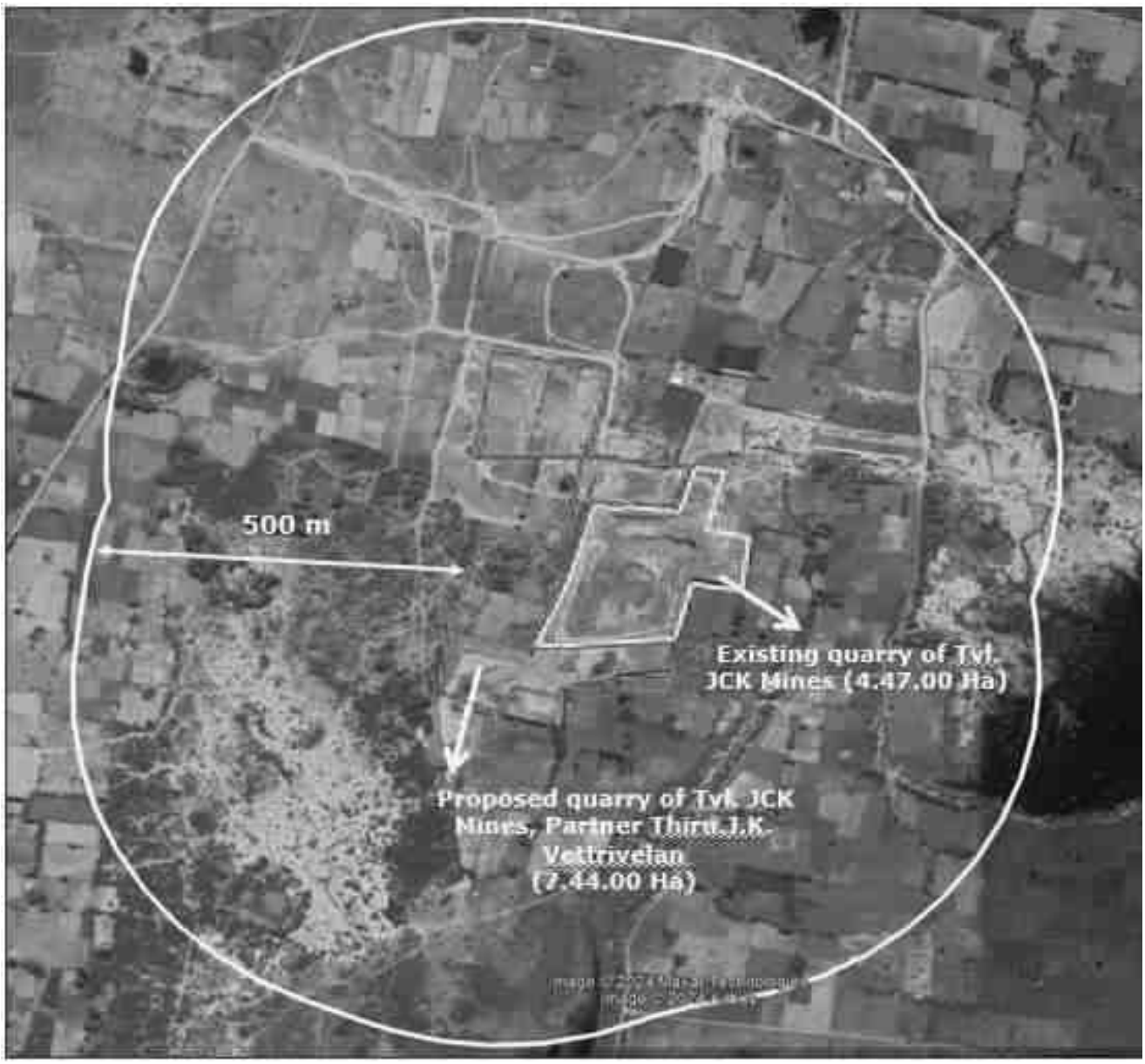


Figure 1-1 Details of Quarries within 500 m radius

1.7 Details of Statutory approvals

- Precise Area Communication:

  The Project Proponent has obtained Precise area communication letter received from the Joint Director (A/c), O/o. Assistant Director, Department of Geology and Mining, Tiruvannamalai vide Rc.No. 549/Kanimam/2024 dated 28.08.2024. The copy of the letter is enclosed as Annexure – 2.

- Mining Plan Approval Letter

  The project proponent has prepared mining plan under rule 19(1), 41 & 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 and the same has been approved by the Joint Director (A/c), O/o. Assistant Director, Dept. of Geology

& Mining, Tiruvannamalai vide Rc.No. 549/Kanimam/2024 dated 23.09.2024. The copy of the letter is enclosed as Annexure - 3

- 500 m radius quarry features

  The project proponent has obtained an official letter from the Joint Director (A/c), O/o. Assistant Director, Dept. of Geology & Mining, Tiruvannamalai vide Rc.No. 549/Kanimam/2024 dated 23.09.2024. The copy of the letter is enclosed as Annexure - 4

- Land document of the proposed lease area

  It is a Patta land in the name of Tmt. Santhi, Thiru. Sudhakaran, Thiru. Seenivasan, Thiru. Gopalan, Thiru. Boopalan, Thiru. Vettrivelan, Tmt. Sowmiya and Tmt. Parvathi vide Patta Nos. 515, 557, 612, 623 and 641. The Pattadars has given the consent to Thiru.J.K. Vettrivelan (Applicant), Partner of Tvl. JCK. Mines and the same has been registered. The copy of the Patta, Adangal, A-Register and consent registration document are enclosed as Annexure - 6.

- VAO certification regarding 300m features of the project area

  There are no historical places, schools, cemeteries, HT and LT lines, temples, bird sanctuaries, and wildlife sanctuaries within 300 metres of the proposed project area. In this regard, the project proponent has received an official letter from the Village Administrative Officer, Melnarma Village. The copy of the letter is enclosed as Annexure – 5

- Blasting Agreement

  The Project Proponent have agreement with M/s. Kuberan Explosives & Co. to carry out the blasting operation for the proposed quarry. The Blasting Agreement is enclosed as Annexure – 10.

1.8 EIA process

Screening: Screening is the first stage of the EIA process. In this stage, the State level Expert Appraisal Committee (SEAC) examined the application of EC made by the proponent in Form 1 through online (Proposal No. SIA/TN/MIN/505329/2024, dated 12.11.2024) and decided that the project requires detailed environmental studies for the preparation of EIA report.

Therefore, the proponent submitted application for Terms of Reference (ToR) on 13.11.2024.

Scoping: The proposal was placed in the 516th meeting of SEAC on 06.12.2024. Based on the presentation and documents furnished by the project proponent, SEAC decided to recommend the proposal for the grant of Terms of Reference (ToR) to SEIAA and SEIAA recommended ToR in its 781st meeting dated 23.12.2024.

Public Consultation: In this stage, an application along with the draft of EIA and EMP report will be made to the Member Secretary of the Tamil Nadu Pollution Control Board (TNPCB) to conduct Public Hearing ensuring public participation at the project site or in its close proximity in the district. During public hearing, an opportunity will be given to the people living nearby the project site to express their opinions about the impact of the proposed project on the environment. The outcome of the public hearing meeting will be updated in the final EIA report for appraisal.

Appraisal: In this stage, an application along with final EIA report including the outcome of the public consultations will be made to the SEIAA. The application thus made will be scrutinized by the SEAC. Then, the SEAC will make recommendations to grant EC or reject the application to the SEIAA.

1.9 Terms of Reference (ToR)

SEAC framed a comprehensive ToR based on the project information provided in Form I, PFR and issued ToR vide ToR Identification No. TO24B0108TN5594899N. The copy of the ToR is enclosed as Annexure - 1.

1.10 Scope of the EIA Study:

The main scope of the EIA study is to quantify the cumulative impact of the quarries in the cluster on the study area and formulate the effective mitigation measures for each individual lease. 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 sewage, and dust generation has been provided in this report. The baseline monitoring study has been carried out during the period of October 2024 – December 2024 for various environmental components such as land, soil, air, water, noise, ecology, etc. 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. The sampling methodologies for the various environmental parameters required for the study, frequency of sampling, method of sample analysis, etc., are given in Chapter 3.

1.11 Post Environmental Clearance Monitoring

1.11.1 Methodology adopted

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

Table 1-4 Post Environmental Clearance Monitoring

S. No.	Description	Frequency of monitoring
1.	Ambient Air Quality Monitoring	Quarterly /Half-yearly
2.	Water Level & Water Quality Monitoring (Both Surface and Ground Water)	Quarterly /Half-yearly
3.	Noise Level Monitoring	Quarterly /Half-yearly

4.	Soil Quality Monitoring	Quarterly /Half-yearly
5.	Medical check-up	Quarterly /Half-yearly

1.12 Structure of the EIA Report

The generic structure of the EIA Report is prepared as per the Technical EIA Guidance Manual for Mining of Minerals.

2 PROJECT DESCRIPTION

2.1 Type of the project

Tvl. JCK Mines represented by Thiru. J. K. Vettrivelan (Partner) proposes to set up a Rough Stone & Gravel Quarry at S.F.No. 98/2, 98/3,98/4,98/7, 100/1, 100/2, 101/2, 101/3,101/4,105/1, 105/3, 105/7,105/8 and 105/11 over an extent of 7.44.0 Ha in Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State. As per EIA Notification, 2006 and its subsequent amendments, project comes under category B1 & schedule 1(a) under item 1 as the area is 7.44.0 Ha >5 Ha. As per approved Mining Plan, the proposed production is 8,68,060m3 of Rough Stone and 1,04,452m3 of gravel for the period of five years by opencast mechanized mining. The project will be appraised at state level by State Environment Impact Assessment Authority, Tamil Nadu. Environment Clearance study will involve preparation of draft EIA report on the basis of baseline & impact assessment study is carried out. Also, before appraisal, under 7(III) of EIA notification 2006, the project involves the Public Consultation and the same will be conducted under SPCB (TN) in Tiruvannamalai District.

2.2 Need for the project

To achieve a huge infrastructure being envisaged by Government of India, particularly in road and housing sector, there is a need for basic building materials. The rough stone and gravel form the primary building material.

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

S. No.	Year	Production of Rough Stone	Revenue Realized
1.	2016-2017	688198	33519675
2.	2017-2018	825787	38311705
3.	2018-2019	1023023	59673732

2.3 Project Location

2.3.1 Location of the project site

The proposed quarry is located at S.F. Nos. 98/2, 98/3,98/4,98/7, 100/1, 100/2, 101/2, 101/3,101/4,105/1, 105/3, 105/7,105/8 and 105/11 over an extent of 7.44.0 Ha in Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State. The mining area is located in 12°34'46.23"N to 12°35'04.08"N & 79°39' 39.29" E to 79°39'50.78"E. The location of the project is given below in Figure 2-1.

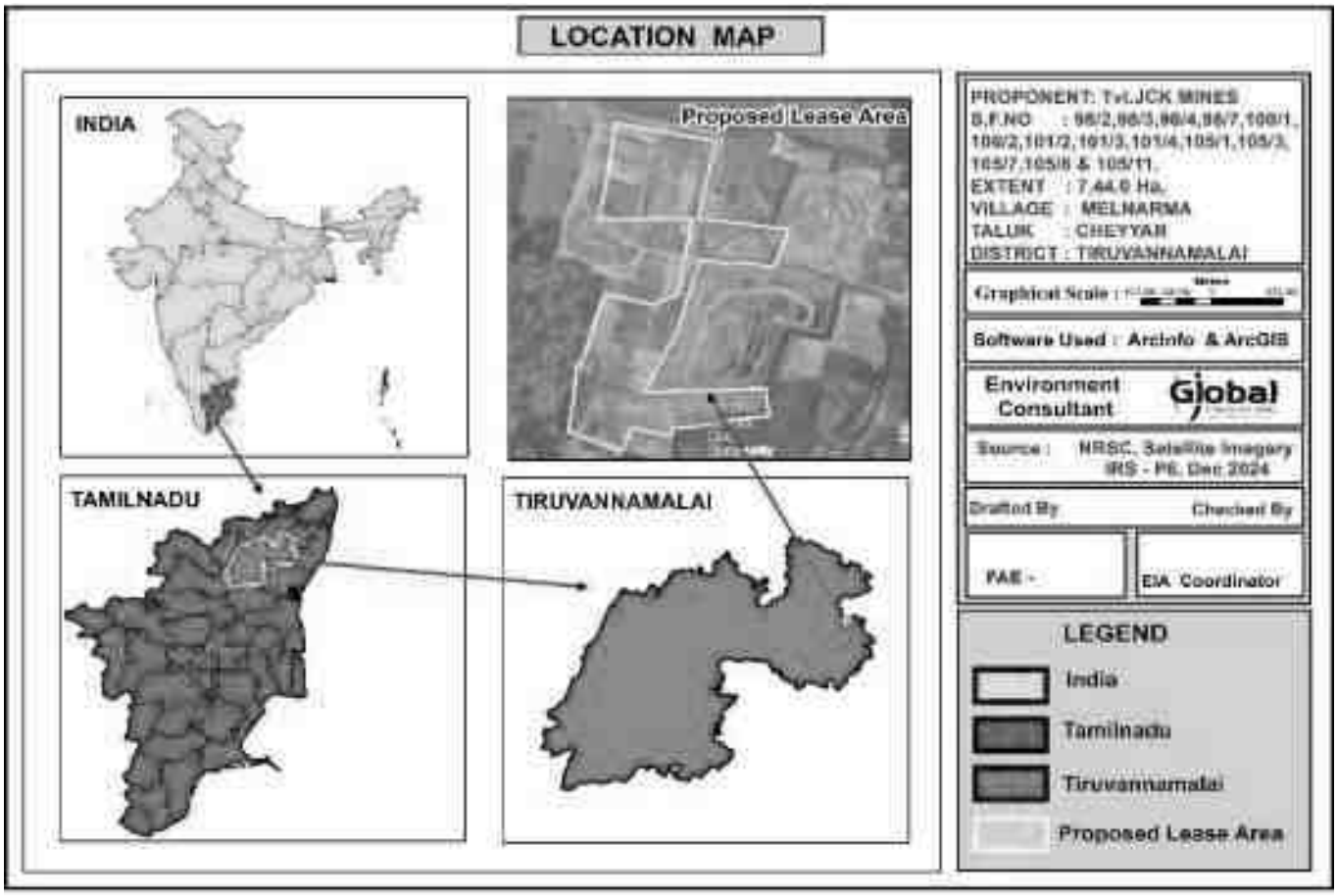


Figure 2-1 Project Location

The project boundary co-ordinates are shown below:

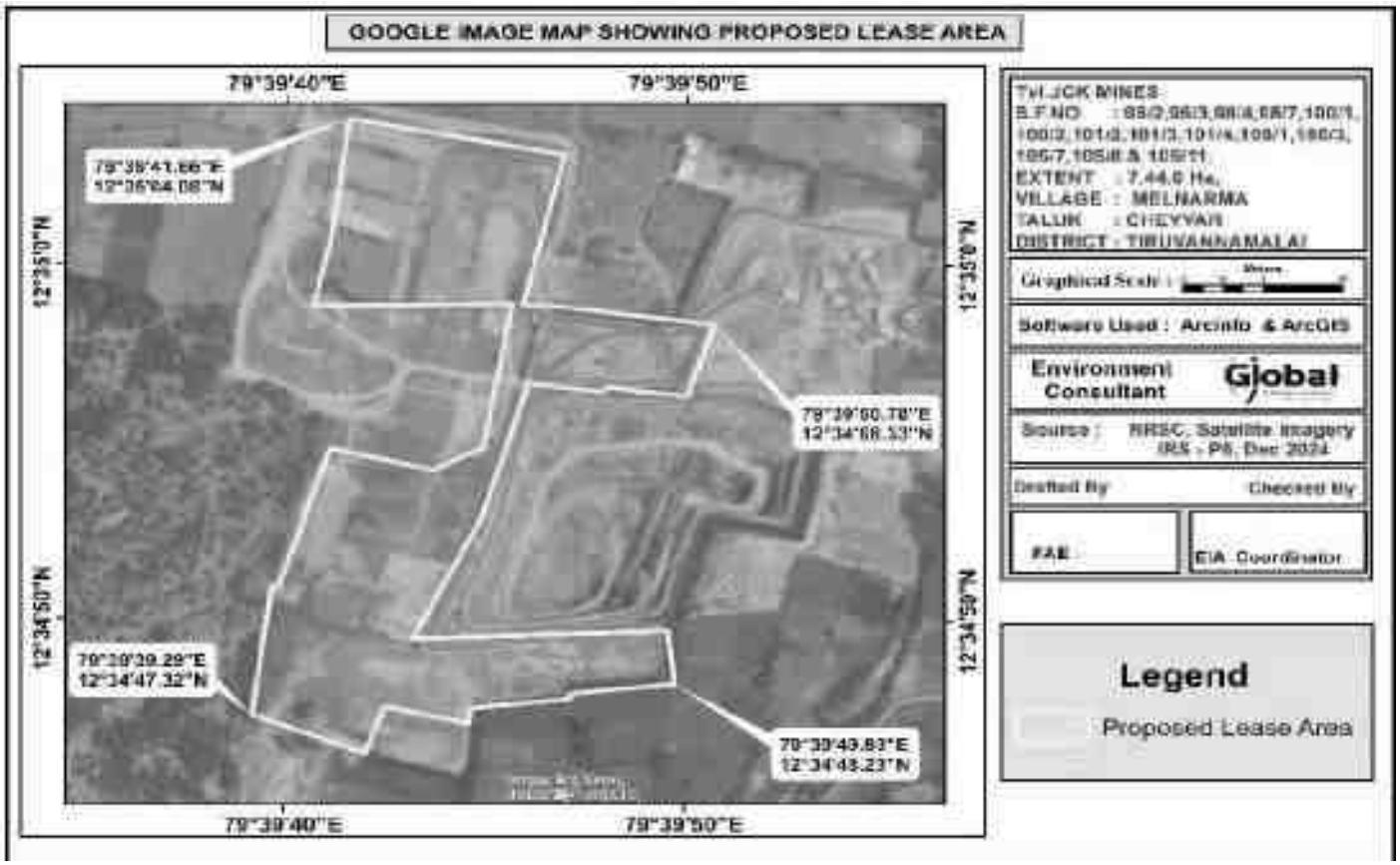


Figure 2-2 Boundary Co-ordinates of the Project

As per condition 1, PP has provided the safety distance of 50m for Eri Poramboke in the S.F. No. 105/2. As per condition 2, PP has provided the safety distance of 7.5m safety distance to the adjoining Patta lands and 10m safety distance to the adjoining Government Lands. The details of safety distance provided as per approved mining plan:

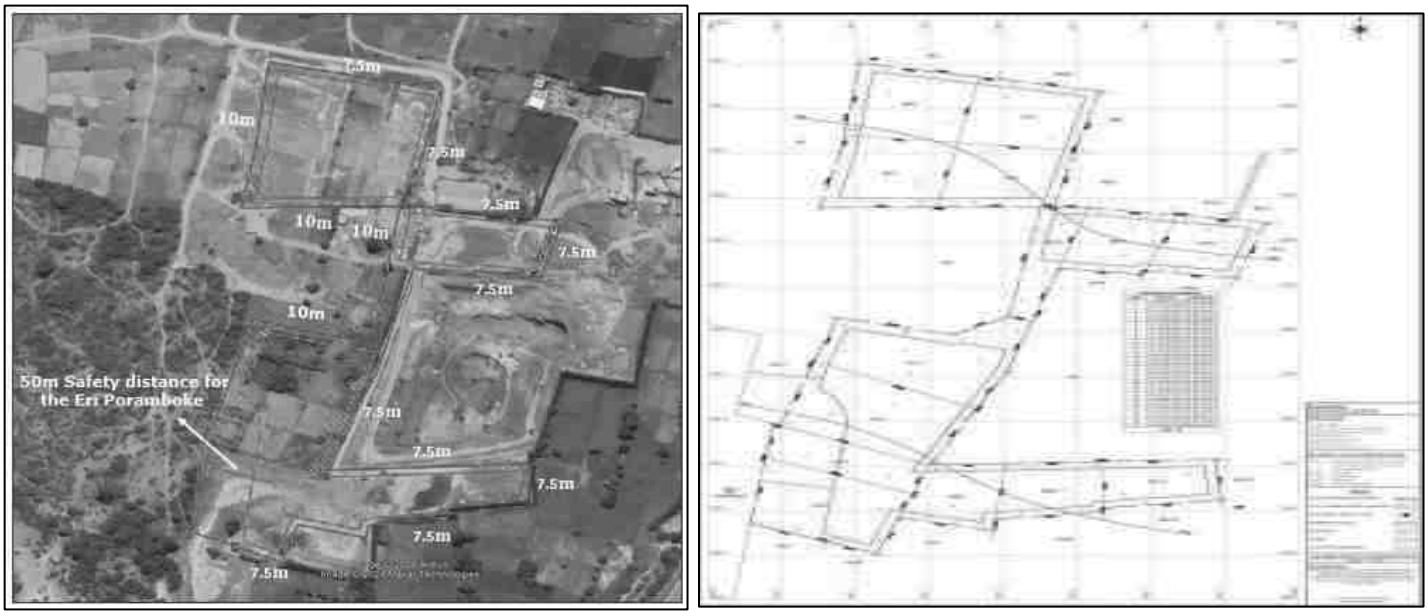


Figure 2-3 Details of Safety Distance

The site photographs of the project site are shown below

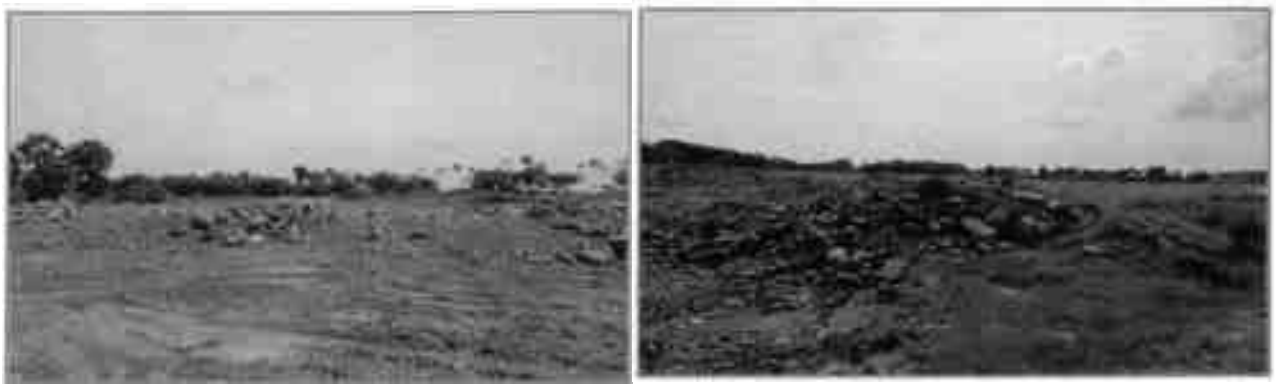


Figure 2-4 Site Photographs

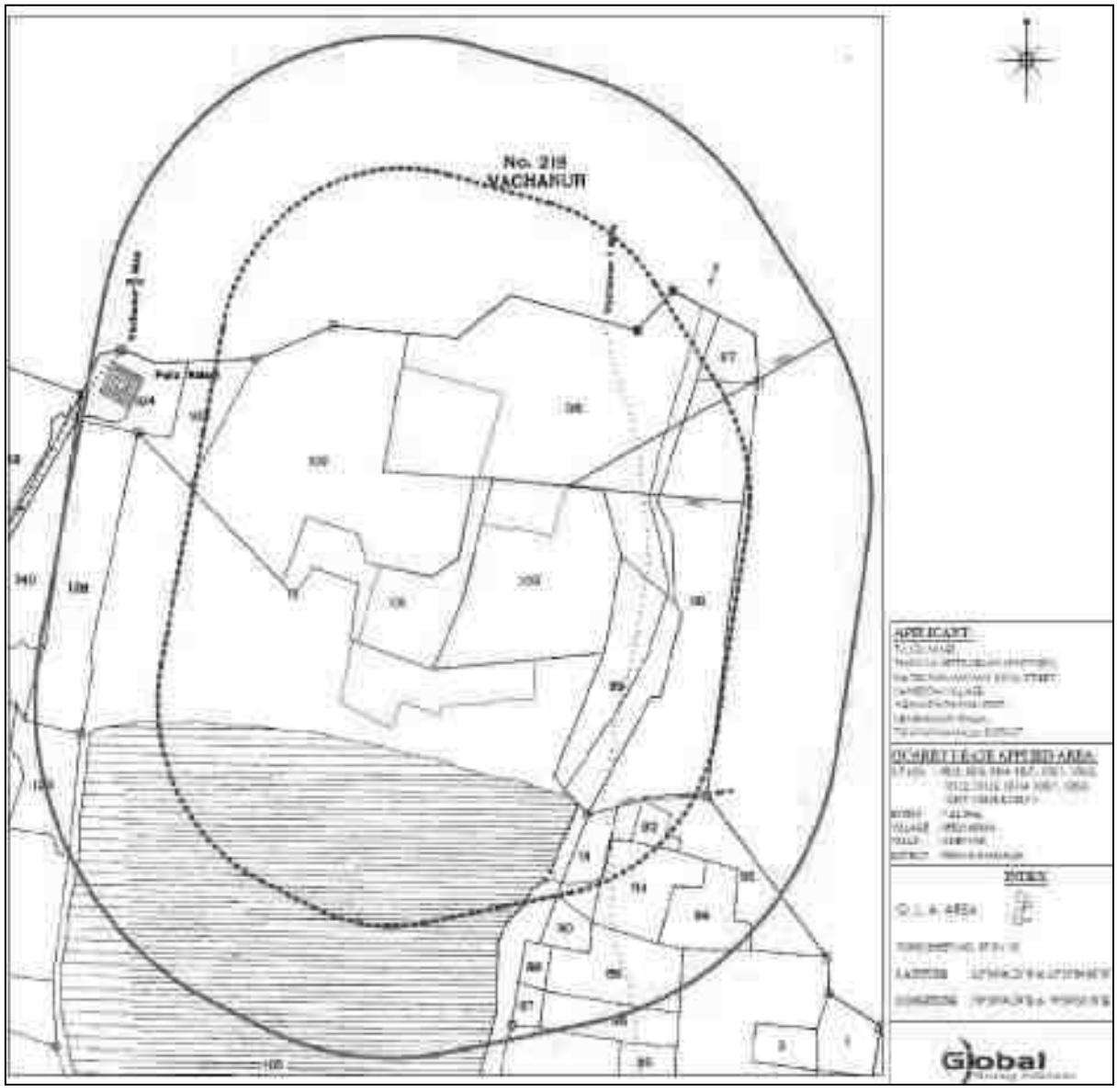


Figure 2-5 Village Map

2.3.2 Site Connectivity

The proposed site is located near Vachanur Village (680m, N) and is accessible from Kurambur-Melma Road. The site is located near SH -116 Kanchipuram-Vandavasi Road, which is located at a distance of 3.8 km (W).

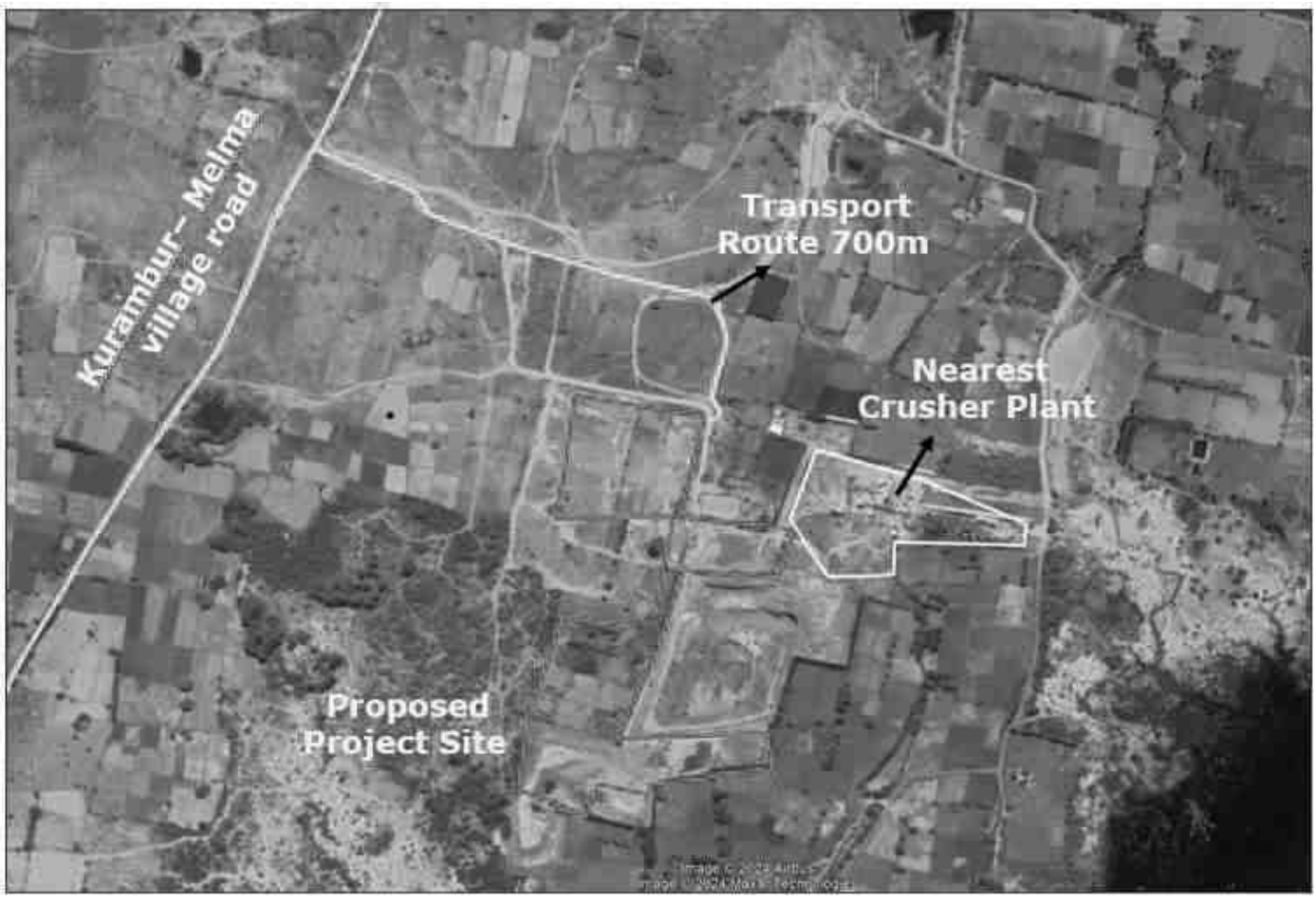


Figure 2-6 Site Connectivity

The details of site connectivity is shown below:

Table 2-1 Site Connectivity

S. No.	Particulars	Details
1.	Nearest Highway	NH 179B (Tiruvannamalai – Chennai) – 24 km, SE SH -116 (Kanchipuram-Vandavasi) Road - 3.8 km, W.
2.	Nearest Railway Station	Pakkam – 24 km, SE
3.	Nearest Airport	Chennai - 72 km, NE
4.	Nearest Port	Chennai - 85 km, NE
5.	Nearest Village	Vachanur – 680m, N

The salient features of the project site are given below:

Table 2-2 Salient features of the project site

<table>
<tr><th>S. No.</th><th>Particulars</th><th>Details</th></tr>
<tr><td>1.</td><td>Proponent Name</td><td>Tvl. JCK Mines represented by Thiru. J. K. Vettrivelan (Partner)</td></tr>
<tr><td>2.</td><td>Proposed project</td><td>Rough Stone & Gravel Quarry of Tvl. JCK Mines</td></tr>
<tr><td>3.</td><td>Extent</td><td>7.44.0 Ha and the cluster area within 500 m radius including the proposed mine is 11.91.0 Ha > 5 Ha</td></tr>
<tr><td>4.</td><td>Location</td><td>S.F. Nos. 98/2, 98/3,98/4,98/7, 100/1, 100/2, 101/2, 101/3,101/4,105/1, 105/3, 105/7,105/8 and 105/11 of Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu</td></tr>
<tr><td>5.</td><td>Co-ordinates of the project site</td><td>
<table>
<tr><th>S. No.</th><th>Latitude</th><th>Longitude</th></tr>
<tr><td>1.</td><td>12°35’04.08” N</td><td>79°39’41.66” E</td></tr>
<tr><td>2.</td><td>12°34’58.33” N</td><td>79°39’50.78” E</td></tr>
<tr><td>3.</td><td>12°34’47.32” N</td><td>79°39’39.29” E</td></tr>
<tr><td>4.</td><td>12°34’49.70” N</td><td>79°39’49.67” E</td></tr>
</table>
</td></tr>
<tr><td>6.</td><td>Topography</td><td>Plain Terrain</td></tr>
<tr><td>7.</td><td>Site Elevation above MSL</td><td>≃ 93 m from above MSL</td></tr>
<tr><td>8.</td><td>Topo Sheet No.</td><td>57 P/10</td></tr>
<tr><td>9.</td><td>Minerals of Mine</td><td>Rough Stone & Gravel</td></tr>
<tr><td>10.</td><td>Proposed production in m^3</td><td>8,68,060m3 of Rough Stone and 1,04,452m3 of gravel</td></tr>
<tr><td>11.</td><td>Ultimate Depth of mining</td><td>57m (BGL)</td></tr>
<tr><td>12.</td><td>Method of Mining</td><td>Opencast, Semi-Mechanized Mining with a bench height of 5m and bench width of 5m is proposed</td></tr>
<tr><td>13.</td><td>Drilling/Blasting</td><td>Drilling and controlled Blasting is proposed</td></tr>
<tr><td>14.</td><td>No. of Working days</td><td>300 Days</td></tr>
<tr><td>15.</td><td>Water requirement & Source</td><td>9.5 kLD and will be sourced from local vendors</td></tr>
<tr><td>16.</td><td>Manpower</td><td>35 Nos.</td></tr>
<tr><td>17.</td><td>Project Cost</td><td>Rs. 509.346 lakhs</td></tr>
<tr><td>18.</td><td>Mining Plan Approval</td><td>Joint Director (A/c), O/o. Assistant Director, Dept. of Geology & Mining, Tiruvannamalai vide Rc.No. 549/Kanimam/2024 dated 23.09.2024.</td></tr>
<tr><td>19.</td><td>Safety Zone</td><td>2.44.00 Ha will be maintained as safety zone and tree saplings will be planted in this area</td></tr>
<tr><td>20.</td><td>Ground water level</td><td>68 m BGL</td></tr>
</table>

The detailed Environmental Settings of the project is detailed below in Table 2-3

Table 2-3 Environmental Settings of the project

S. No.	Particulars	Details
1.	Nearest Highway	(NH-179B) Tiruvannamalai-Chennai – 24.00km (SE) (SH-116) Kancheepuram – Vandavasi – 3.8km (W)
2.	Nearest Railway Station	Pakkam – 24.0km, SE
3.	Nearest Airport	Chennai - 72 km, NE
4.	Nearest Port	Chennai - 85 km, NE
5.	Nearest Village	Vachanur – 680m, N
6.	Water bodies	• Odai – 560m (NE) • Kuttai – 435m (W) • Kulam – 550m (NE) • Melnarma Tank – 270m (S) • Thukkuvadi Tank – 420m (SE) • Thuraiyur Tank – 1.0km (SW) • Vachanur Tank- 930m (NW) • Alathur Chitheri – 980m (NE) • Uthiramerur Lake – 7.2km (NE) • Cheyyar River – 8.7km (N) • Subam River - 7.2km (SE)
7.	Reserved Forest	Venkunam RF – 7.3 km (SW)
8.	Eco Sensitive Zone and Wildlife Sanctuary (Notified)	Nil within 10km Radius Karikili Bird Sanctuary – 19.0 km (E
9.	Archaeological important places	Nil within 10 km radius
10.	Defense Installations	Nil within 10 km radius
11.	Nearest Port	Nil within 10 km radius
12.	Seismic Zone	Nil within 10 km radius

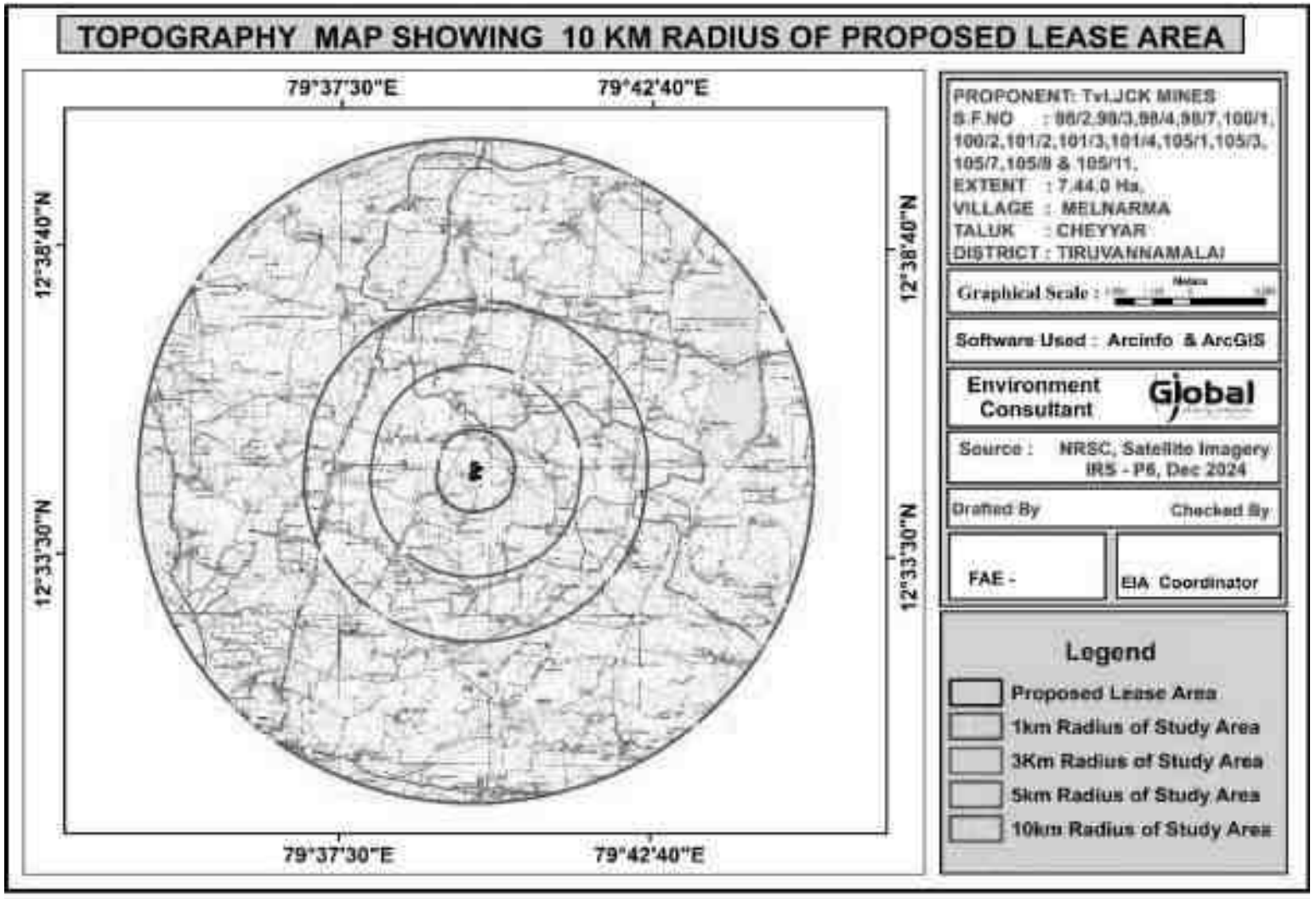


Figure 2-7 10 km Radius TOPO Map

2.4 Leasehold Area

The proposed project area is classified as a Patta land in the name of Tmt. Santhi, Thiru. Sudhakaran, Thiru. Seenivasan, Thiru. Gopalan, Thiru. Boopalan, Thiru. Vettrivelan, Tmt. Sowmiya and Tmt. Parvathi vide Patta Nos. 515, 557, 612, 623 and 641. The Pattadars has given the consent to Thiru.J.K. Vettrivelan (Applicant), Partner of Tvl. JCK. Mines and the same has been registered. The copy of the Patta, Adangal, and A-Register and consent registration document are enclosed as Annexure - 6. There is no human settlement within 500m radius. The surface plan of the project is shown below:

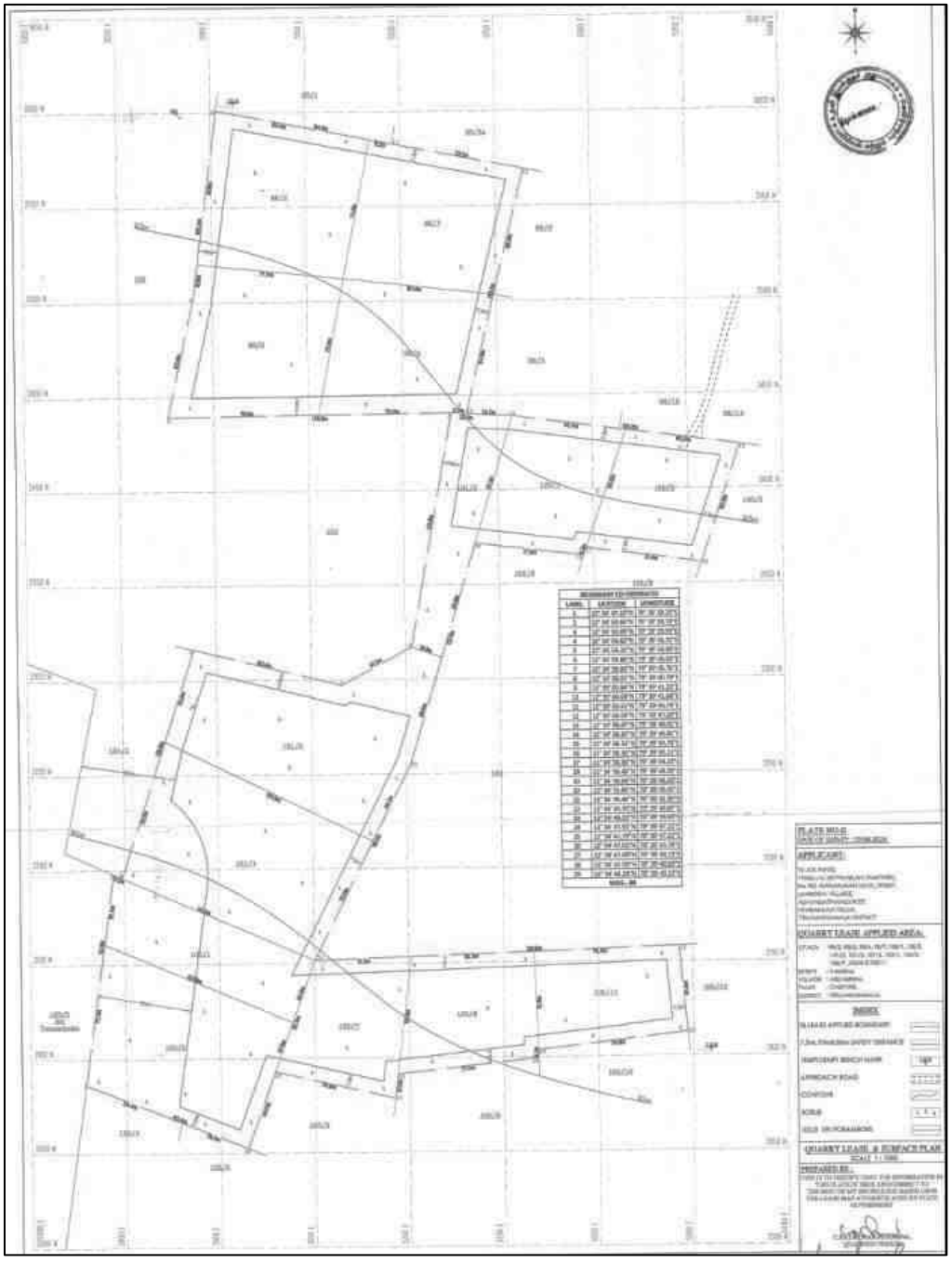


Figure 2-8 Surface plan of the project area

2.5 Land Use Pattern

The land use pattern of the project site is given below

Table 2-4 Land use pattern of the mine area

Sl. No.	Land Use	Present Area (Ha)	Area in use during the quarrying period (Ha)
1.	Quarrying Pit	Nil	4.95.00
2.	Infrastructure	Nil	0.02.00
3.	Roads	Nil	0.03.00
4.	Green Belt	Nil	2.44.00
5.	Unutilized	7.44.00	Nil
	Total	**7.44.00**	**7.44.00**

2.6 Geology

2.6.1 Regional Geology

Tiruvannamalai District mainly comprises of rocks of Archaeon 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, supracrustal 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 fluviatile, 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 (MioPliocene) 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.

AGE		FORMATION
Recent	-	Quaternary
		Formation (Gravel)
--------Unconformity----------		
Archaean	-	Charnockite
		Peninsular Gneiss complex

2.6.2 Regional Geology

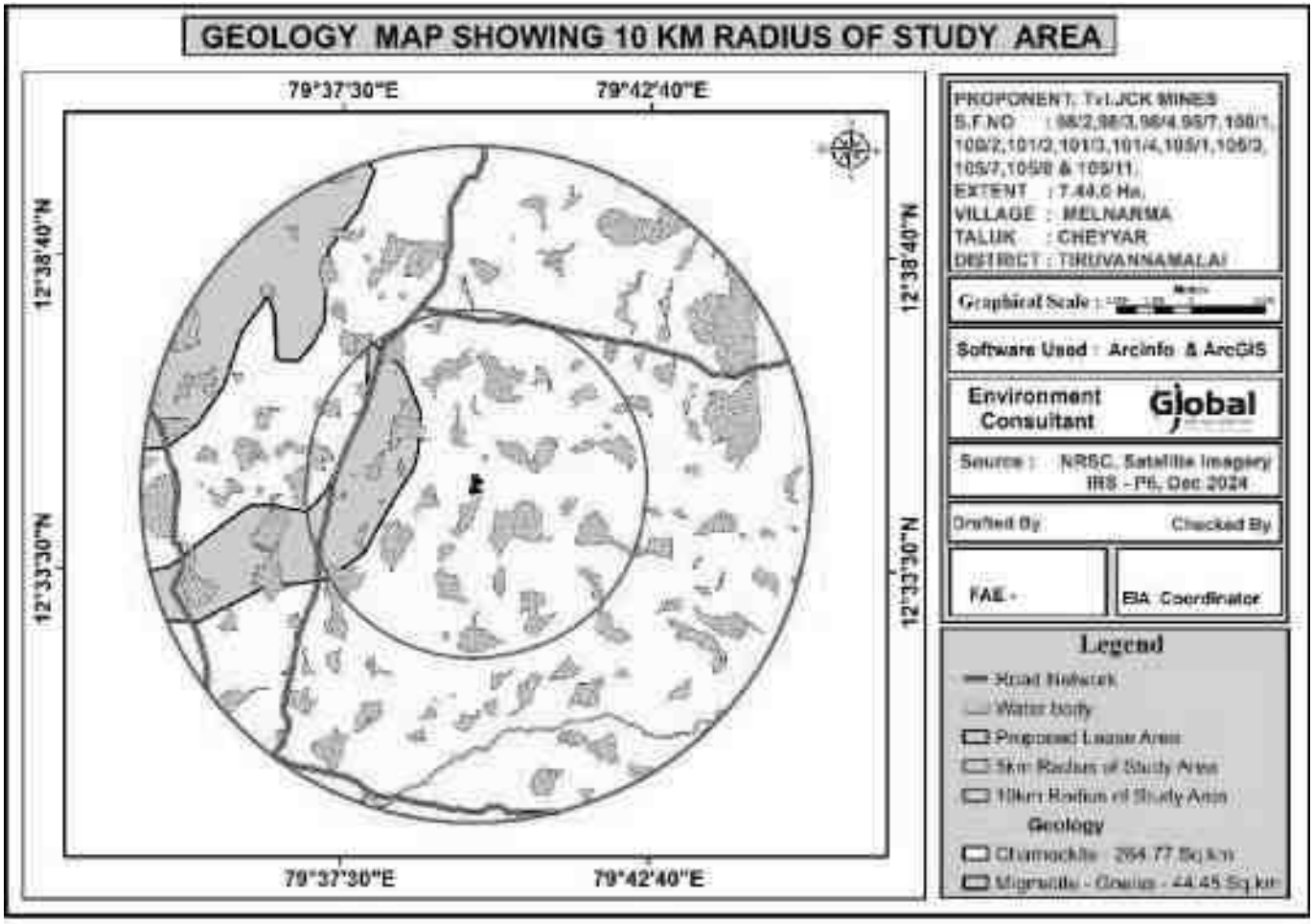


Figure 2-9 Geology map of the study area

The geology map of the study area reveals that the area is predominately covered with Charnockite [284.77 Sq.km], which falls under Charnockite group and the remaining area is covered with gnesis (Migmatite Group) [44.45 Sq.km]. No exploration was carried out. Massive Rough stone formation visible from the existing pits in the nearby quarry operations and dry open wells.

2.7 Details of Mining

The proposed activity is the extraction of Rough Stone and gravel by open cast semi mechanized mining method over an extent of 7.44.0 Ha. The details of mining are presented below

Table 2-5 Details of Mining

S. No.	Particulars	Details
1.	Method of mining	Open Cast Semi-mechanized
2.	Geological Reserves	40,89,195m^3 of rough stone and 1,48,698m^3 of gravel
3.	Mineable Reserves	8,68,060m^3 of rough stone, 1,00,452m^3 of Gravel
4.	Proposed Production	8,68,060m3 of Rough Stone and 1,04,452m3 of gravel
5.	Bench Details	Bench Height of 5m and Bench Width of 5m is proposed.

The details of geological and mineable reserves in the lease area have been provided below in the subsequent sub section.

2.7.1 Estimation of Reserves

The geological and recoverable reserves are estimated by cross-section method. Totally eight sections have been drawn, four sections drawn length wise as (X-Y), (X1-Y1), (X2-Y2), (X3-Y3) and another four sections drawn width wise as (A-B), (C-D), (E-F), (G-H) to cover maximum area considered for lease.

The Plans and Sections have been drawn with a scale of 1:1000 and 1:500 respectively.

2.7.2 Geological Reserves

The quarrying is restricted up to a depth of 57m BGL. The details of the available geological reserve are given below.

Table 2-6 Geological Reserve

Section	Length in (m)	Width in (m)	Depth in (m)	Volume in m^3	Gravel formation in m^3	Geological Resources of Rough stone in m^3
XY-AB	160	149	2	71520	47680	
	160	149	55	1311200		1311200
Total					**47680**	**1311200**
X1Y1-CD	147	68	2	29988	19992	
	147	68	55	549780		549780
Total					**19992**	**549780**
X2Y2-EF	89	130	2	34710	23140	
	89	130	55	636350		636350
Total					**23140**	**636350**
X2Y2-GH	163	103	2	50367	33578	
	163	103	55	923395		923395

Total					**33578**	**923395**
X3Y3-GH	59	206	2	36462	24308	
	59	206	55	668470		668470
Total					**24308**	**668470**
Grand Total					**148698**	**4089195**

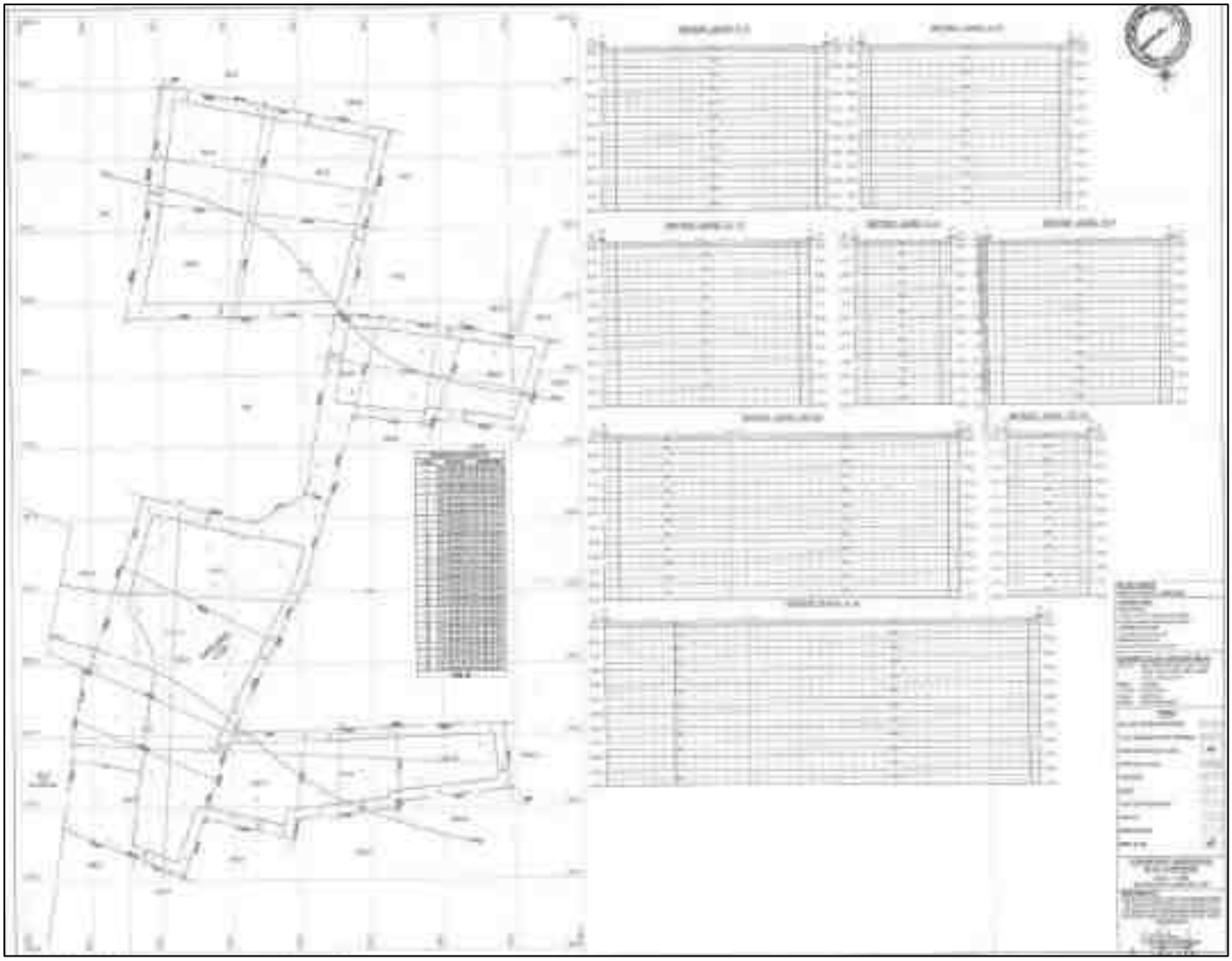


Figure 2-10 Available Geological Reserves

2.7.3 Available Mineable Reserve

The available mineable reserve calculated by deducting 10m safety distance and bench loss.

Table 2-7 Available Mineable Reserve

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m^3	Gravel in m^3	Mineable Reserves of rough stone in m^3
XY-AB	I	140	132	2	36960	36960	
	II	134	126	5	84420		84420
	III	124	116	5	71920		71920
	IV	114	106	5	60420		60420
	V	104	96	5	49920		49920
	VI	94	86	5	40420		40420
	VII	84	76	5	31920		31920
	VIII	74	66	5	24420		24420
	IX	64	56	5	17920		17920
	X	54	46	5	12420		12420
	XI	44	36	5	7920		7920
	XII	34	26	5	4420		4420
Total						**36960**	**406120**
X1Y1-CD	I	128	52	2	13312	13312	
	II	122	46	5	28060		28060
	III	112	36	5	20160		20160
	IV	102	26	5	13260		13260
	V	92	16	5	7360		7360
Total						**13312**	**68840**
X2Y2-EF	I	79	109	2	17222	17222	
	II	76	103	5	39140		39140
	III	71	93	5	33015		33015
	IV	66	83	5	27390		27390
	V	61	73	5	22265		22265
	VI	56	63	5	17640		17640
	VII	51	53	5	13515		13515
	VIII	46	43	5	9890		9890
	IX	36	33	5	5940		5940
	X	26	23	5	2990		2990
Total						**17222**	**171785**
X2Y2-GH	I	154	52	2	16016	16016	
	II	151	49	5	36995		36995

	III	146	44	5	32120		32120
	IV	141	39	5	27495		27495
	V	136	34	5	23120		23120
	VI	131	24	5	15720		15720
	VII	126	14	5	8820		8820
Total						**16016**	**144270**
X3Y3-GH	I	43	197	2	16942	16942	
	II	37	194	5	35890		35890
	III	27	189	5	25515		25515
	IV	17	184	5	15640		15640
Total						**16942**	**77045**
Grand Total						**100452**	**868060**

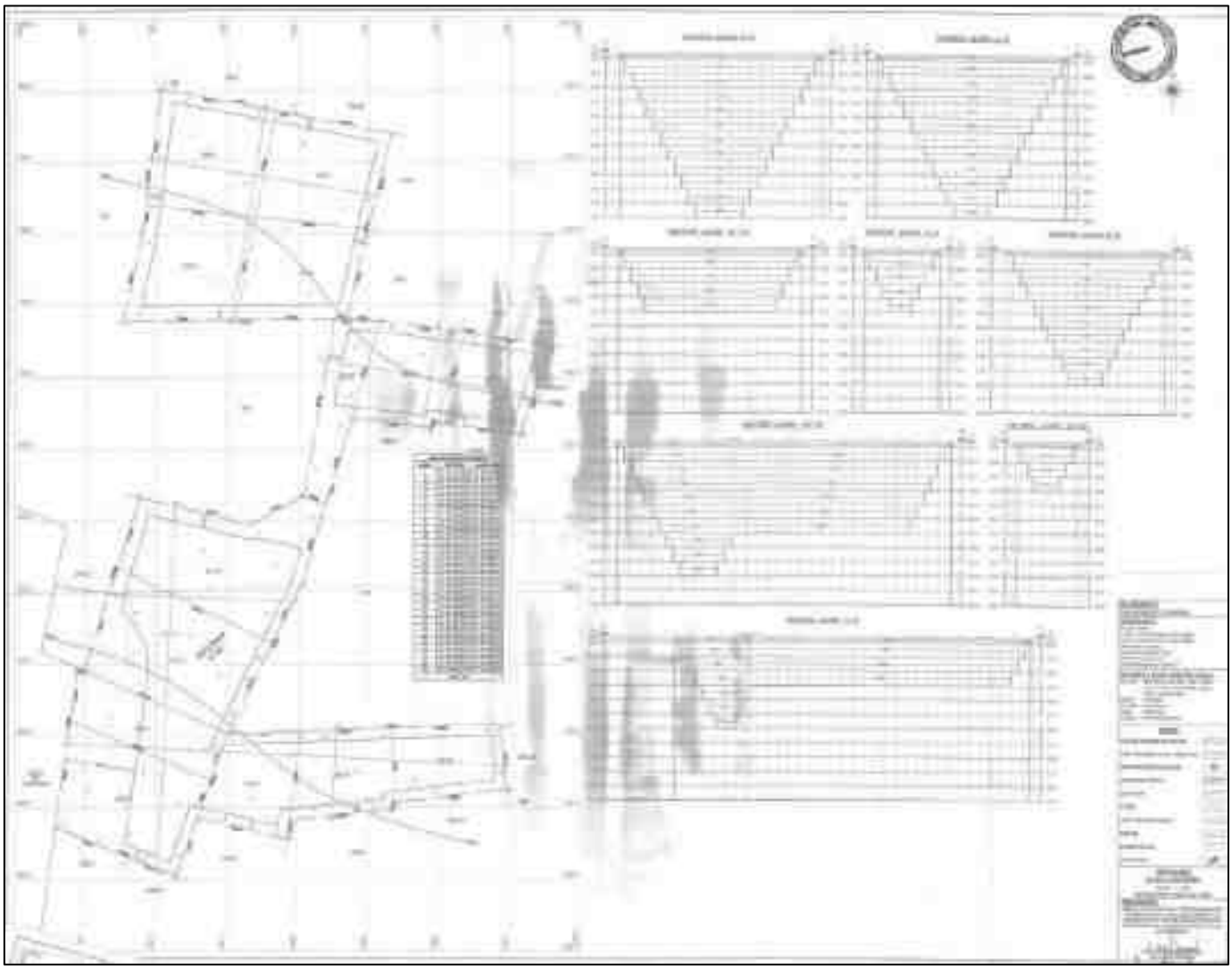


Figure 2-11 Mineable Reserves

2.7.4 Year-wise Production Plan

The production of minerals for the next five years as per the mining plan is given Table

Table 2-8 Year-wise Production Details

Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m^3	Gravel in m^3	Mineable reserve of rough stone in m^3
I	XY-AB	I	140	132	2	36960	36960	
		II	134	126	5	84420		84420
		III	124	116	5	71920		71920
	X1Y1-CD	I	128	52	2	13312	13312	
Total							**50272**	**156340**
II	X2Y2-EF	I	79	109	2	17222	17222	
	X2Y2-GH	I	154	52	2	16016	16016	
	X3Y3-GH	I	43	197	2	16942	16942	
	XY-AB	IV	114	106	5	60420		60420
		V	104	96	5	49920		49920
		VI	94	86	5	40420		40420
		VII	84	76	5	31920		31920
Total							**50180**	**182680**
III	XY-AB	VIII	74	66	5	24420		24420
		IX	64	56	5	17920		17920
		X	54	46	5	12420		12420
		XI	44	36	5	7920		7920
		XII	34	26	5	4420		4420
	X1Y1-CD	II	122	46	5	28060		28060
		III	112	36	5	20160		20160
		IV	102	26	5	13260		13260
		V	92	16	5	7360		7360
	X2Y2-EF	II	76	103	5	39140		39140
	X2Y2-GH	II	10	49	5	2450		2450

Total								**177530**
IV	X2Y2-GH	II	141	49	5	34545		34545
		III	146	44	5	32120		32120
	X3Y3-GH	II	37	194	5	35890		35890
		III	27	189	5	25515		25515
	X2Y2-EF	III	71	93	5	33015		33015
		IV	36	83	5	14940		14940
Total								**176025**
V	X2Y2-EF	IV	30	83	5	12450		12450
		V	61	73	5	22265		22265
		VI	56	63	5	17640		17640
		VII	51	53	5	13515		13515
		VIII	46	43	5	9890		9890
		IX	36	33	5	5940		5940
		X	26	23	5	2990		2990
	X2Y2-GH	IV	141	39	5	27495		27495
		V	136	34	5	23120		23120
		VI	131	24	5	15720		15720
		VII	126	14	5	8820		8820
	X3Y3-GH	IV	17	184	5	15640		15640
Total								**175485**
Grand Total							**100452**	**868060**

Figure 2-12 Year-Wise Production Plan

2.7.5 Conceptual Plan

Conceptual Mining Plan is prepared with an object of five years of systematic development of bench lay outs, selection of ultimate pit limit, depth of quarrying, ultimate pit slope, selection of sites for construction of infrastructures etc. Ultimate pit size is designed based on certain practical factors such as the economical depth of mining, safety zones, permissible areas etc. The ultimate pit dimension is given below:

Ultimate Pit dimension (M) end of Mining plan Period			
Pit No	Length (max) in (m)	Width (Avg) in (m)	Depth(max) in(m)
I	140	130	57
II	128	52	22
III	249	99	47

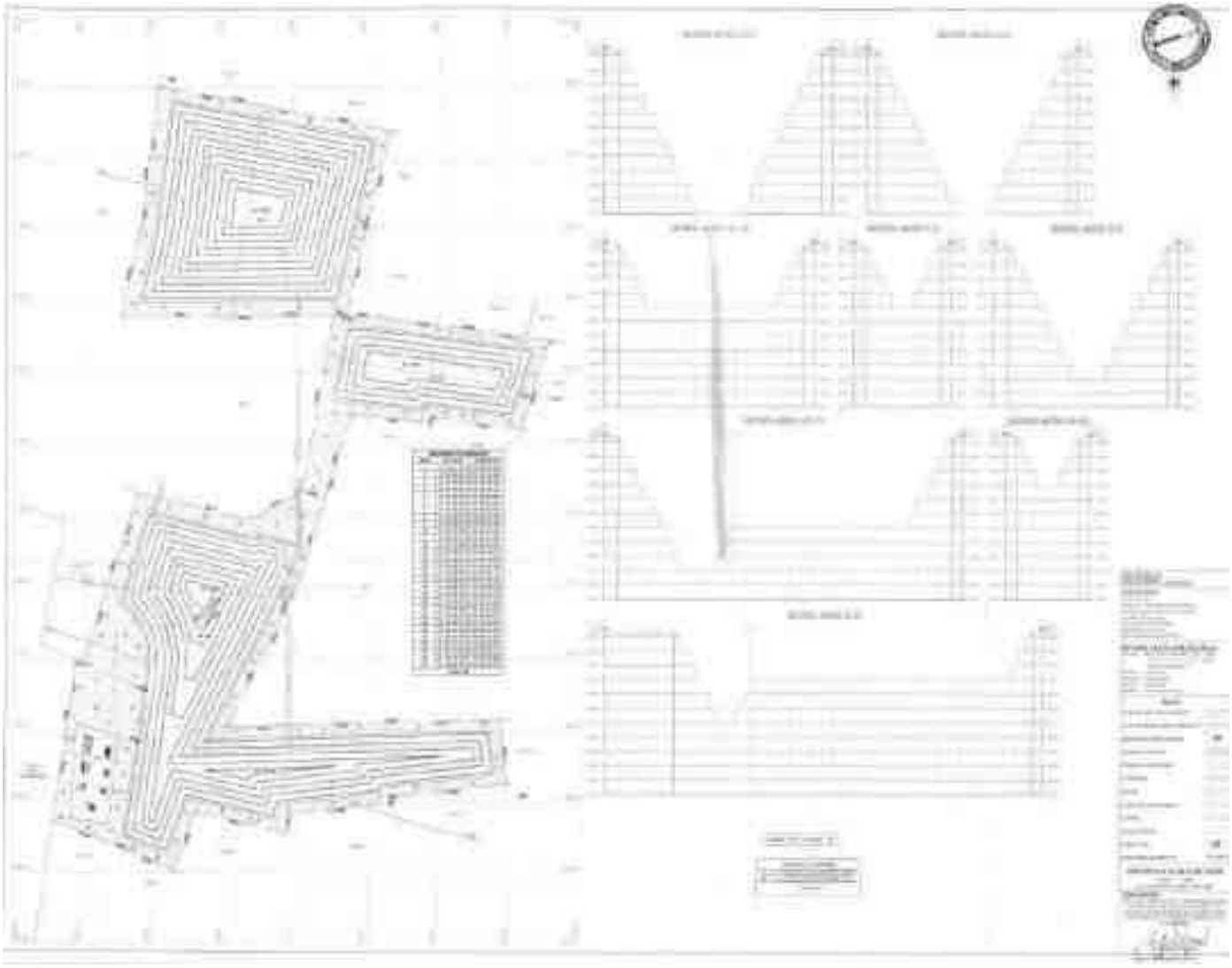


Figure 2-13 Conceptual Plan & Sections

2.8 Type of Mining

The proposed mining project is an opencast method of semi mechanized mining with 5.0m height 5m width of the bench. However, as far as the quarrying of rough stone is concerned, observance of the provisions of Regulation 106(2) (b) as above is seldom [possible due to various inherent petrogenetic factors coupled with mining difficulties. Hence it is

proposed to obtain relaxation to the provisions of the above regulation from the Director of mines safety for which necessary provision is available with the regulation 106(2) (b) of MMR-1961, under Mine Act-1952.

2.8.1 Mode of working

The rough stone is proposed to quarry 5m bench height, 5m width with conventional opencast semi-Mechanized method. The quarry operation involves shallow jack hammer drilling, slurry blasting, excavation, Loading and transportation of rough stone to the needy crusher/other buyers. The production of rough stone in this quarry involves the following method which is typical for Rough Stone quarrying in contrast to other major mineral mining.

Splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy crusher/other buyers.

Occasionally hydraulic excavators are attached with rock breakers for fragmentation to avoid secondary blasting.

The primary boulders thus splitted are removed from the pits by excavators and further made to smaller sizes by rock breakers attached in excavators. It is a conventional opencast semi mechanized method of mining.

2.8.2 Details of Overburden

The overburden in the form of Gravel, after the excavation of Gravel and Rough stone will be directly loaded into tipper to the needy crushers/other buyers for road project and construction works for filling and leveling of low-lying areas.

2.8.3 Details of Machineries to be used in mining

Table 2-9 List of Machineries

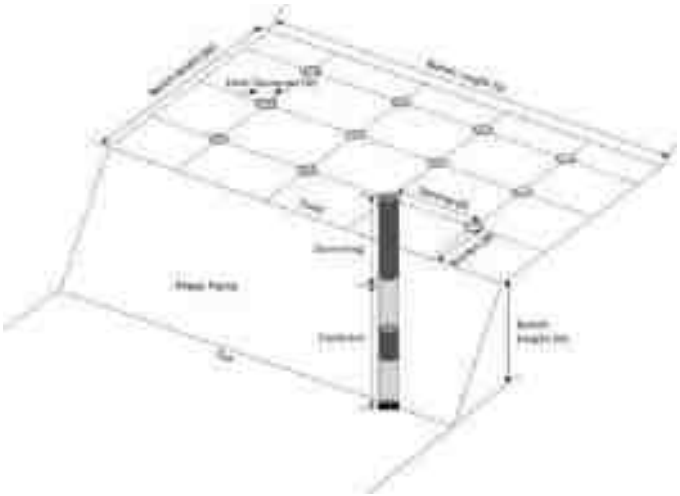
Drilling	S.No	Type	Nos	Dia Hole mm	Size Capacity	Make	Motive power
	1	Jack hammer	8	32	1.2m to 6m	Atlas Copco	Compressed air
	2	Compressor	2	-	-	Atlas Capco	Diesel Drive
Loading	Excavator of 0.90m3 bucket capacity (with Rock breaker attachment) (1No).						
Transportation	Tipper 6Nos (5/10Ts) capacity.						

2.8.4 Blasting

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

Diameter of the hole	Spacing	Depth	Burden for hole	Pattern of hole	Inclination of hole

32-36mm	0.6m	1 to 1.5m	0.6m	Zig Zag	70^0 from the horizontal



2.8.5 Type of Explosive to be used

Small dia, 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of rough stone. No deep hole drilling or primary blasting is proposed.

2.8.6 Measures to minimize und vibration due to blasting

Controlled blasting measures will be adopted for minimizing ground vibration and fly rock. Shallow depths jackhammer drilling and blasting is proposed to be carried out with minimum use of explosive mainly to give shattering effect in rough stone for easy excavation and to control fly rock.

Number of holes	:	502
Powder factor	:	6Ts/Kg of explosives
Total explosive required	:	251Kg slurry explosives
Charge / hole	:	0.5Kg
Blasting time	:	12-2 Pm

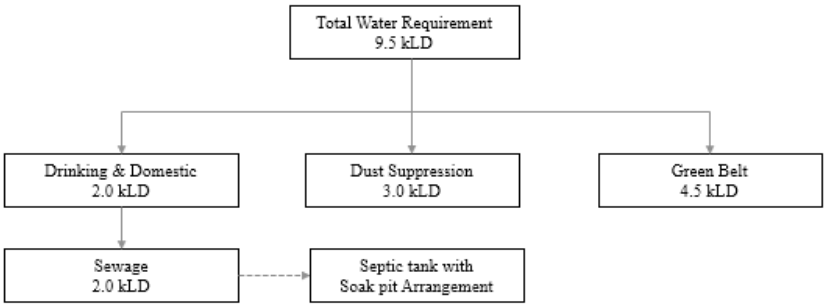
2.8.7 Storage & Safety measures taken during blasting

The applicant will engage an authorized explosive agency to carry out the small amount of blasting and it will be supervised by competent and statutory foreman/ mines manager. The applicant ensure that will appoint the Mate (Should have Valid Blaster Certificate) during Blasting Operation.

2.9 General Features

2.9.1 Water requirement

The total water requirement would be 9.5 kLD, which will be sourced from Local vendors. Out of 9.5 kLD, 2 kLD will be used for Drinking and Domestic purpose, 3.0 kLD will be used for Dust Suppression and remaining 4.5 kLD will be used for Green Belt. The water balance chart is shown below:



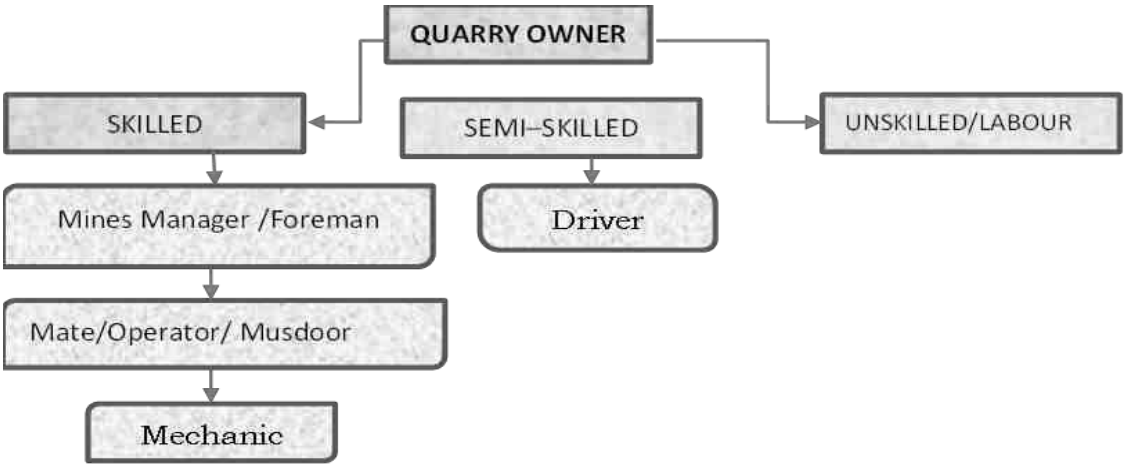
2.9.2 Surface drainage pattern

In an open cast mining project, the nearby streams may experience high siltation. The contours decide the runoff pattern of catchment area. It also indicates erosion potential. These may have significant impacts on water resources. However, in absence of any perennial drainage in the vicinity of mine and flat terrain having not higher than first order drain, the impact on water regime, with appropriate mitigation measures as mentioned, is likely to insignificant.

2.9.3 Manpower Requirement

The details of the manpower requirement are detailed below

1.	Skilled	Mines Manager	1 No.
		Foreman / Mate	2 No.
		Operator	10 No.
		Mechanic	1 No.
2.	Semi–skilled	Driver	6 No.
3.	Unskilled	Labours	15Nos
		Total =	**35Nos**



2.9.4 Green Belt

As per SEAC norms, PP have to plant 4,000 Saplings (500*7.44.00 Ha =3720 ≃ 4000). The safety zone area of 2.44.00 Ha will be maintained as green belt area. This area will be planted with local Species of 3000 Nos. of saplings, remaining 1000 saplings will be planted outside the lease such as at project surrounding schools, temples, road sides, etc. In the conceptual stage internal road and office area will be planted with local species.

Table 2-10 Green Belt development Plan

S.No.	Year	Species	No. of trees	Spacing	Survival
1	I	Pongamia pinnata, Syzigium cumini, Albizia lebbeck, Thespesia populnea, Bauhinia racemose, Cassia siamea, Azadirachta indiaca	600	3m x 3m	87%
2	II		600		
3	III		600		
4	IV		600		
5	V		600		
Total			**3000**		

The layout showing green belt plan is shown below

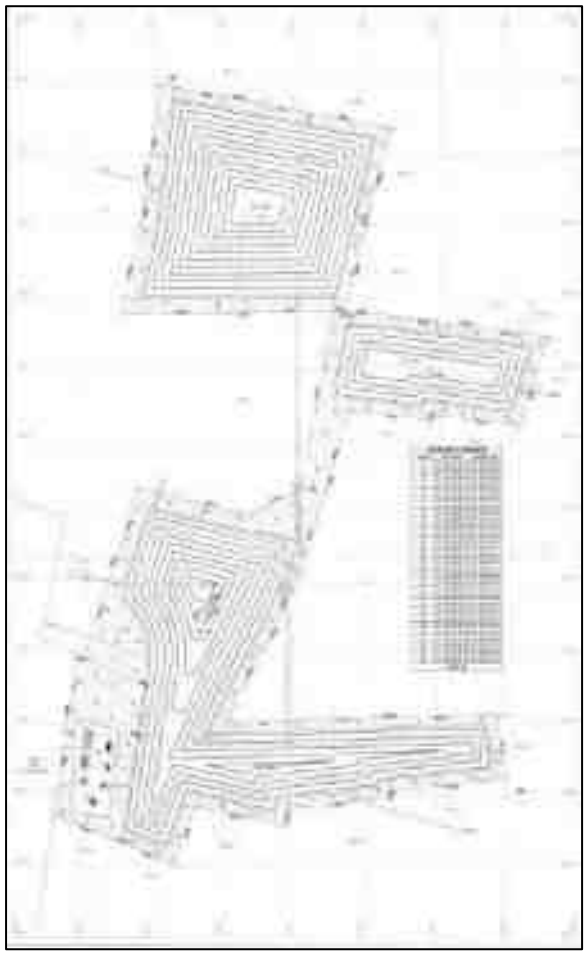


Figure 2-14 Green Belt Layout



Figure 2-15 Fencing & Plantation Photos

2.9.5 Energy Requirement

7,11,190 litres of HSD is required for the entire project life

2.9.6 Vehicular Traffic Density

The proposed quarry is located in Melnarma village. The details of transport route from the crusher plant are shown below:



Figure 2-16 Transport route from the crusher plant

The vehicular traffic survey will be carried out in the route through which mined out minerals are transported. Within 500 m radius, there is one existing quarry of Tvl. JCK Mines. The No. of trips per day for carrying the mine out mineral for this project is 186 Nos. The No. of trips per day for carrying the mine out mineral for Tvl. JCK Mines (Existing) is 223 Nos. Traffic Survey is conducted in SH 116

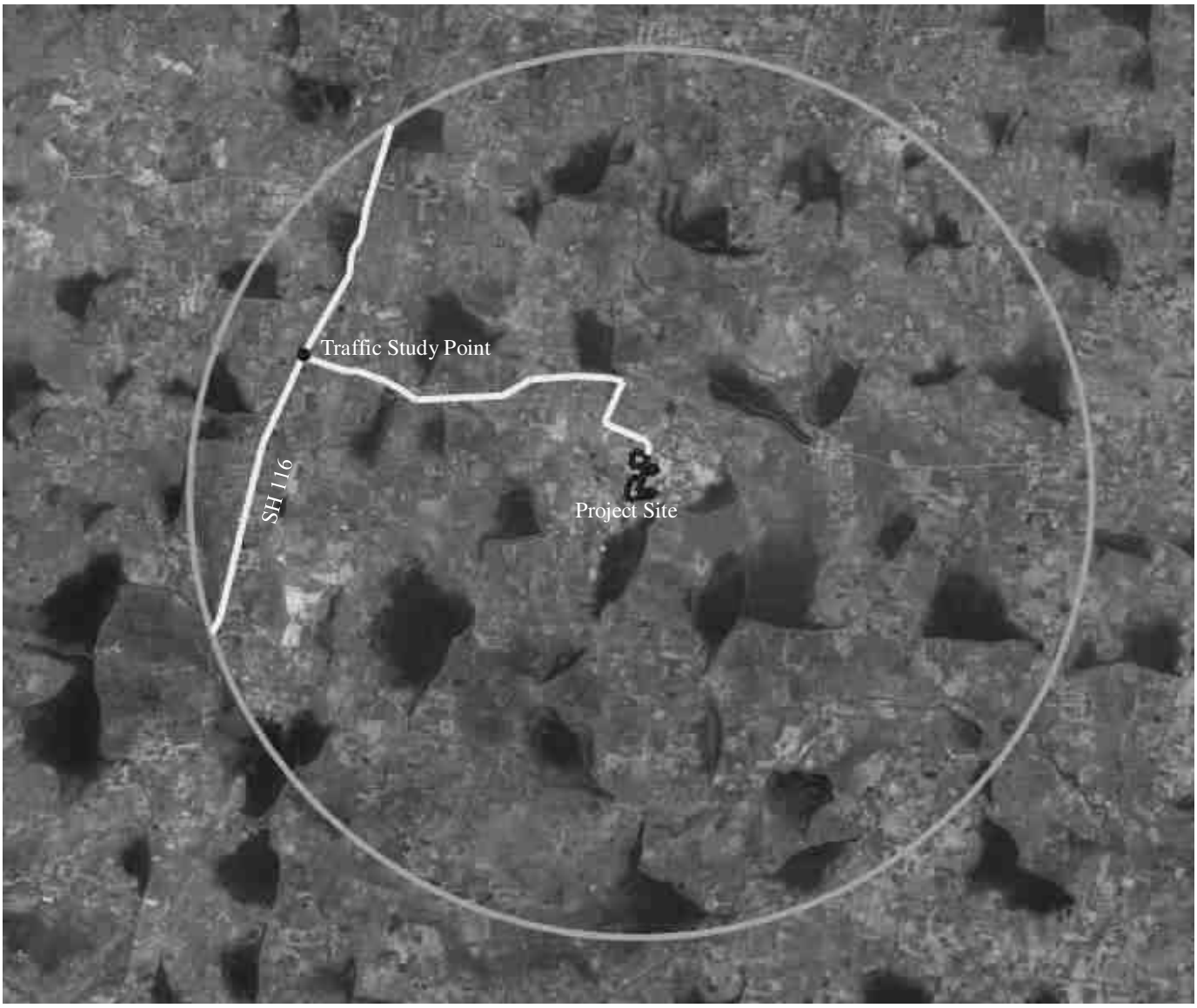


Figure 2-17 Traffic Study Point

Methodology

Vehicle Count

The vehicles passing through the road (in both ways) were counted separately for 24 hours at the one elected location from 0600 hrs to 0600 hrs next day continuously. Category wise vehicle counting has been done continuously and recorded in the traffic volume count on hourly basis under respective categories.

Categorization of Traffic

The engine driven vehicles were categorized into various heads viz. two wheelers, three wheelers, four wheelers and trucks/bus. The level of service is given below. (Source: Recommended Design Service Volumes (PCUs per hour), IRC)

Level of Service	General Operating conditions	Range of V/C
A	Free flow (traffic flows at or above speed limit and motorists have complete mobility between lanes)	<0.30
B	Reasonable flow (slightly more congested, with some maneuverability)	0.3 – 0.47
C	Stable flow (more congested than B, loads close to capacity)	0.48 – 0.68
D	Approaching unstable flow (speeds are somewhat reduced, example: busy corridor during middle of a weekday, or a functional urban highway during rush hour)	0.69 – 0.88
E	Unstable flow (flow becomes irregular, speed varies widely and rarely reaches speed limit)	0.88 - 1.00
F	Forced or breakdown flow (a constant traffic jam)	>1.00

Table 2-11 Summary on Traffic Volume

Route	Existing Traffic Survey in PCU	Incremental Traffic Survey due to project	Total traffic survey volume	Hourly capacity in PCU as per IRC -1960 guidelines
SH 116	250	70	0.16	1500

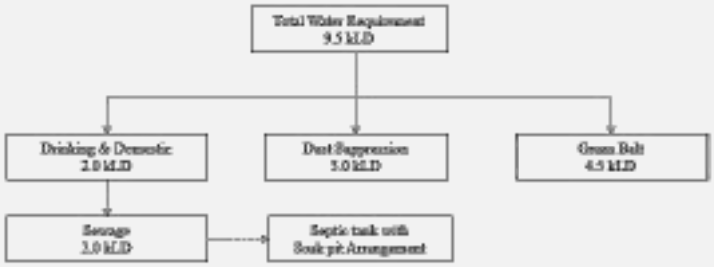
Table 2-12 Modified Level of service

Route	Existing Volume PCU/hr	Existing V/C Ratio	Additional Volume PCU/hr	Modified Volume PCU/hr	Modified V/C ratio	Modified LOS
SH 116	250	0.16	70	0.04	0.2	A*

2.9.7 Project Requirements

Table 2-13 Project Requirements

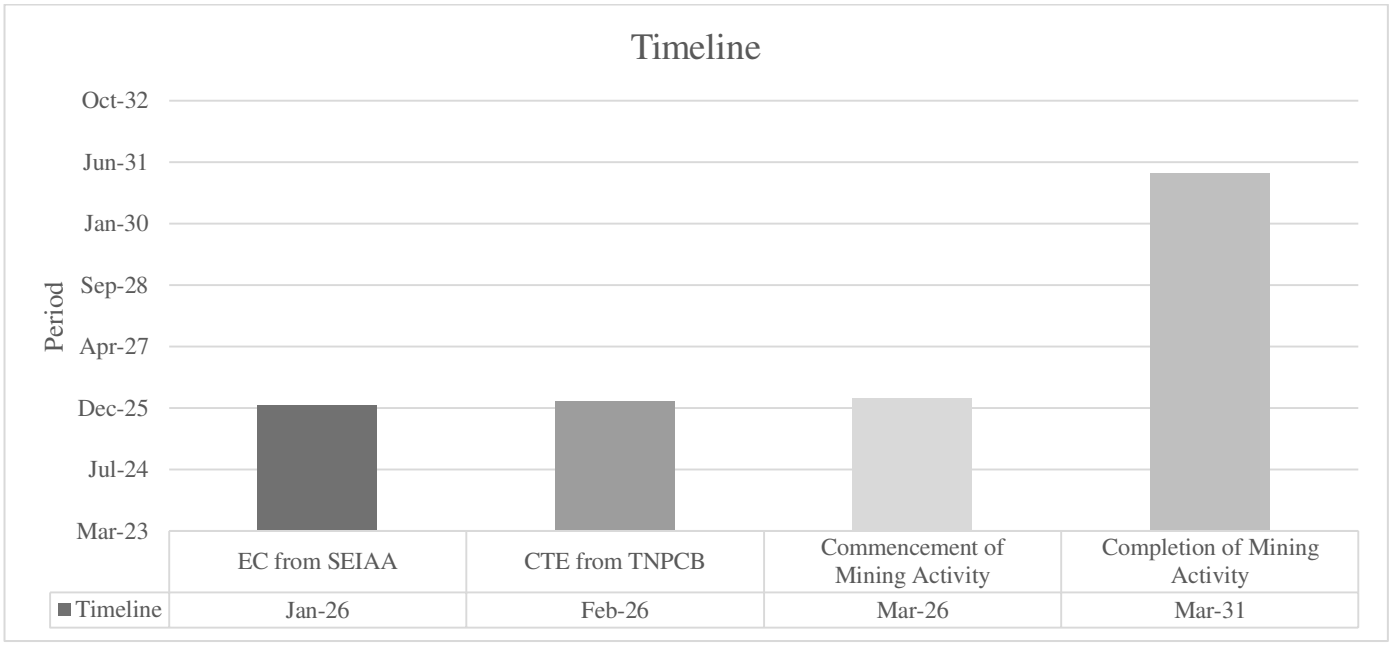
S. No.	Nature of requirement	Description
1.	Water requirement	The total water requirement would be 9.5 kLD, which will be sourced from Local vendors. Out of 9.5 kLD, 2 kLD will be used for Drinking and Domestic purpose, 3.0

		kLD will be used for Dust Suppression and remaining 4.5 kLD will be used for Green Belt. The water balance chart is shown below: 
2.	Power requirement	No electricity is needed for mining operations, for office demands, it will be met from the state grid.
3.	Manpower requirement	35 Nos.
4.	Project Cost	Rs. 509.346 Lakhs
5.	CER Cost	Rs. 8,00, 000/-

2.10 Timeline for implementation of Project activities

Mining work will be started upon the grant of Environmental Clearance (E.C) from SEIAA and Consent to Establish (CTE) from TNPC Board. The mining activity will be completed in 5 years on receipt of all the statutory approvals.

Graph 2-1 Schedule for implementation of the proposed project



3 DESCRIPTION OF ENVIRONMENT

3.1 General

This chapter depicts the establishment of baseline for valued environmental components, as identified in and around the proposed project site with an area of 10 km radius. Primary baseline data monitoring covered one season (three (3) months) i.e., Oct'24 – Dec'24 (Post – Monsoon) and secondary information was taken from government and semi-government organization's published data.

Primary baseline data are collected through field study and it covers

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

Baseline study is carried out with an objective to assess the prevailing environmental quality and to compare the same after the establishment of the proposed project.

3.2 Study area extent

The study area for the proposed project is as follows:

- Mine Lease area as the "core zone"
- A study area of 10 km radius from the project boundary is designated as buffer Zone.

We have obtained Terms of Reference from SEIAA vide ToR Identification No. TO24B0108TN5594899N

3.3 Monitoring Lab

The primary data for the proposed project was collected by M/s. Shrient Analytical and Research Labs Pvt Ltd, # 416/15, Dharga Road, Perungalathur, West Tambaram, Chennai – 600 045. (Accreditated by NABL as ISO/IEC/17025:2017)

3.4 Baseline Data Collection period

The baseline data is collected in accordance with the CPCB Guidelines. Primary baseline data monitoring covered one season (three (3) months) i.e., Oct'24 – Dec'24 (Post – Monsoon)

3.4.1 Frequency of Monitoring

Table 3-1 Frequency of Sampling and Analysis

S. No.	Attribute	Details of Baseline data	Frequency
1.	Air Environment		
i	Ambient air quality	Type of data: Primary data Sampling Locations: Project site and 6 surrounding locations within 10 km radius of the project site	24 hourly twice a week 4 hourly. Twice a week, One non-monsoon season

		Period: Oct 24 – Dec 24	8 hourly, twice a week 24 hourly, twice a week
ii	Noise Level	Type of data: Primary data Sampling Locations: Project site and 6 surrounding locations within 10 km radius of the project site Period: One-time sampling	24 hourly Once in 7 locations
iii	Meteorological Data	Type of data: Project Site Note: Secondary for choosing the baseline monitoring locations Source: Indian Meteorological Department (IMD), Chennai 2020	1 hourly continuous
2	Water Environment		
i	Ground water	Type of data: Primary data Sampling Locations: Project site and 6 surrounding locations Within 5 km radius of the project site Period: Once during the study period	One time sampling
ii	Surface water	Type of data: Primary data Project site – Nil Within 10 km – 2 Nos.	One time sampling
3	Land Environment		
vi	Land use & land cover	Type of data: Secondary Source: GIS Study for Land use/ Landcover details of 10 km radius	
vii	Soil analysis	Type of data: Primary data Sampling Locations: Project site and 5 surrounding locations within 5 km radius of the project site Period: Once during the study period	One time sampling
4	Socio – Economic Environment	1. Primary data: Project site (10 km around the project site) 2. Secondary data: Source: 'Census of India' 2011	One time sampling
5	Biological Environment	1. Primary data: Project site and selected locations in the 5 Km radius from the project site (Period: Nov 2024) 2. Secondary data: From 5 Km up to 10 km radius from the project site	

3.5 Study area details

Table 3-2 Study Area Details

S. No.	Description	Details	Source
1.	Project Location	S.F. Nos. 98/2, 98/3,98/4,98/7, 100/1, 100/2, 101/2, 101/3,101/4,105/1, 105/3, 105/7,105/8 and 105/11 over an extent of 7.44.0 Ha in Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu	Field Study
2.	Latitude & Longitude	Co- ordinates Latitude / Longitude 12° 34' 47.32"N 79° 39' 39.29"E 12° 34' 50.95"N 79° 39' 39.78"E 12° 34' 50.89"N 79° 39' 39.93"E 12° 34' 54.82"N 79° 39' 41.21"E 12° 34' 54.20"N 79° 39' 43.80"E 12° 34' 54.86"N 79° 39' 45.03"E 12° 34' 58.88"N 79° 39' 45.75"E 12° 34' 58.82"N 79° 39' 40.79"E 12° 35' 00.84"N 79° 39' 41.23"E 12° 35' 04.08"N 79° 39' 41.66"E 12° 35' 03.51"N 79° 39' 44.74"E 12° 35' 03.09"N 79° 39' 47.03"E 12° 34' 58.87"N 79° 39' 46.01"E 12° 34' 58.83"N 79° 39' 46.81"E 12° 34' 58.33"N 79° 39' 50.78"E 12° 34' 56.30"N 79° 39' 50.11"E 12° 34' 56.56"N 79° 39' 48.10"E 12° 34' 56.43"N 79° 39' 48.05"E 12° 34' 56.64"N 79° 39' 46.15"E 12° 34' 52.85"N 79° 39' 45.00"E 12° 34' 49.46"N 79° 39' 43.30"E 12° 34' 49.70"N 79° 39' 49.67"E 12° 34' 48.23"N 79° 39' 49.83"E 12° 34' 47.92"N 79° 39' 47.22"E 12° 34' 47.79"N 79° 39' 47.22"E 12° 34' 47.51"N 79° 39' 44.76"E	Land Documents

		12° 34' 47.09"N 79° 39' 44.71"E 12° 34' 47.55"N 79° 39' 42.60"E 12° 34' 46.23"N 79° 39' 42.12"E	
3.	Topo Sheet No.	57 P/10	Survey of India Toposheet
4.	Mine Lease Area	7.44.0 Ha	Land Documents
5.	Total population	799	Census Survey of India
6.	Maximum Temperature	35.3°C	IMD
7.	Minimum Temperature	21.5°C	
8.	Ecological Sensitive Areas - Wetlands, watercourses or other waterbodies, coastal zone, biospheres, mountains, forests	Nil	Survey of India Toposheet
9.	Densely Populated Area	Alanthur	
10.	Areas occupied by sensitive manmade land uses (hospitals, schools, places of worship, community facilities)	.Periyandavar Temple (435, N)	Field Study

3.5.1 Enumeration of the structures located within 500 m radius from the proposed quarry site

A site survey has been conducted to identify and list structures located within a 300 m radius from the proposed Quarry and are detailed below. There are no permanent structures or temples within a 300-meter radius from the project site. The PP has obtained a letter from Village Administrative Office (VAO), Tiruvannamalai stating that there are no structures situated within 300 m radius.



Figure 3-1 Google map showing Environmental Features located within 500 m radius from the proposed quarry site

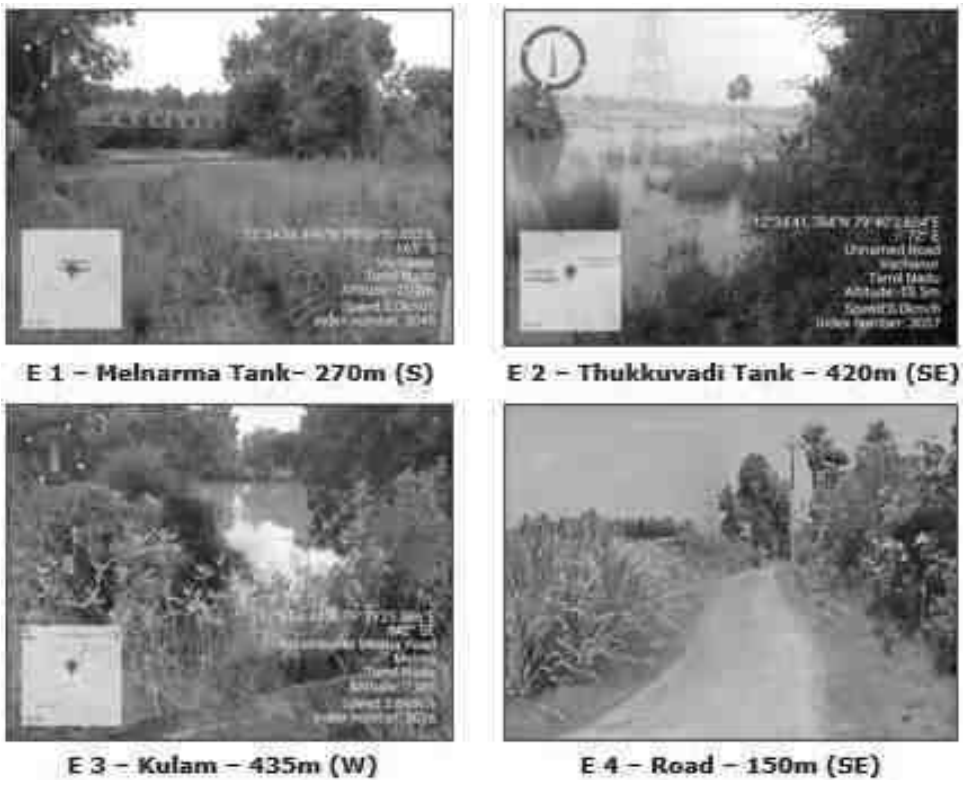


Figure 3-2 Photos of Environmental Features located within 500 m radius from the proposed quarry site

The details of the structures located within 500m radius is listed below

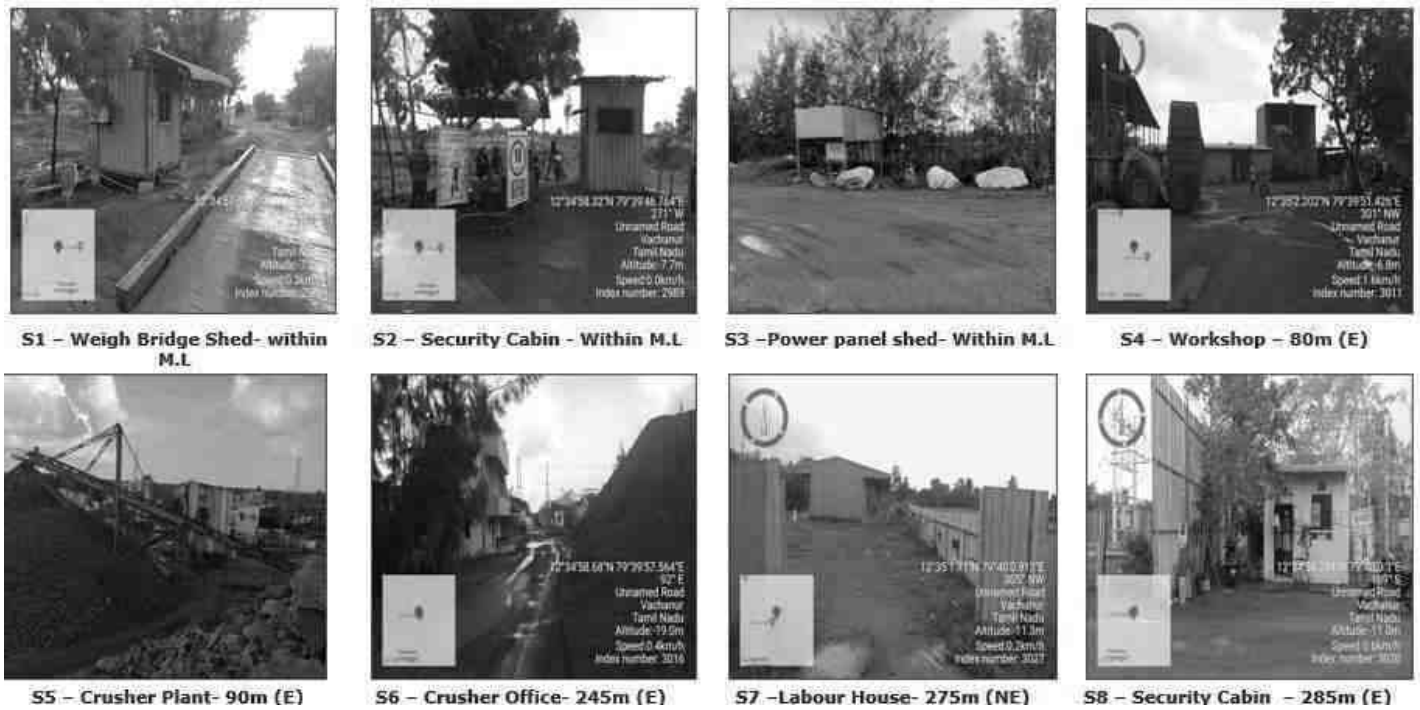


Figure 3-3 Photos of Structures located within 500 m radius from the proposed quarry site



S. No	Name of the Structure	Distance and Direction	Ownership	Occupant	Type	Age
S1	Weigh Bridge Shed	Within M.L	Belongs to Tvl. JCK Mines	-	G.I Shed	Less than 5 Years
S2	Security Cabin					
S3	Power paned shed					
S4	Workshop	80m (E)				
S5	Crusher Plant	90m (E)			-	
S6	Crusher Office	245m (E)			Concrete	
S7	Labour House	275m (NE)		More than 10	G.I Shed	
S8	Security Cabin	285m (E)		-	Masonry with G.I Shed	

Figure 3-4 Google map showing Structures located within 500 m radius from the proposed quarry site



Sl. No	Radius	School	Temple	Inhabited Village	Remark
1	0-100 m	Nil	Nil	Nil	Nil
2	100-200 m	Nil	Nil	Nil	Nil
3	200-300 m	Nil	Nil	Nil	Nil
4	300-400 m	Nil	Nil	Nil	Nil
5	400-500 m	Nil	1	Nil	I 1



Periyandavar Temple– 435m (N)

Figure 3-5 Google map & Photos showing Schools, Temples and inhabited village within 500m radius from the project site

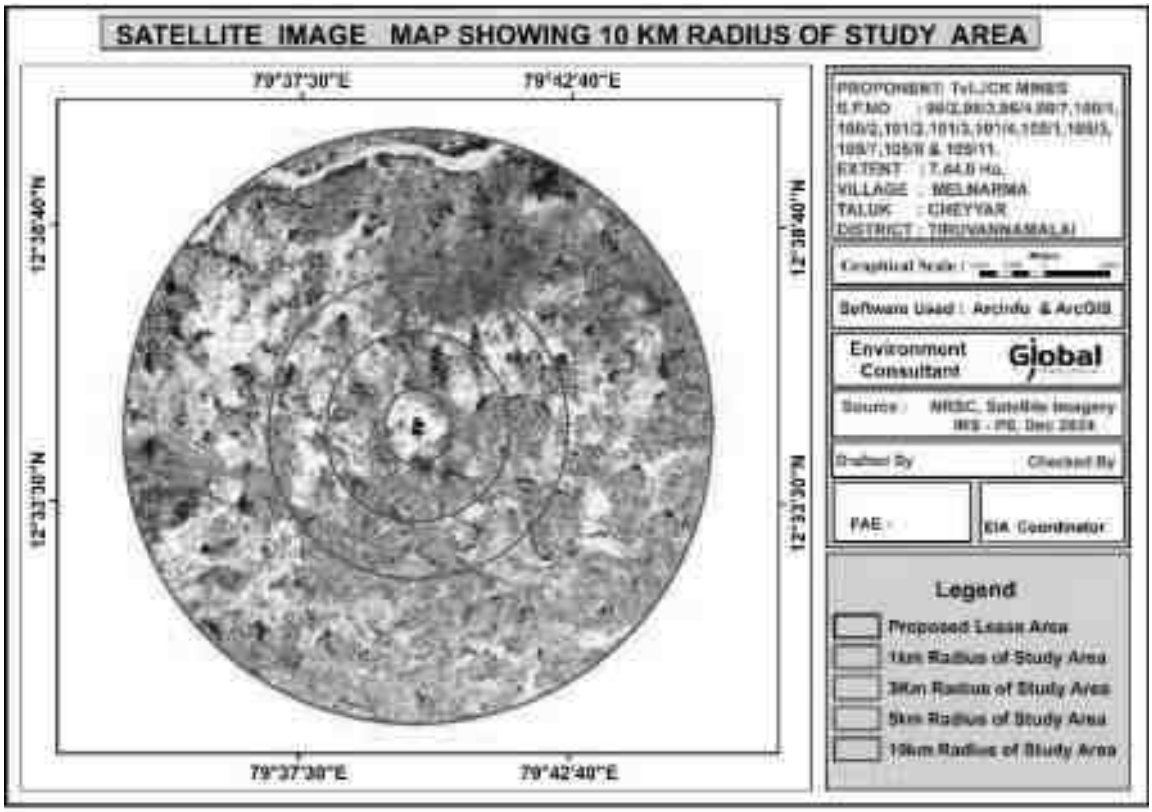


Figure 3-6 Satellite Image – 10km radius around the project site

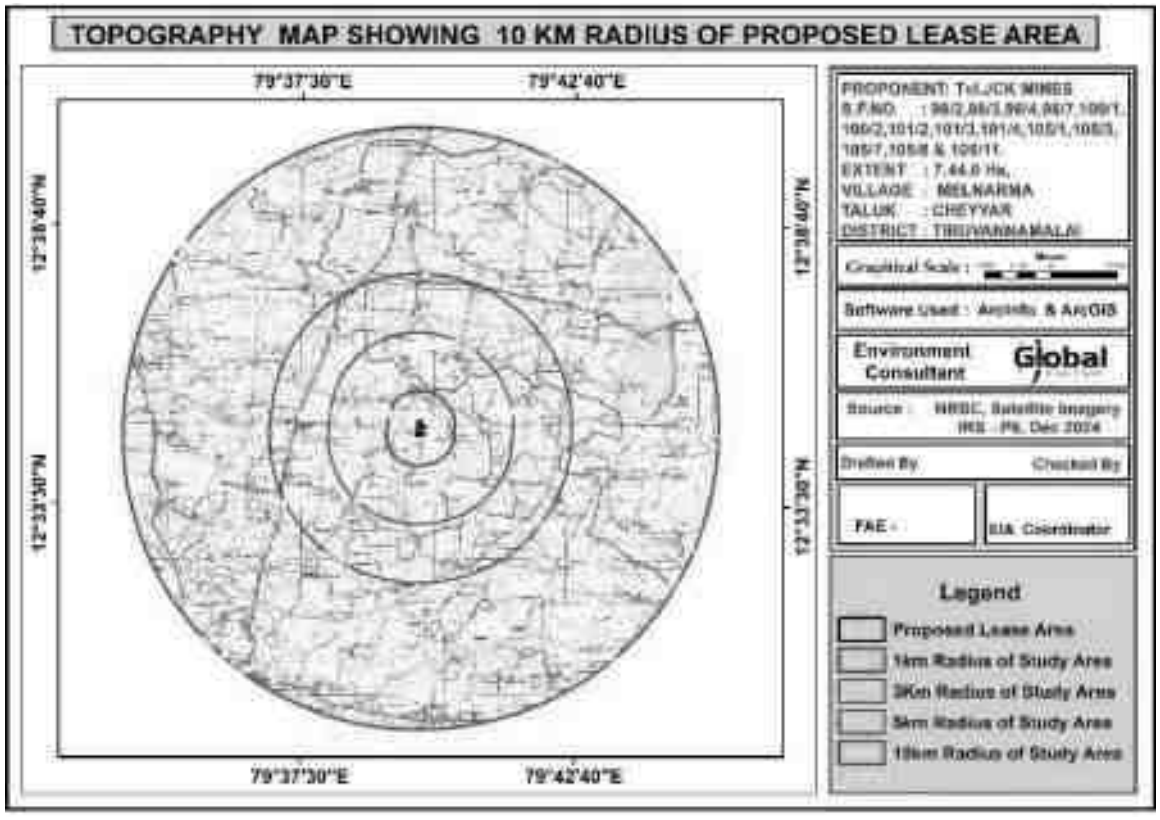


Figure 3-7 TOPO Map – 10km radius from the project site

3.6 Physical Conditions

The physical conditions of the study area are discussed:

- ♣ District Profile
- ♣ Land use, Drainage, Geology & Physiography
- ♣ Natural resources
- ♣ Seismic Zone Characteristics

3.6.1 District Profile

Tiruvannamalai lies in the northern part of Tamil Nadu, and 200 Km from the state capital Chennai. The district lies between 78° 20' and 79° 50' of the eastern longitudes and 11°55' and 13° 15' of the northern Latitudes. It is bounded on the north by Vellore District, on the east by Kanchipuram District, on the south by Villupuram District, and on the west by Dharmapuri and Krishnagiri districts. The area of the district is 6312 sq.km. It consists of Two Revenue Divisions and Eleven Taluks- Tiruvannamalai, Chengam, Arani, Polur, Cheyyar, Chetpet, Vandavasi, Kilpennathur, Kalasapakkam, Thandarampattu and Vembakkam. After independence Tiruvannamalai was under North Arcot District. The revenue district of North Arcot was divided into Vellore District and Tiruvannamalai District in October 1989. Population of the district is 2469 thousand numbers as per Census 2011. The district is 20% urbanized and constitutes literacy rate of 74.21%.

Source: "District Mineral Survey Report, Tiruvannamalai District"

3.6.2 Land Use Analysis

Land Use classification:

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

Methodology:

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

The terms 'land use' and 'land cover' (LULC) are often used to describe maps that provide information about the types of features found on the earth's surface (land cover) and the human activity that is associated with them (land use). Satellite remote sensing is being used for determining different types of land use classes as it provides a means of assessing a large area with limited time and resources. However, satellite images do not record land cover details directly and they are measured based on the solar energy reflected from each area on the land. The amount of multi spectral

energy in multi wavelengths depends on the type of material at the earth's surface and the objective is to associate particular land cover with each of these reflected energies, which is achieved using either visual or digital interpretation. In the present study the task is to study in detail the land use and land cover in and around the project site. The study envisages different LULC around the proposed project area and the procedure adopted is as below

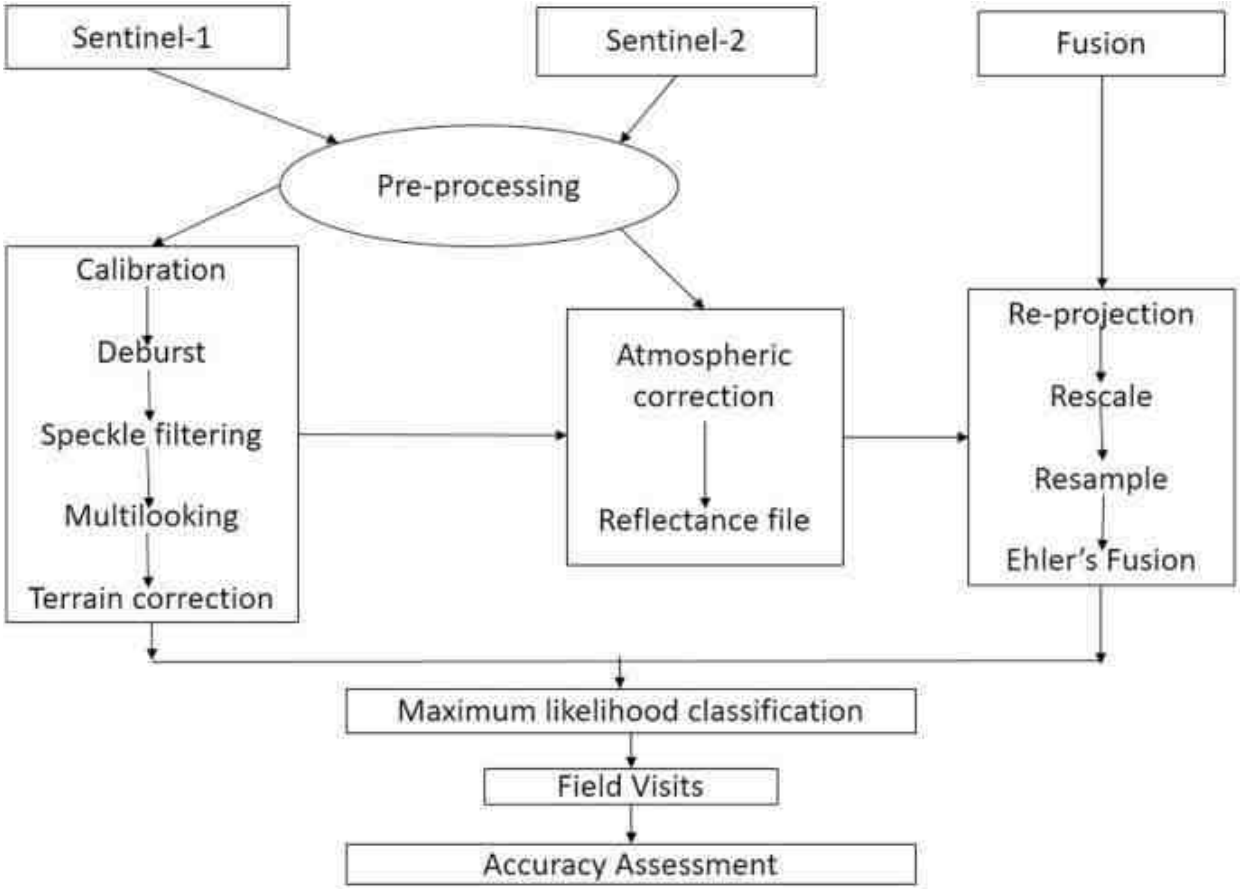


Figure 3-8 Flow-chart showing methodology of Land Use Mapping

Satellite Data:

Sentinal multispectral satellite data of 11th April 2022 was utilized for the present study. Details of satellite data is given below. The rectification of imagery was carried out on to bring the digital data on the earth coordinate system by means of ground control point (GCP) assignments/SOI topo sheets.

Scale of mapping:

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

Interpretation Technique:

Standard on screen visual interpretation procedure was followed. The various Land use / Land cover classes interpreted along with the SOI topographical maps during the initial rapid reconnaissance of the study area. The physiognomic expressions conceived by image elements of color, tone, texture, size, shape, pattern, shadow, location and associated features are used to interpret the FCC imagery. Image interpretation keys were developed for each of the LU/LC classes in terms of image elements.

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

1. Digitization of the study area (10 km radius from the proposed site) from the topo maps
2. In the present study the IRS –P6 satellite image and SOI topo sheets of 47-F/01,02,03have been procured and interpreted using the ERDAS imaging and ARC-GIS software adopting the necessary interpretation techniques.
3. Satellite data interpretation and vectorisation of the resulting units
4. Adopting the available guidelines from manual of LULC mapping using Satellite imagery (NRSA, 1989)
5. Field checking and ground truth validation
6. Composition of final LULC map

The LULC Classification has been done at three levels where level -1 being the broad classification about the land covers that is Built-up land, agriculture land, waste land, wet lands, and water bodies. These are followed by level –II where built-up land is divided into towns/cities as well villages. The agriculture land is divided into different classes such as cropland, Fallow, Plantation, while wastelands are broadly divided into, Land with scrub and without Scrub and Mining and Industrial wasteland. The wetlands are classified into inland wetlands, coastal wetlands and islands. The water bodies are classified further into River/stream, Canal, Tanks and bay. In the present study level II classification has been undertaken.

Ground verification:

Field verification involved collection, verification and record of the different surface features that create specific spectral signatures / image expressions on FCC. In the study area, doubtful areas identified in course of interpretation of imagery is systematically listed and transferred on to the corresponding SOI topographical maps for ground verification. In addition to these, traverse routes were planned with reference to SOI topographical maps to verify interpreted LU/LC classes in such a manner that all the different classes are covered by at least 5 sampling areas, evenly distributed in the area. Ground truth details involving LU/LC classes and other ancillary information about crop growth stage, exposed soils, landform, nature and type of land degradation are recorded and the different land use classes are taken the Land use map.

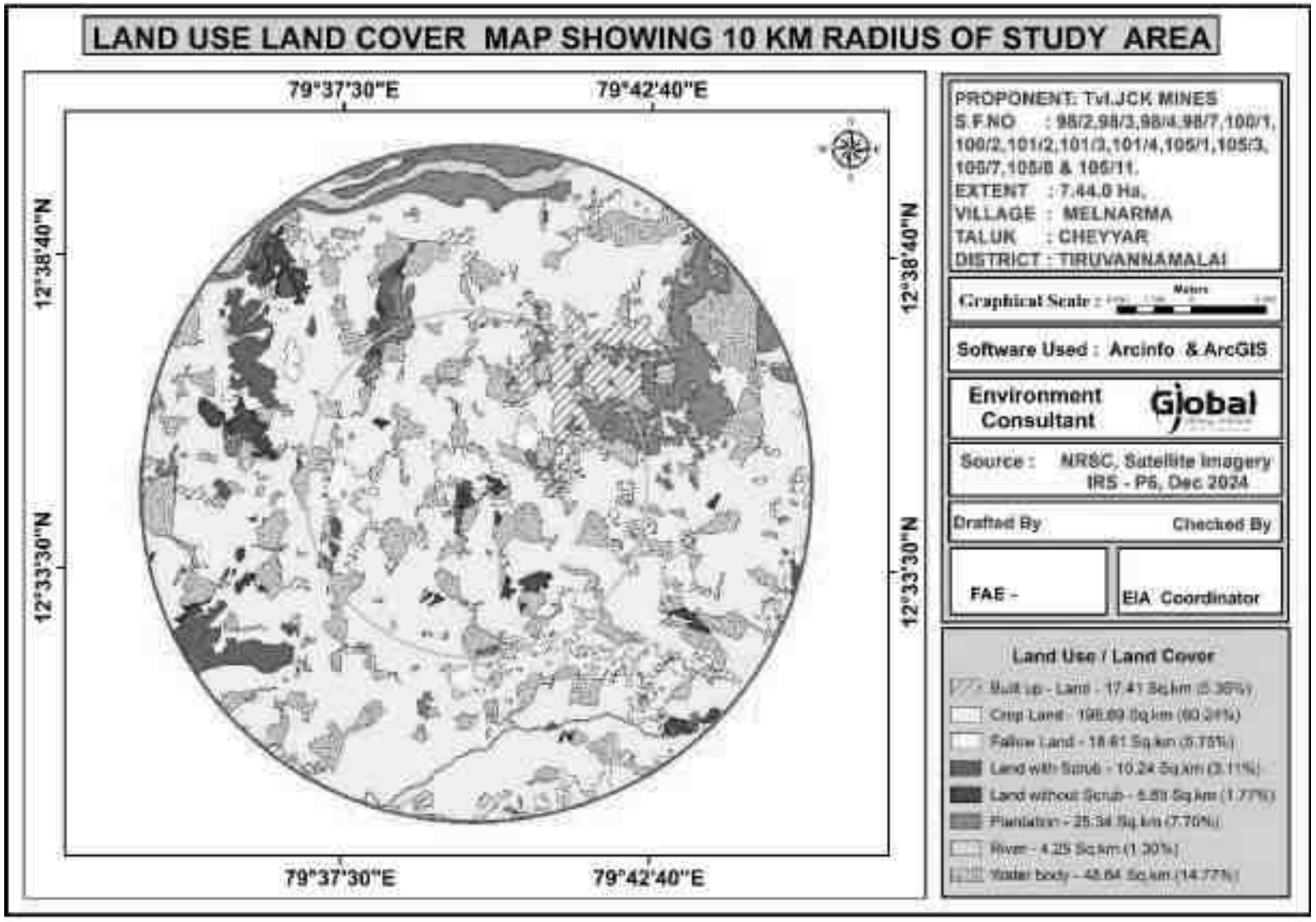


Figure 3-9 land Use Map – 10 km radius around the project site

Different Land use classes around 10 km radius from the project site are shown below

Table 3-3 land Use classification – 10km around the project site

Classification	Area in Sq.km	Percentage
Built – up Land	17.41	5.36
Crop land	198.89	60.24
Fallow Land	18.61	5.75
Land with Scrub	10.24	3.11
Land without Scrub	5.85	1.77
Plantation	25.34	7.70
River	4.25	1.30
Water body	48.64	14.77

The land use pattern of the project site is shown below:

Table 3-4 Land use pattern of the project area

Sl. No.	Land Use	Present Area (Ha)	Area in use during the quarrying period (Ha)
1.	Quarrying Pit	Nil	4.95.0
2.	Infrastructure	Nil	0.02.0
3.	Roads	Nil	0.03.0
4.	Green Belt	Nil	2.44.0
5.	Unutilized	7.44.0	Nil
	Total =	**7.44.0**	**7.44.0**

3.6.3 Contour and Drainage:

The project site is 93m AMSL. The drainage pattern within 5km radius is dendritic.

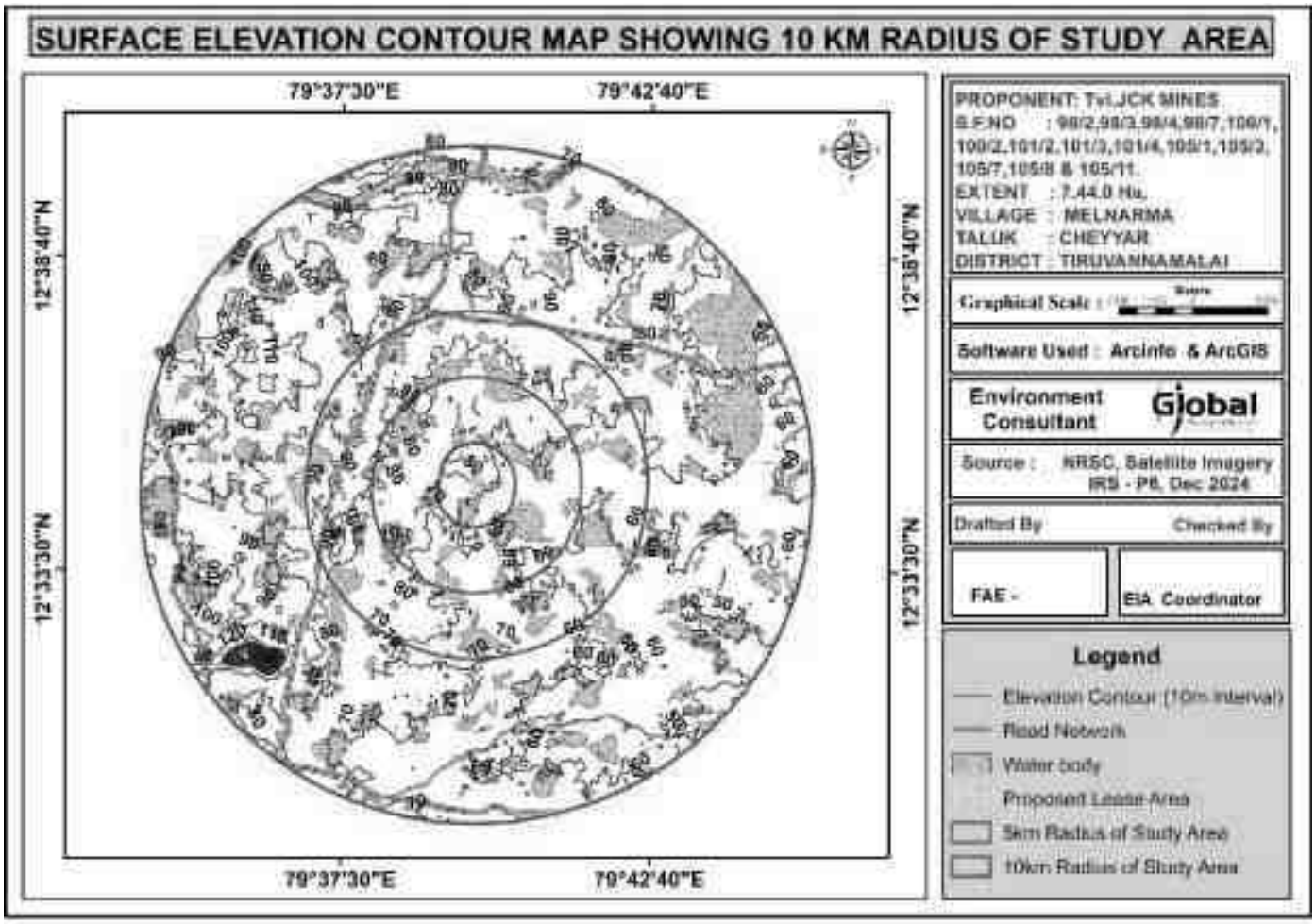


Figure 3-10 Contour Map

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 Cheyyar taluks. Palar rising near Nandidurg in Mysore enters Vellore district passing through Gudiyatham, Walajah and Arakonam taluks before entering into Cheyyar taluk 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 in to 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.

There is one odai, kuttai, kulam and 4 tanks located within 1 km radius of the project site. Melnarma Tank (270m, S), Thukkuvadi Tank (420m, SE), Thuraiyur Tank (1 km, SW) and Vachanur Tank (930m, NW) and Alathur Chitheri is located at 980m, NE

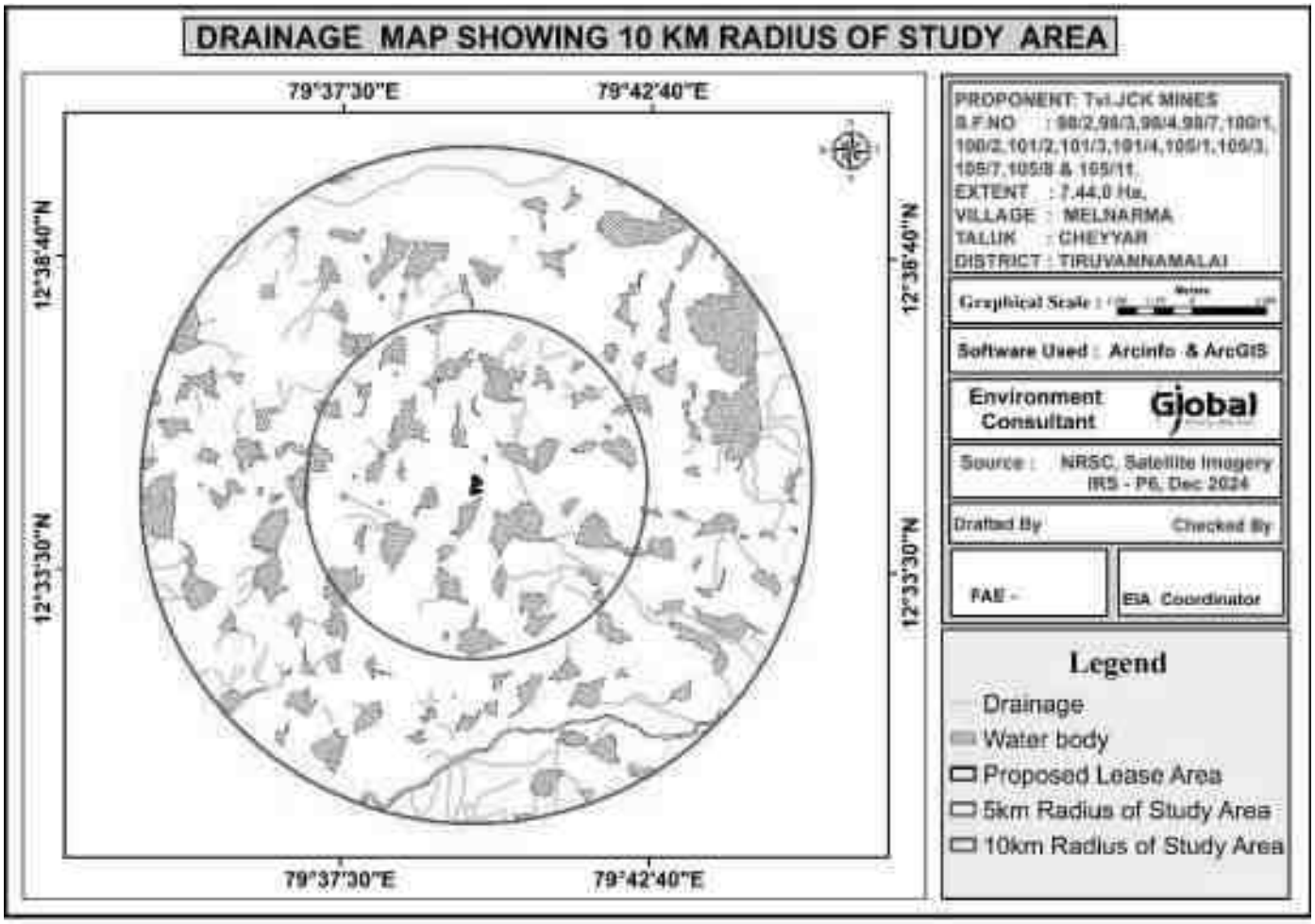


Figure 3-11 Drainage Map

3.6.4 Geomorphology

The prominent geomorphic units identified in the district through interpretation of Satellite imagery are 1) Moderately weathered buried pediplain 2) Pediment – Inselberg Complex 3) Residual Hill 4) Shallow Flood Plain and 5) Shallow weathered buried pediplain. The major part of the area is covered by weathered pediplain and it is formed by coalescence of pediments. A major part of the district constitutes a plain terrain with a gentle slope toward East and Southeast, except for the hilly terrain in the west. The general elevation of the area varies from less than 50-120 m amsl.

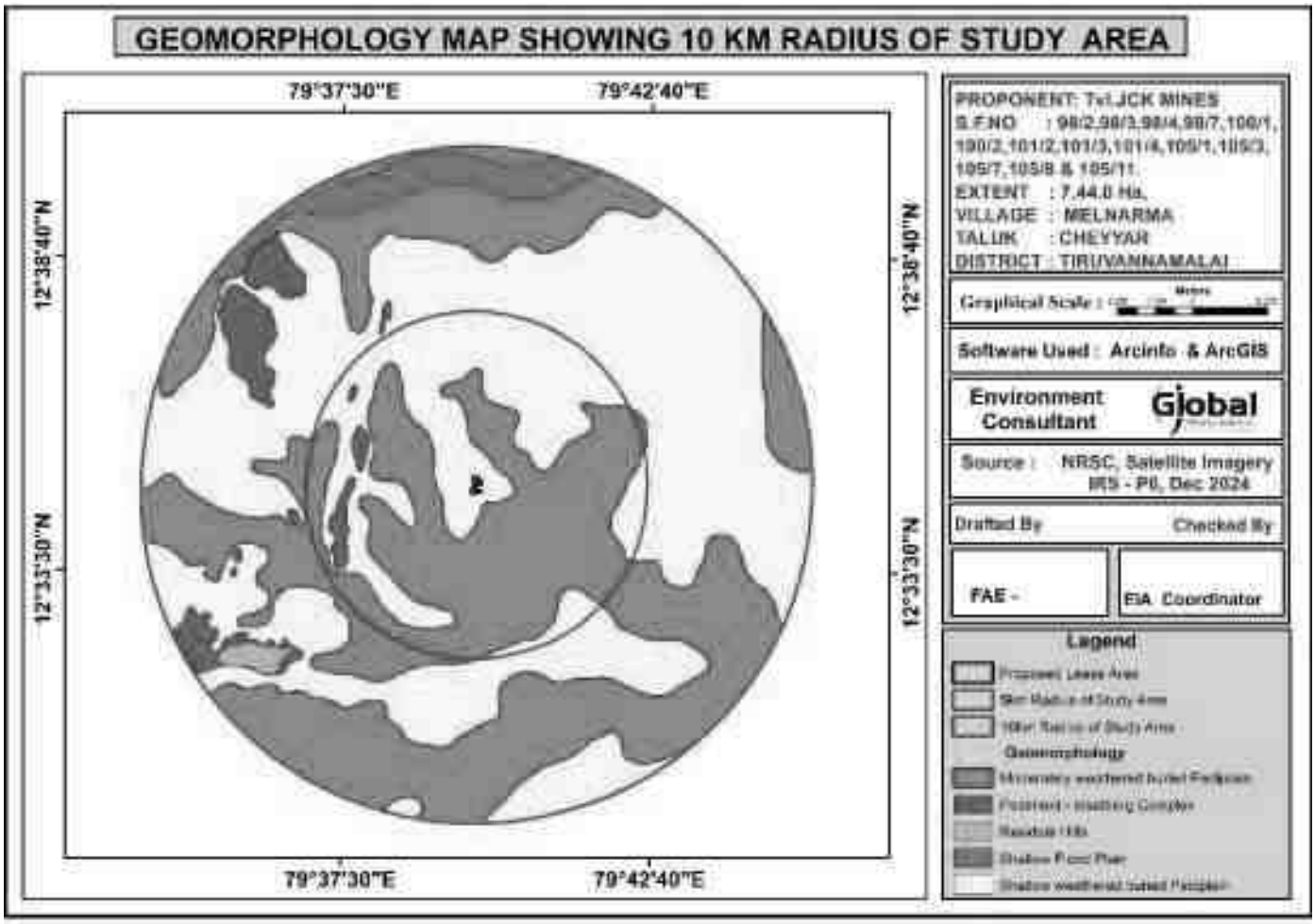


Figure 3-12 Geomorphology – 10 km radius around the project site

3.6.5 Geology

The geology map of the study area reveals that the area is predominately covered with Charnockite [284.77 Sq.km], which falls under Charnockite group and the remaining area is covered with gnesis (Migmatite Group) [44.45 Sq.km]. No exploration was carried out. Massive Rough stone formation visible from the existing pits in the nearby quarry operations and dry open wells.

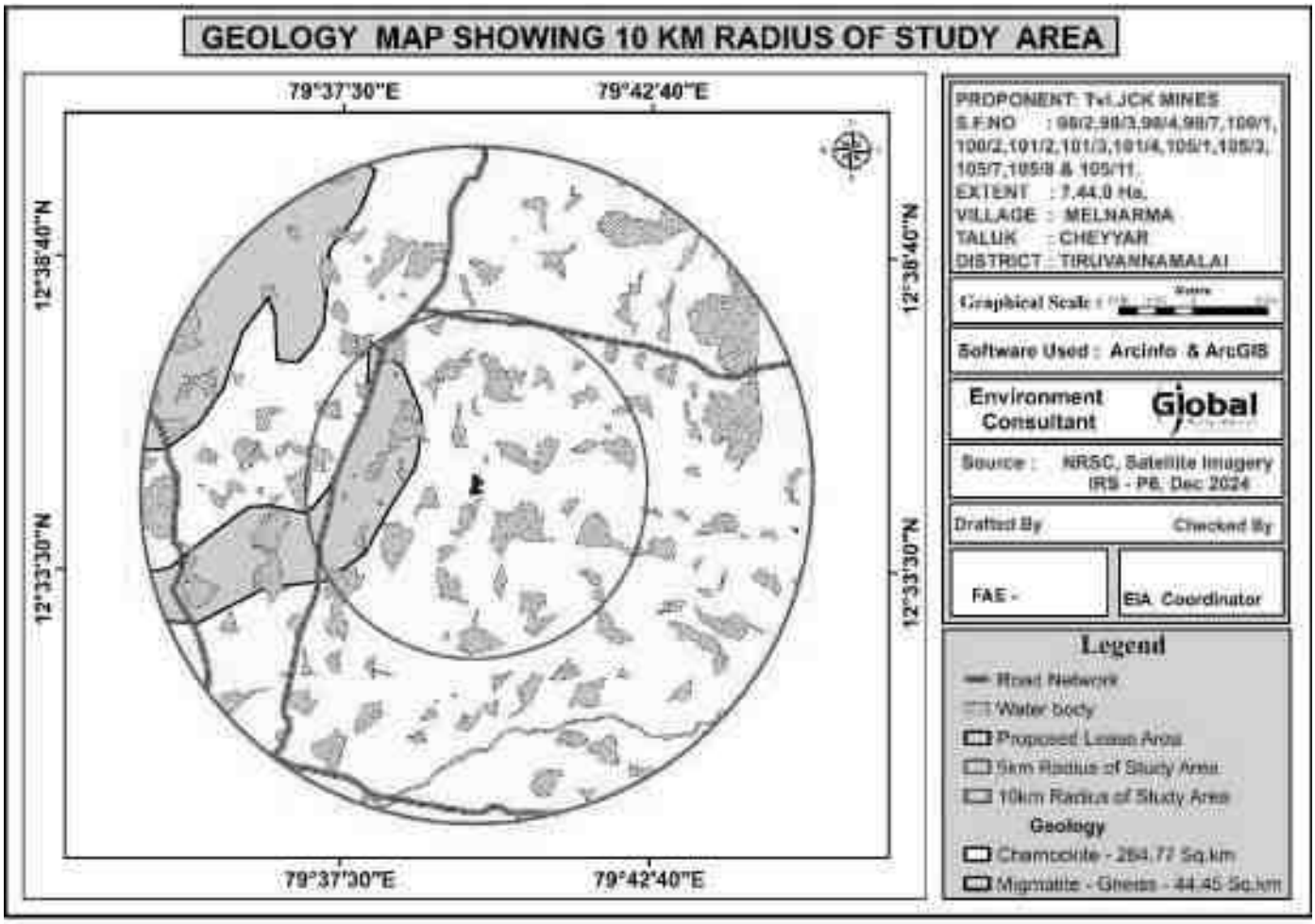


Figure 3-13 Geology – 10 km radius around the project site

3.6.6 Hydrogeology

The entire district is underlain by rocks belonging to hard crystalline rock masses of Archaean age. The archaean rocks in this area are represented by rocks of eastern Ghat complex comprising charnockite, migmatite complex of composite gneiss. The district is covered by metamorphic crystalline rocks of charnockite, composite gneiss of Archaean age. These rocks are highly metamorphosed and have been subjected to sever folding, crushing and faulting. Charnockite group is occupied by North and Southern part of the basin. The other rock type is encountered by composite granitic gneiss of Epidote of the basin. Charnockite group occupies the high ground as well as plain and it is poorly weathered and jointed. They are generally black grey to dark grey in colour medium to coarse grained texture and generally massive and un-foliated. A gneissic rock occurred as linear bands of granites, pegmatites, quartz veins the rock is well foliated. The Hornblende biotite gneiss forms the country rock of the area and epidote hornblende gneiss (Proterozic age) occurs as small isolated outcrops. The crystalline formations are charnockite, granitic

gneiss of Archean age have been intruding by dolerite dykes and pegmatite veins. These rocks are highly metamorphosed and have been subjected to very severe folding, crushing and faulting. The crystalline rocks are subjected to technic activities under various orogenic cycles resulting in the intensity of weathering various from place. Highly weathered zones and granitic rock occurs in masses are around some of the villages like Ariyanallur,

Mukkunam, Kaarunkulu, Tondur, Vedal, Melolakkur, Pennagar, Chinnaagram (57P/7). The general geological sequence of formation is given below: -.

Age	Stage	Lithology
Archaean	Migmatite Complex	Biotite Gneiss, Epidote, Hornblende gneiss
	Charnockite Group	Magnetite

3.6.7 Natural Resources

Forest Resources

Thiruvannamalai district is bounded on the north and west side by Vellore District, on the south side by Villupuram District, on the southwest side by Dharmapuri District and on the east side by Kancheepuram District. Geographical area of Thiruvannamalai is 6191Sq. Km. One sixth of the area of this district is covered by reserve forest and hills which is part and parcel of Eastern Ghats under Javvadhu Hills. Hills are: Thiruvannamalai hills, Javvadhu hills and Kailasagiri hills. One sixth of the area of this district is covered by reserve forest and hills which is part and parcel of Eastern Ghats under Jawadhu Hills. The important hills in this district are Thiruvannamalai (2668 ft MSL), Jawadhu hills (3600-3800 ft MSL) and Kailasagiri (2743 ft MSL)

Source: https://dcmsme.gov.in/dips/IPS_Thiruvannamalai_2012_tr.pdf

Agricultural Resources

Land and Agriculture 32% of land in Thiruvannamalai is used for agricultural activities to produce rice, ground nut and sugarcane. Another major economic activity of the district is Silk Saree weaving, a bulk of India's Silk apparels is produced by the people of Thiruvannamalai district largest concentration of Silk producers and weavers in Arni Taluk. Thiruvannamalai district is coming under North Eastern Zone region and the total area under cultivation is 192174.70 ha. In that, Horticultural crops have been cultivated in about 27103.90 ha and the prominent crops under cultivation are Banana, Mango, Tapioca, Tomato, Chillies, Brinjal, Bhendi, Watermelon, Muskmelon, Gourds, Turmeric, Medicinal coleus, lemongrass, Palmarosa, Jamine, Chrysanthemum and Tuberoseand other vegetables.In tiruvannamalai district Seetha and Jackfruit are producing in Jawadhu hills. Banana plantation is widely practiced in Padavedu region. Approximately 56 % of people are depended on Agriculture related works.

Mineral Resources

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

Source: District Survey report, Tiruvannamalai

3.6.8 Seismicity

Tiruvannamalai falls under seismic zone III, which is categorised as moderate damage zone. Tiruvannamalai Local Planning Area falls under Seismic Zone – III, II. The whole of Tiruvannamalai Local Planning Area falls in this zone which is a moderate to low seismic risk. The seismic zone of Tamilnadu is shown below.

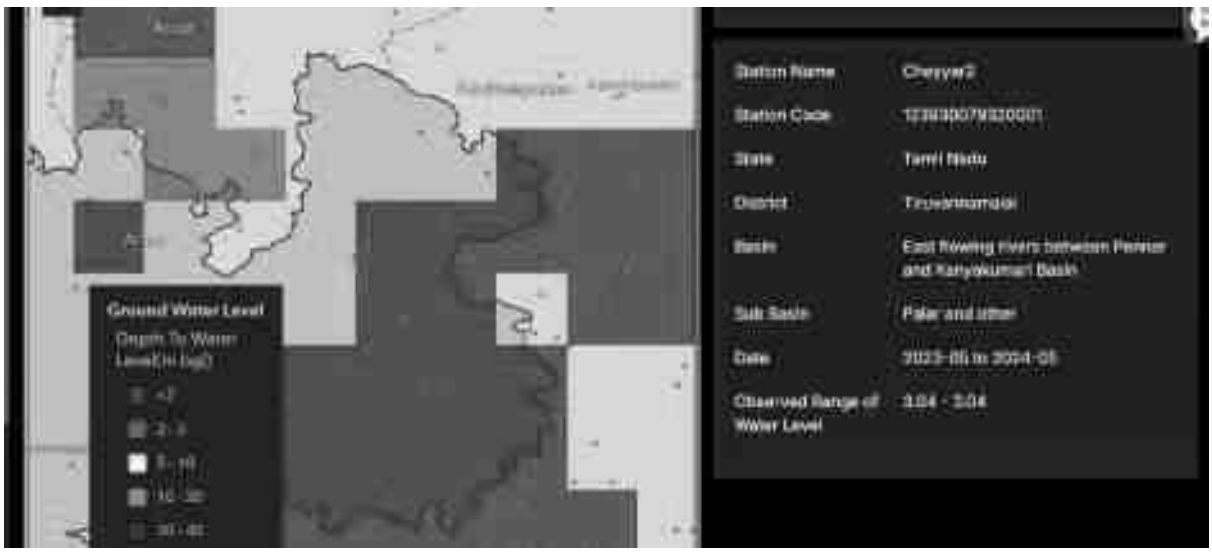


3.7 Water Environment

3.7.1 Ground water

Depth of GW Level and GW prospects

The ground water table in Cheyyar basin is 3.04 m BGL. **(Source: CGWB)**



The project falls under Cheyar Block, which is categorized as Over-Exploited (> 100%) as per Annexure to G. O (Ms) No. 161, Public Works (R2) Department, dated: 23.10.2019, where the eligibility for the extraction of groundwater, extraction will be permitted only in Safe/Semi critical and non-metro area. **(Source: NWM)**

4	CHENGAM	2,565.03	2,848.85	90.51	2,739.36	107	OVER EXPLOITED
5	CHENNAVARAM	1,834.53	1,713.08	34.62	1,747.70	95	CRITICAL
6	CHEYYAR	1,522.95	1,526.85	120.80	1,647.65	106	OVER EXPLOITED
7	DESUR	2,428.85	2,233.25	46.37	2,279.62	94	CRITICAL

The figure showing GW prospects for study area of 5 km is shown below **(Source: Bhuvan)**

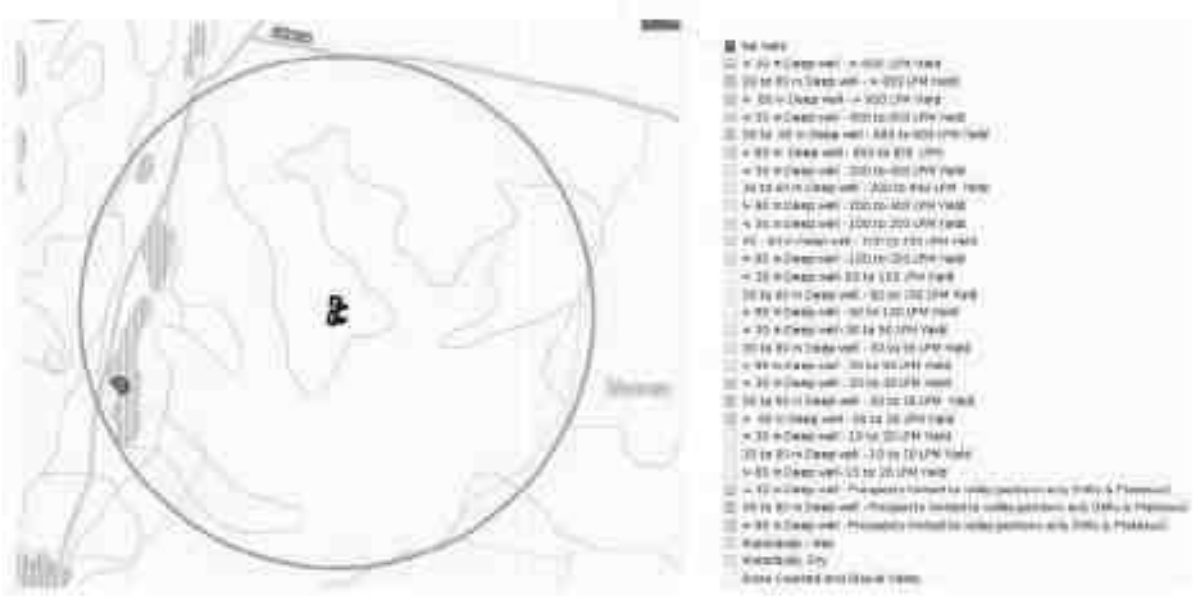


Figure 3-14 Ground water prospects – 5km radius around the project site

The average ground water level in the project is reported as 68 m BGL.

Ground water recharge estimation:

In view of the fact that the detailed data for recharge calculation is extremely difficult to come by some, very simple parameters have been enunciated by the CGWB in their '**Report of the Ground Water Resource Estimation Committee, Ground Water Resource Estimation Methodology - 1997, Central Ground Water Boa*rd'***.** On an average infiltration can be taken as 44 to 60 cm per year over a total water spread based on the average area of water spread.

Ground water recharge: Total Mine Lease area x 0.6m x 60% x Mining period

= 74,400 Sq. m. x 0.6m x 0.6 x 5 years

= 1,33,920 Cu.m for 5 years

Rainfall Infiltration:

As per CGWB, the rainfall infiltration is computed by:

Rainfall Recharge = (Rainfall –minimum threshold) * RFIF *Area

= (0.0089 – 0.001) x 0.7 x 74,400

= 411.43 Cu.m

Ground Water Quality Monitoring

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

Table 3-5 Ground Water Quality Analysis

Environmental Parameters: **Ground water Quality Analysis**			
Monitoring Period	October 2024 – December 2024		
Design Criteria	Based on the Environmental settings in the study area		
Monitoring Locations	**Location**	**Distance from ML, km**	**Site Co-ordinates**
	Project Site	-	
	Ayyavadi	1.5	12°35'27.60"N, 79°39'1.99"E
	Alathurai	2.7	12°33'59.33"N, 79°40'52.93"E
	Veerambakkam	4.3	12°34'24.96"N, 79°37'21.38"E
	Thuraiyur	1.2	12°34'24.48"N, 79°39'15.82"E
	Vachanur	1.1	12°35'27.77"N, 79°39'54.58"E
	Alathur	2.0	12°35'3.70"N, 79°40'57.92"E
Methodology	Water Samples were collected in 5 Litre fresh cans as per IS 3025 Part I and transported to the laboratory in Iceboxes		
Frequency of Monitoring	Once in a season		

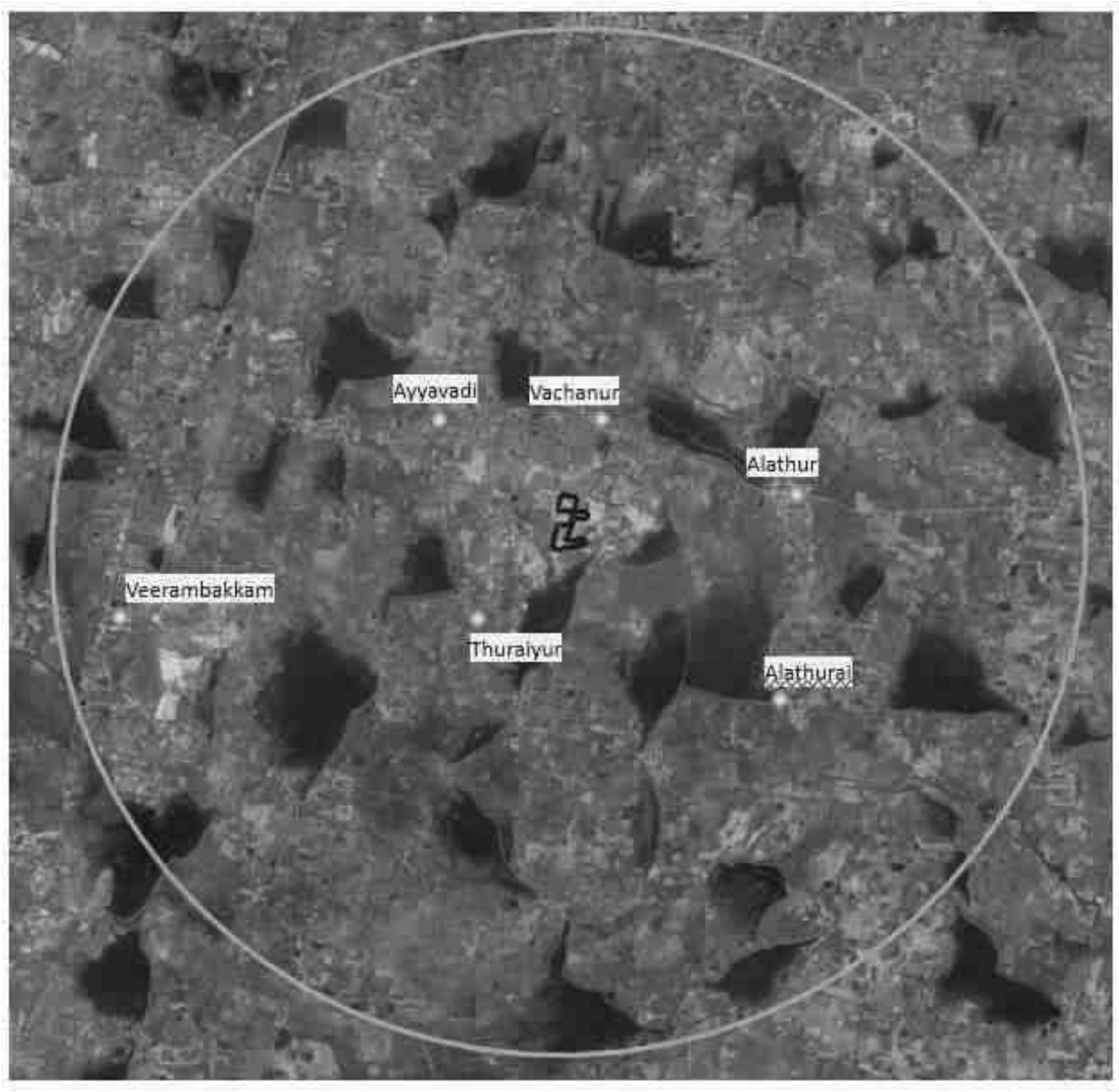


Figure 3-15 Ground Water Sampling Locations

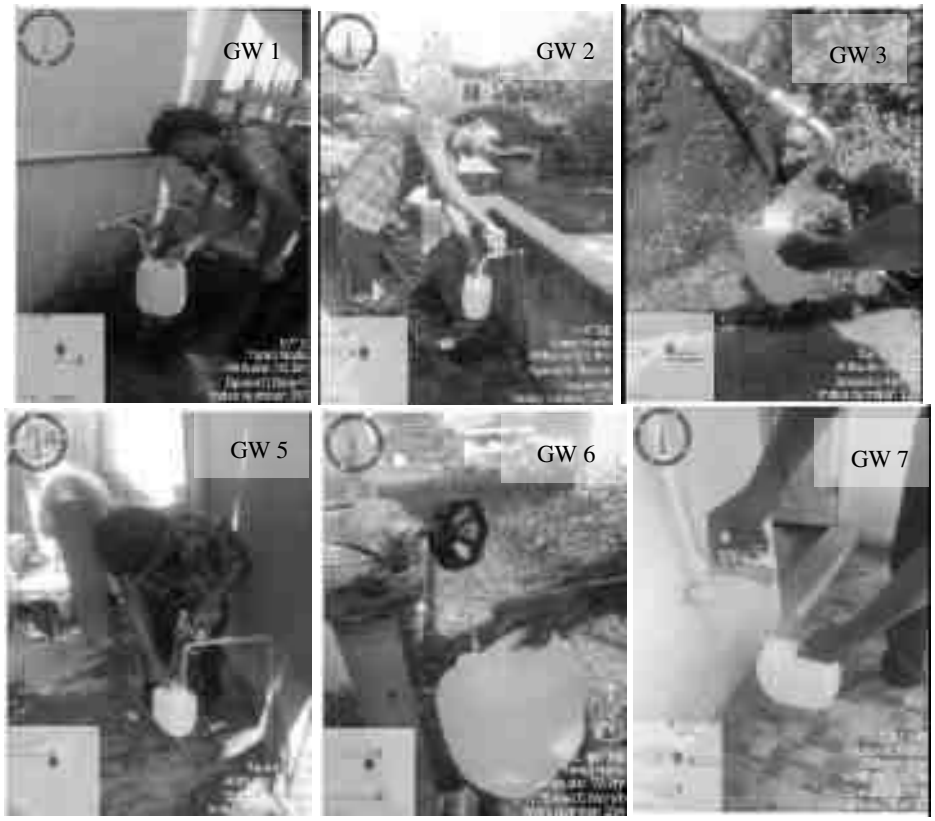


Figure 3-16 Ground water sampling photos

Table 3-6 Ground water sampling results

S. No	Parameters	GW 1	GW 2	GW 3	GW 4	GW 5	GW 6	GW 7
1	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
2	Turbidity	<1	<1	<1	<1.0	<1	<1	<1
3	pH at 25 ˚C	7.32	7.84	6.92	7.36	7.28	7.52	7.32
4	Electrical Conductivity	1020	395.6	712.4	1675	992.3	1149	1852
5	Total Dissolved Solids	612	238	430	1006	956	690	1120
6	Total hardness as $CaCO_3$	432	170	236	352	410	333	442
7	Calcium as Ca	82.4	42	56	65.2	75.6	72.1	76.8
8	Magnesium as Mg	54.2	15.6	23.0	45.4	53.0	36.7	60.2
9	Calcium as $CaCO_3$	206	105	140	163.0	189	180	192
10	Magnesium as $CaCO_3$	226	65.0	96.0	189.0	221.0	153	251
11	Total alkalinity as $CaCO_3$	318	145	158	324	252	253	301
12	Chloride as Cl^-	81.3	34.3	132	340	116	184	360

13	Free Residual chlorine as Cl^-	BDL(D.L-0.2)	BDL(D.L-0.2)	BDL (D.L -0.2)	BDL(D.L-0.2)	BDL(D.L-0.2)	BDL(D.L-0.2)	BDL (D.L-0.2)
14	Sulphates as SO_4^{2-}	122	13.2	72.2	206	112	210	352
15	Iron as Fe	0.08	0.06	0.02	0.12	0.1	BDL(D.L -0.01)	BDL(D.L -0.01)
16	Nitrate as NO_3	2.26	BDL(D.L-1.0)	3.15	2.06	2.74	1.97	3.05
17	Fluoride as F	0.32	0.23	0.25	0.36	0.25	0.54	0.66
18	Manganese as Mn	BDL(D.L-0.05)	BDL(D.L-0.05)	BDL (D.L -0.05)	BDL(D.L-0.05)	BDL(D.L-0.05)	BDL(D.L-0.05)	BDL(D.L-0.05)

Interpretation of results

Physical parameters of water

The basic physical parameters of the water include

Odour: The odour of the water is found to be agreeable in all the 7 monitoring locations.

pH:

Value observed in the project site: 7.32.

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

Turbidity:

Value observed in the project site: <1 NTU.

Acceptable and permissible limits:1 NTU & 5 NTU respectively. The value of turbidity generally indicates the presence of phytoplanktons and other sediments. The value in the project site indicates the water is not turbid and no any physical treatment is required to treat the turbidity of the water.

Total Dissolved Solids:

Value observed in project site: 612 mg/L.

Acceptable and permissible limits: 500 mg/L and 2000 mg/L respectively. The TDS is the presence of the inorganic salts and small amounts of organic matter present in the water. This is mainly due to the result of surface runoff as the cations and anions in the top soil is carried away by the water. As per the Guidelines of WHO, if the value of TDS is greater than 1200 mg/L, it is designated as unacceptable. Since the value of the TDS is less than 1200 mg/L, it will not cause any adverse impact.

Chemical parameters of water:

The chemical parameters of the drinking water include

Calcium:

Value observed in the project site: 206 mg/L.

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

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

Magnesium:

Value observed in the project site: 54.2 mg/L.

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

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

Chloride

Value observed in the project site: 81.3 mg/L.

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

The chloride level in the project site is less than the permissible limit. Hence it will not have any major impact.

Hardness:

Value observed in project site: 432 mg/L.

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

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

Secondary Data:

Following are the Analytical Results of samples collected from National Groundwater Monitoring Wells (May 2022)

S.No	District	Location	Latitude	Longitude	PH	EC *	TH**	Ca	Mg	Na	K	CO3	HCO3	Cl	SO4	NO3	F	U
																		ppb
441	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
442	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
443	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
444	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
445	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
446	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
447	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
448	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Source: State Report on Groundwater Quality in Tamilnadu & U. T. of Puducherry by Government of India, Ministry of Jal Shakti Department of Water Resources, River Development & Ganga Rejuvenation Central Ground Water Board South Eastern Coastal Region, Chennai

3.7.2 Surface Water

Surface water was collected from Cheyyar River Upstream and Downstream. The results are summarized below:

Table 3-7 Surface Water Analysis Results

Parameter	SW1	SW2	CPCB Designated Best Use	
	Cheyyar (U/s)	Cheyyar (D/s)	Acceptable Limits	Permissible Limits
Odour	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity, NTU	1.3	2.1	2	5
pH at 25 ˚C	7.62	7.22	6.5- 8.5	No Relaxation
Electrical Conductivity, µS/cm	361.6	309.9	-	-
Total Dissolved Solids, mg/l	217	186	500	2000
Total hardness as $CaCO_3$, mg/l	143	103	200	600
Calcium as Ca, mg/l	39.6	33.3	75	200
Magnesium as Mg, mg/l	10.5	4.75	30.0	100
Calcium as $CaCO_3$, mg/l	99	83.2	-	-
Magnesium as $CaCO_3$, mg/l	43.6	19.8	-	-
Total alkalinity as $CaCO_3$, mg/l	152	111	200	600
Chloride as Cl^-, mg/l	17.7	20.7	250	1000
Free Residual chlorine as Cl^-, mg/l	BDL(D.L-0.2)	BDL(D.L-0.2)	0.2	1
Sulphates as SO_4^{2-}, mg/l	BDL (DL -5)	BDL (DL -5)	200	400
Iron as Fe, mg/l	BDL (DL – 0.01)	BDL (DL – 0.01)	0.3	No Relaxation
Nitrate as NO_3, mg/l	BDL (DL – 1.0)	BDL (DL – 1.0)	45	No Relaxation
Fluoride as F, mg/l	BDL (DL – 0.1)	BDL (DL – 0.1)	1	1.5
Manganese as Mn, mg/l	BDL (DL – 0.05)	BDL (DL – 0.05)	0.1	0.3
TSS, mg/l	BDL (DL – 2.0)	BDL (DL – 2.0)		
COD, mg/l	BDL(DL-4.0)	BDL(DL-4.0)	-	-
BOD, mg/l 3 days @ 27°C as O2	BDL(DL-2.0)	BDL(DL-2.0)	2.0	2.0
DO, mg/l	5.8	6.4	6.0	6.0

Inference: The test results of Cheyyar River (U/s) and (D/s) reveals that the water classified as B as per the CPCB Designated Best Use of Water. The water meets the standard of outdoor bathing (Organised) after preliminary treatment

3.8 Climatology & Meteorology

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

The year may broadly be divided into four seasons:

Winter season: December to February

Pre-monsoon season: March to May

Monsoon season: June to September

Post-monsoon season: October to November

i) Climate

The district enjoys a Sub tropical climate. The period from May to June is generally hot and dry. The weather is pleasant during the period from December to January. The relative humidity is on an average between 33.9% and 98.1%.

ii) Temperature

The average daily temperature ranges from a maximum of 35.9 °C to a minimum of 17 °C

iii) Rainfall:

The annual average rainfall is 815 mm.

	Total rainfall (mm)	**No. of Rainy Days**	**Average annual rainfall (mm)**
Rainfall	1.1	55	815

Summary of meteorological data

Parameters	**Min. Value**	**Max. Value**	**Mean Value**
Temperature (°C)	17	35.9	27.3
Wind Speed (m/s)	1	8.8	2.9
Relative Humidity (%)	33.9	98.1	71.8
Solar Radiation (W/m^2)	144.38	164.9	152.3

3.8.1 Meteorological data collection

The meteorological data is collected based on daily observations for three-month period, is used in the current report.

Wind Speed:

Wind speed was in the range of 1 Km/hr to 8.8 Km/hr. The wind speed was almost close to each other during the whole study period. The wind speed varied from 1 Km/hr to 8.8 Km/hr. The site-specific meteorological data for the study period (October 2024 – December 2024) is presented below. The maximum and minimum values for all the parameters except wind speed and wind direction are presented below.

Wind Rose Diagram

The wind rose denotes a class of diagrams designed to display the distribution of wind direction at a given location over a period of time. Wind roses are also useful as they project a large quantity of data in a simple graphical plot. The wind speed & wind direction data are taken and wind rose is plotted for October 2024 – December 2024.

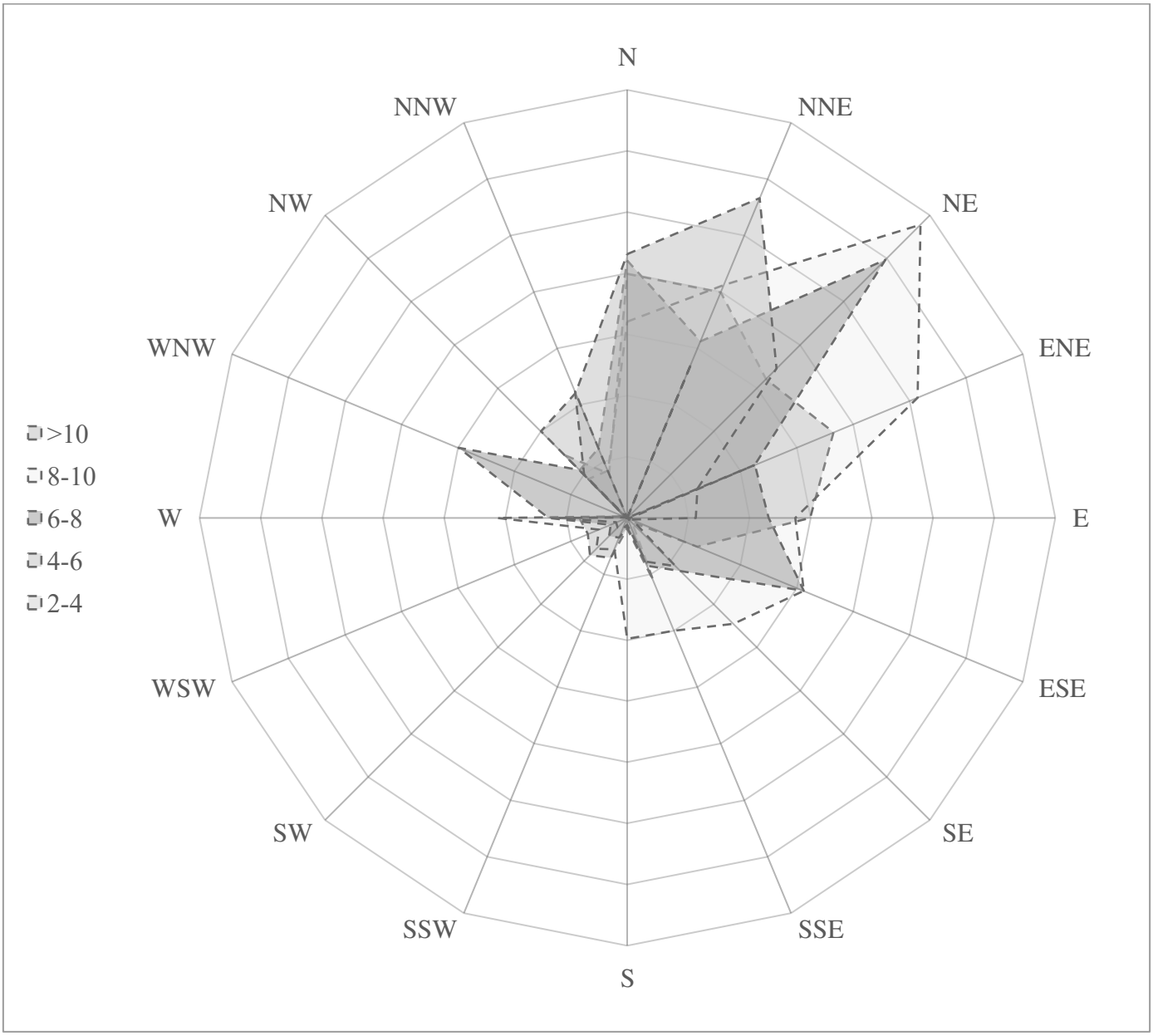


Figure 3-17 Wind Rose Diagram

3.8.2 Ambient Air Quality

Table 3-8 Environmental Parameters – Ambient Air

<table>
<tr><th colspan="2">Environmental Parameters: Ambient Air</th></tr>
<tr><td>Monitoring Period</td><td>October 2024 – December 2024</td></tr>
<tr><td>Design Criteria</td><td>The monitoring stations are selected based on factors like topography/terrain, prevailing meteorological conditions like predominant wind direction (October 2024 – December 2024), etc, play a vital role in selection of air sampling stations. Based on these criteria, air sampling stations were selected in the area as shown below.</td></tr>
<tr><td>Monitoring Locations</td><td>
<table>
<tr><th>Location</th><th>Distance from ML, km</th><th>Site Co-ordinates</th></tr>
<tr><td>Project Site</td><td>-</td><td></td></tr>
<tr><td>Ayyavadi</td><td>1.5</td><td>12°35'27.60"N, 79°39'1.99"E</td></tr>
<tr><td>Alathurai</td><td>2.7</td><td>12°33'59.33"N, 79°40'52.93"E</td></tr>
<tr><td>Veerambakkam</td><td>4.3</td><td>12°34'24.96"N, 79°37'21.38"E</td></tr>
<tr><td>Thuraiyur</td><td>1.2</td><td>12°34'24.48"N, 79°39'15.82"E</td></tr>
<tr><td>Vachanur</td><td>1.1</td><td>12°35'27.77"N, 79°39'54.58"E</td></tr>
<tr><td>Alathur</td><td>2.0</td><td>12°35'3.70"N, 79°40'57.92"E</td></tr>
</table>
</td></tr>
<tr><td>Methodology</td><td>Respirable Particulate Matter (PM10) - Gravimetric (IS 5182: Part 23:2006)
Particulate MatterPM2.5 - Gravimetric (Fine particulate matter)
Sulphur Dioxide - Calorimetric (West & Gaeke Method) (IS 5182: Part 02: 2001)
Nitrogen Dioxide - Calorimetric (Modified Jacob & Hocheiser Method) (IS 5182: Part 06:2006)</td></tr>
<tr><td>Frequency of Monitoring</td><td>2 days in a week, 4 weeks in a month for 3 months in a season.</td></tr>
</table>

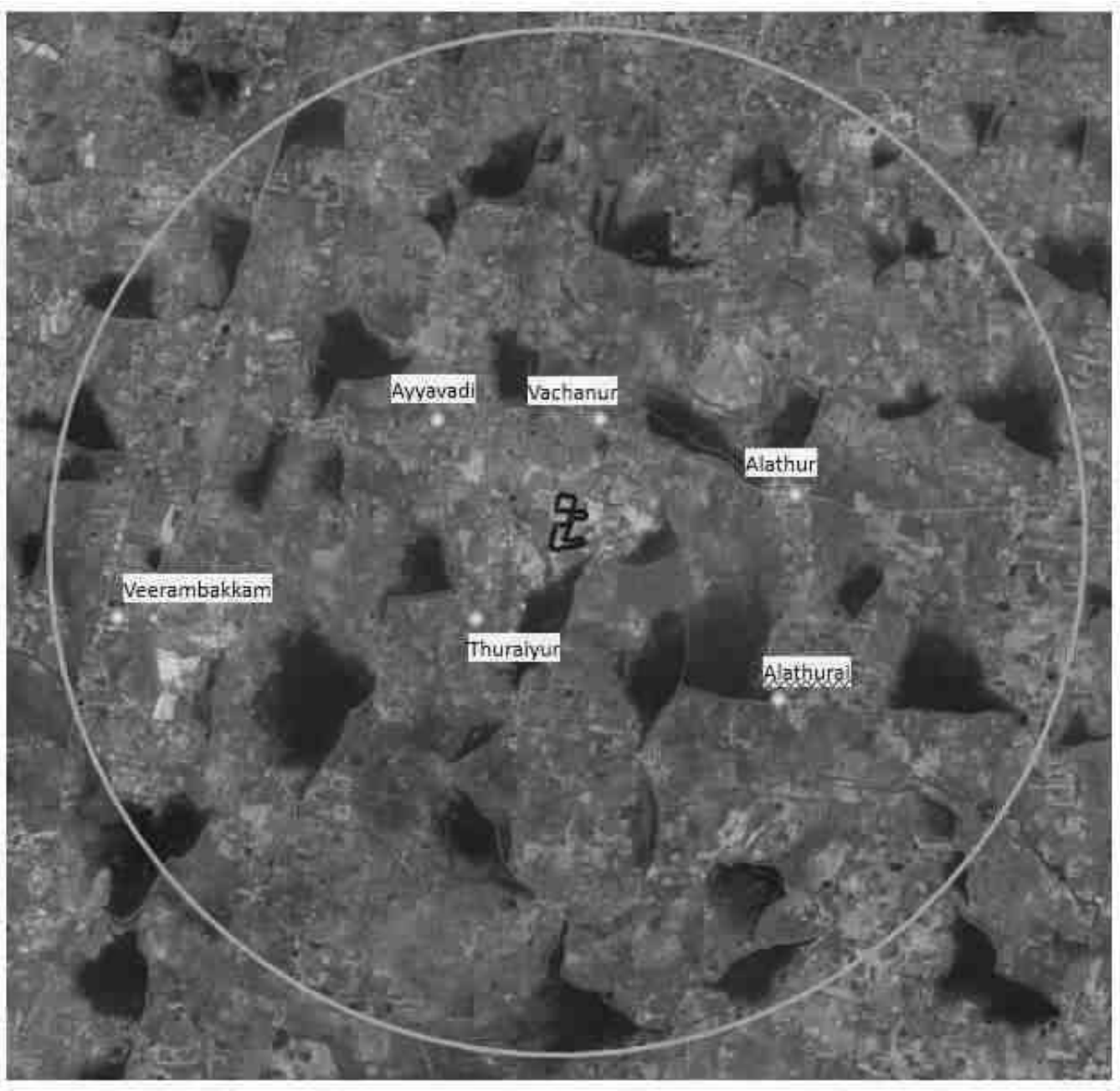


Figure 3-18 Ambient Air Quality Monitoring Stations

Monitoring Photos

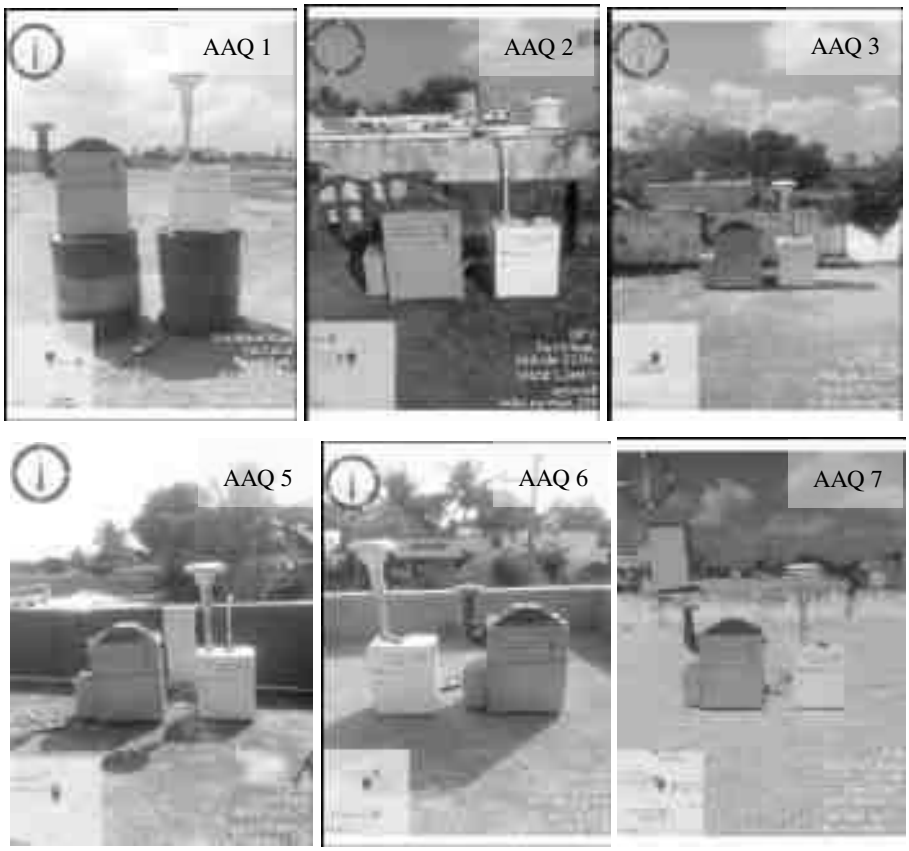


Figure 3-19 AAQ Monitoring Photos

Ambient Air Quality: Results & Discussion

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

Table 3-9 Ambient Air Quality – Baseline Monitoring Values

Code	PM 10 (µg/m$^{3)}$				PM 2.5 (µg/m$^{3)}$				SO2 (µg/m$^{3)}$				NOx (µg/m$^{3)}$			
	Max	Min	Avg	98 percentile	Max	Min	Avg	98 percentile	Max	Min	Avg	98 percentile	Max	Min	Avg	98 percentile
AAQ 1	70.0	50.0	61.1	69.8	33.0	23.6	28.7	32.9	8.9	5.7	7.1	8.7	12.4	9.5	10.7	12.078
AAQ 2	55.1	43.3	50.3	55.0	29.5	19.5	23.2	27.7	6.1	3.6	4.6	5.9	8.3	5.8	6.8	7.978
AAQ 3	57.0	45.7	50.0	56.4	29.5	20.6	24.0	28.2	6.2	3.9	4.8	6.1	9.2	7.2	8.1	9.154
AAQ 4	57.8	43.7	48.9	55.5	29.3	18.9	24.4	28.8	6.6	4.2	5.0	6.5	10.8	7.8	8.9	10.386
AAQ 5	60.8	46.0	52.8	59.5	30.4	20.8	25.3	30.0	8.6	4.0	6.0	8.0	12.9	8.2	10.0	12.4
AAQ 6	61.9	47.8	52.9	61.0	34.5	22.4	25.5	32.6	6.8	4.4	5.5	6.8	12.3	8.4	9.8	11.656
NAAQ Standards - Residential Area	100 (µg/m^{3})				60(µg/m^{3})				80 (µg/m$^{3)}$				80 (µg/m$^{3)}$			

Ambient Air Quality: Results & Discussion

To assess the impact, AAQ were monitored in project site and five locations in the upwind, downwind & crosswind direction. The values of the AAQ in terms of PM10 and SOx is maximum in the AAQ 1 than all other locations. The values of PM 2.5 and NOx is maximum in Alathur.

PM 2.5 and PM 10:

Table 3-10 Maximum and Minimum Values of PM 2.5 & PM 10

Description	PM 2.5	Location	PM 10	Location
Max	34.7	Alathur	70	Within Mine Lease Area
Min	18.9	Veerambakkam	43.3	Ayyavadi
Standard PM 2.5 - 60			**Standard PM 10 - 100**	

The main sources of PM include incomplete combustion, automobile emissions, Dust and also due to the chemical reactions in the atmosphere. From the monitoring locations, it is inferred that the maximum value of PM 10 is observed in Mine Lease Area &PM 2.5 is observed in Alathur. The main contributing factor is that there is other existing quarry located near the project site within 500 m radius, where the vehicular traffic will be more. Approximately 409 trucks will be used for the transportation of mined out mineral from all the two quarries. In Alathur, the monitoring location is situated in residential area, where in State Bank of India, Sri Varadharaja Perumal Temple, Shri Ponniyamman Koil, Alathur Primary and High School is located, due to which there will be movement of traffic, which may be an attributing factor.

The governing factors for the transport of PM are wind direction & wind speed. The baseline monitoring is done for the three months i.e., from October 2024 – December 2024. The predominant wind direction is blowing from North east to South West and the maximum wind speed is 4.2 mps. The greater values of Particulate matter will have its impacts on Human Health. Short term exposure may cause coughing, shortness of breath, tightness of the chest, irritation of the eyes. The Long-term exposure may lead to reduced lung function, development of respiratory diseases and also premature death of people with lung diseases.

SO_2:

Table 3-11 Maximum and Minimum Values of SO_2

Description	SO2	Location
Max	8.9	Within Mine Lease Area
Min	3.6	Ayyavadi
Standard SO2 - 80		

The main Source of SOx are Burning of fossil fuels such as coal, oil and natural gas. Sulfur dioxide emissions are released primarily as a result of generated electricity through fossil fuel burning power stations. Additional smaller sources of sulfur dioxide are released from industrial processes. These include extracting metal from ore and the burning of fuels with high sulfur content by locomotives. The maximum value is observed in mine lease area & the minimum value is observed in Ayyavadi.

The high value in mine lease area is attributed to crushers and existing mines present near the monitoring location – Thiru. JCK Mines (Existing).

The increased value of SOx can have detrimental effects on human health. Such effects include breathing problems, particularly in asthmatics, whereas short-term exposure can lead to chest tightness and coughing and wheezing. Continued exposure to sulfur dioxide has been linked with alterations of the lung's defenses and aggravation of existing cardiovascular disease.

Sulfur dioxide is a major precursor to particulate soot, which reduces air quality. Sulphur dioxide has an acidifying effect on the environment. Acidification harms plants and animals, both on land and in water. When the ground turns acidic, vital nutrients are leached from the soil, which eventually may result in reduced fertility of the soil.

NOx:

Table 3-12 Maximum and Minimum Values of NOx

Description	NOx	Location
Max	12.9	Thuraiyur and Alathur
Min	5.8	Ayyavadi
Standard NOx - 80		

The sources of NOx pollution include emissions by automobiles, trucks and various non-road vehicles (e.g., construction equipment). NOx is released into the atmosphere by combustion of fuels, such as hydrocarbons, in air; especially at high temperatures, such as in car engines. In areas of high motor vehicle traffic, the nitrogen oxides emitted can be a significant source of air pollution.

The maximum value is observed in Thuraiyur and Alathur. This is mainly due to more movement of vehicles and trucks in the area due to presence of communal property like schools, temple, banks and fuel station. Also, there are already is another operating mine present in the vicinity of the project site, where blasting operations will be carried out. The blasting of explosives may produce Nox, which will be dispersed in air by the wind, which may be an attributing factor.

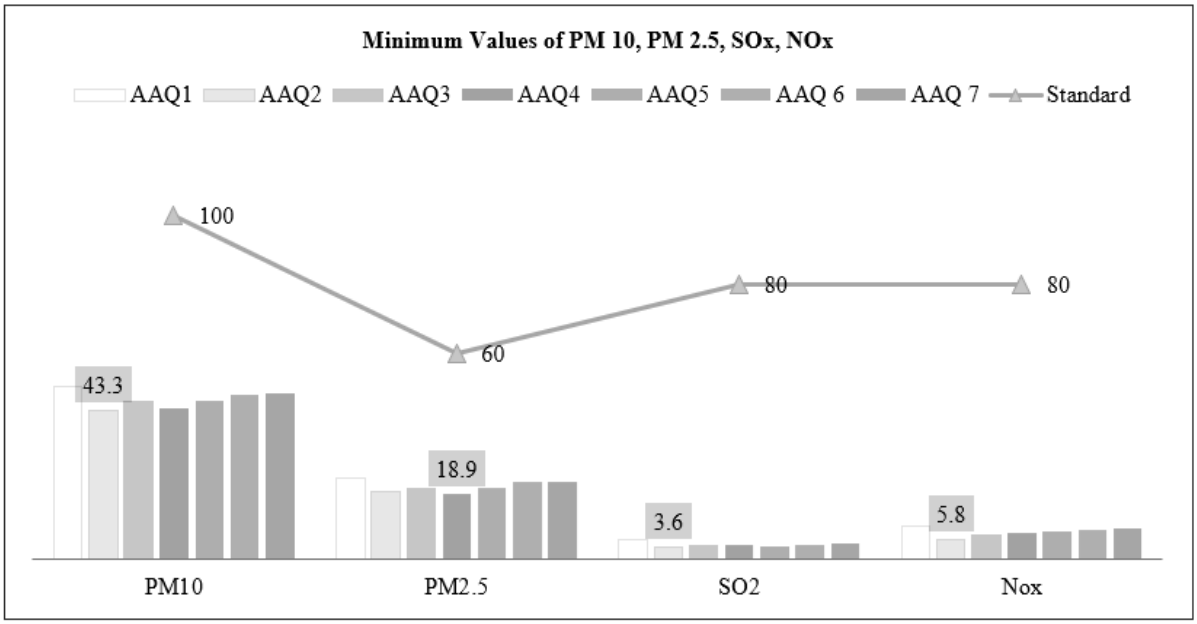


Figure 3-20 Minimum Values of PM10, PM2.5, SO_2, NOx

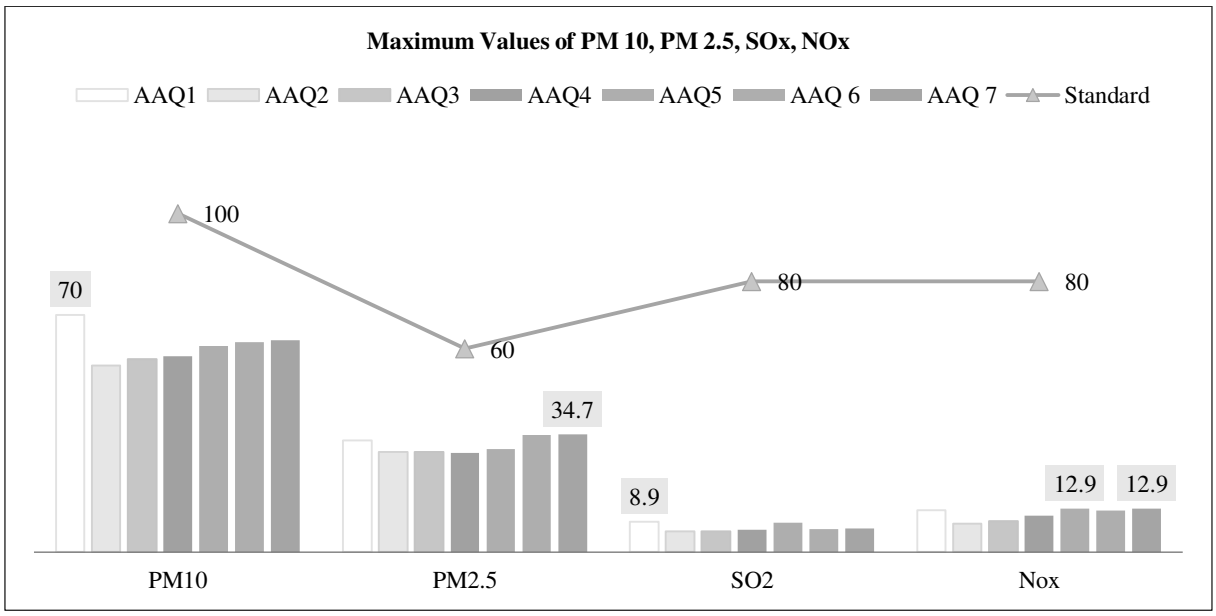


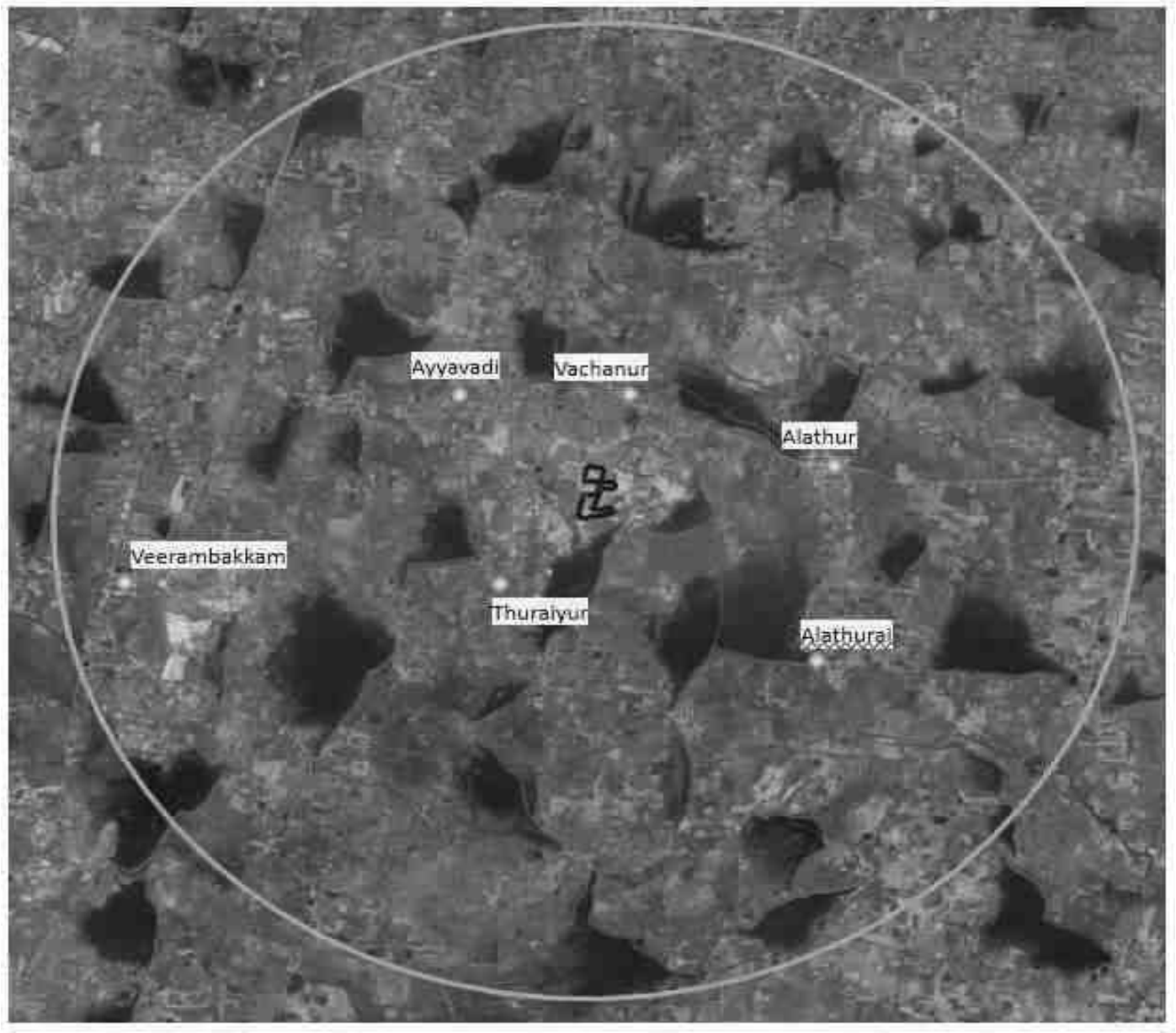
Figure 3-21 Maximum Values of PM10, PM2.5, SO_2, NOx

3.8.3 Noise Environment

Table 3-13 Noise Level Monitoring

Environmental Parameters: **Noise Analysis**			
Monitoring Period	October 2024 – December 2024		
Design Criteria	Based on the Sensitivity of the area		
Monitoring Locations	**Location**	**Distance from ML, km**	**Site Co-ordinates**

	Project Site	-	
	Ayyavadi	1.5	12°35'27.60"N, 79°39'1.99"E
	Alathurai	2.7	12°33'59.33"N, 79°40'52.93"E
	Veerambakkam	4.3	12°34'24.96"N, 79°37'21.38"E
	Thuraiyur	1.2	12°34'24.48"N, 79°39'15.82"E
	Vachanur	1.1	12°35'27.77"N, 79°39'54.58"E
	Alathur	2.0	12°35'3.70"N, 79°40'57.92"E
Methodology	Noise level measurements were taken at the selected locations using noise level meter both during day and night time. Noise level measurements were taken continuously for 24 hours at hourly intervals		
Frequency of Monitoring	Noise samples were collected from 7 locations - Once in a season		



Monitoring Photos

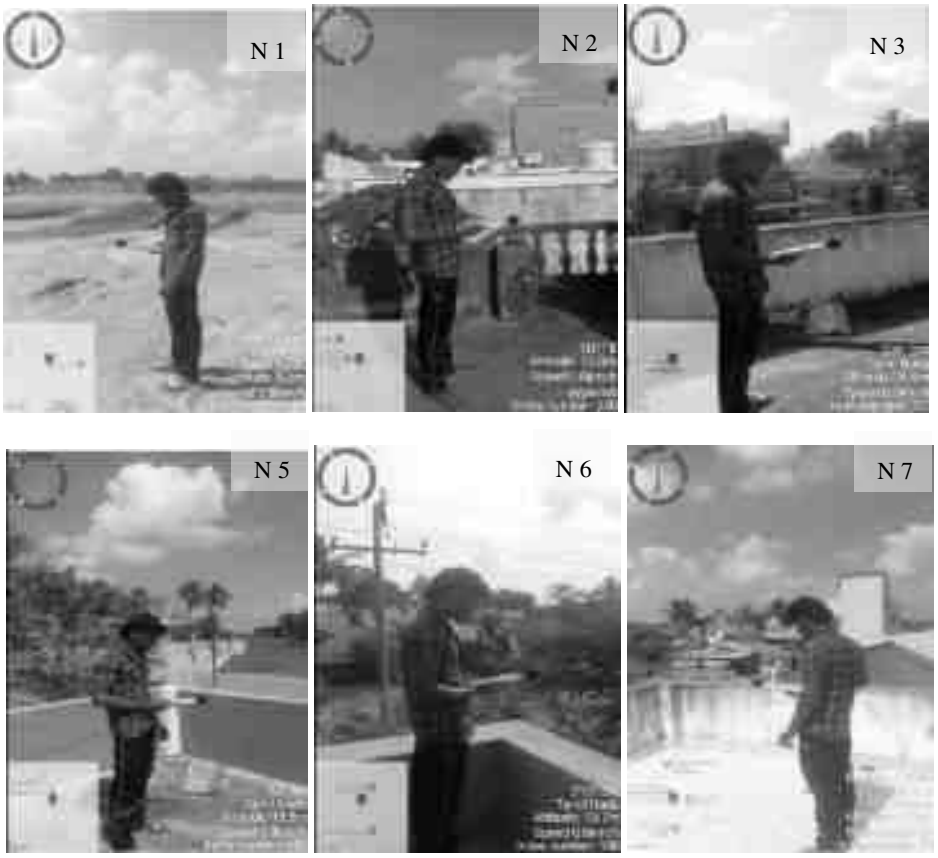


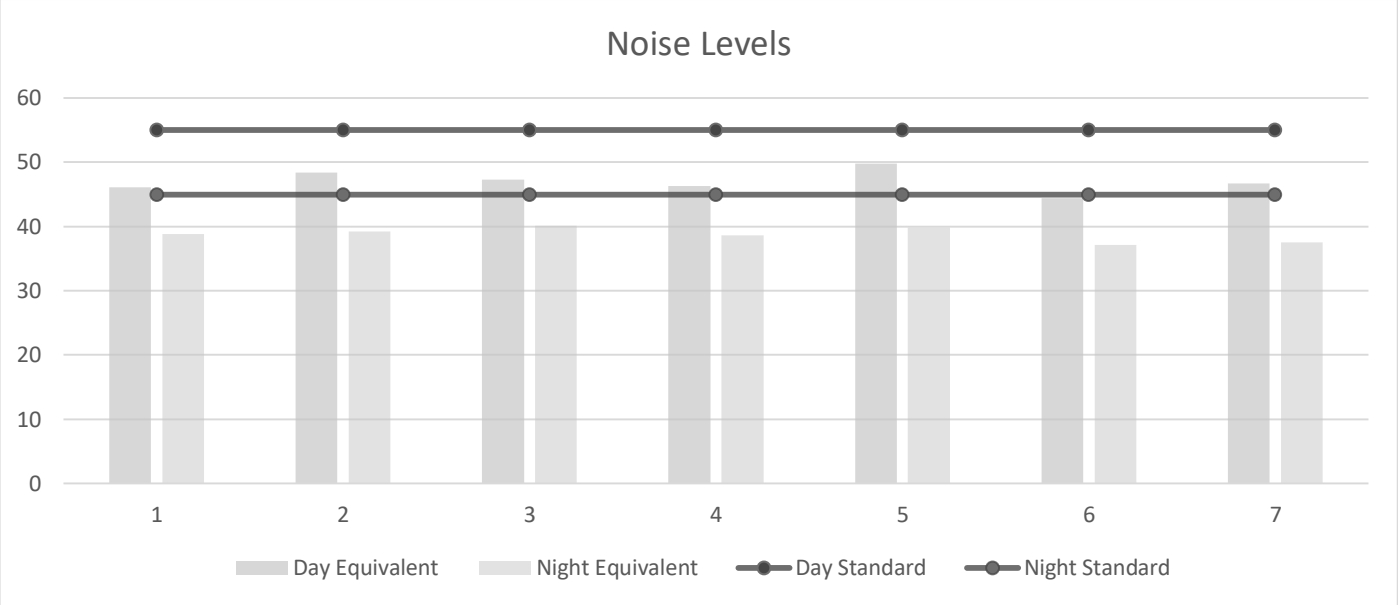
Figure 3-22 ANL Monitoring Photos

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

Day and Night Noise Level (Leq day)

Table 3-14 Day Noise Level (Leq Day)

Noise Levels	N1	N2	N3	N4	N5	N6	N7
Day Equivalent	46.1	48.4	47.3	46.3	49.8	44.4	46.7
Night Equivalent	38.8	39.2	40.1	38.6	39.8	37.1	37.5
Day Standard	55	55	55	55	55	55	55
Night Standard	45	45	45	45	45	45	45



Inference:

Day Noise Level: The maximum value is observed in Thuraiyur. Since the monitoring location is near Pinnathur – Vachanur Road, where the movement of trucks carrying the mined – out mineral will be more. In addition to that, Thuraiyur cricket ground is situated, where public movement will be there in the day-time which is also a contributing factor. Also, there is a temple and few earth mover shops are in the vicinity of the location.

The noise level in the project site is 53.7 dB (A) and the value is within the CPCB standards.

Night Noise Level:

The maximum night noise is observed in Alathurai. This is due to the movement of trains, which adjoins the monitoring location and also since the monitoring location is in the vicinity of various commercial settlements viz Lodge, Temple, travel agencies, where the vehicular traffic will be more even during night time.

The noise level in the Chidambaraperi is 43.9 dB(A) and the value is within the CPCB standards.

3.8.4 Soil Environment

The project area is surrounded by Vachanur, Alathur, Thuraiyur etc which are not prone to erosion. Sheet erosion is the uniform removal of soil in thin layers by the forces of raindrops and overland flow. In few places, slight sheet erosion can be seen. It can be a very effective erosive process because it can cover large areas of sloping land and go unnoticed for quite some time. The saline nature of the soil within 5 km radius is studied. The soil in the area is not affected.

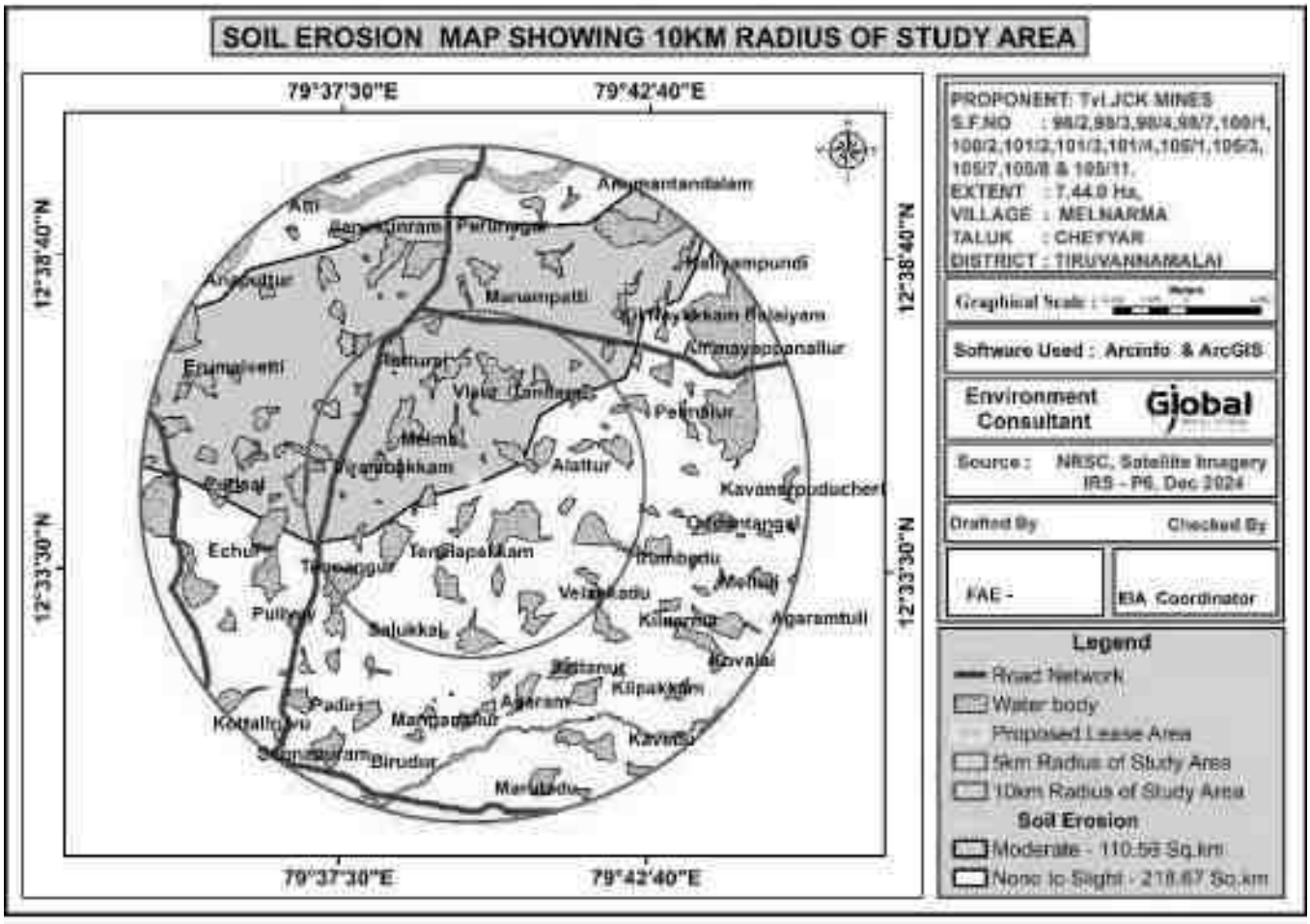


Figure 3-23 Soil Erosion pattern within 10km radius from the project site

Baseline Data

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

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

Table 3-15 Soil Quality Analysis

Environmental Parameters: **Soil Analysis**			
Monitoring Period	October 2024 to December 2024		
Design Criteria	Based on the Environmental settings in the study area		
Monitoring Locations	**Location**	**Distance from ML, km**	**Site Co-ordinates**
	Project Site	-	

	Ayyavadi	1.5	12°35'27.60"N, 79°39'1.99"E
	Alathurai	2.7	12°33'59.33"N, 79°40'52.93"E
	Veerambakkam	4.3	12°34'24.96"N, 79°37'21.38"E
	Thuraiyur	1.2	12°34'24.48"N, 79°39'15.82"E
	Vachanur	1.1	12°35'27.77"N, 79°39'54.58"E
	Alathur	2.0	12°35'3.70"N, 79°40'57.92"E
Methodology	Composite soil samples using sampling augers and field capacity apparatus		
Frequency of Monitoring	Soil samples were collected from 7 locations Once in a season		

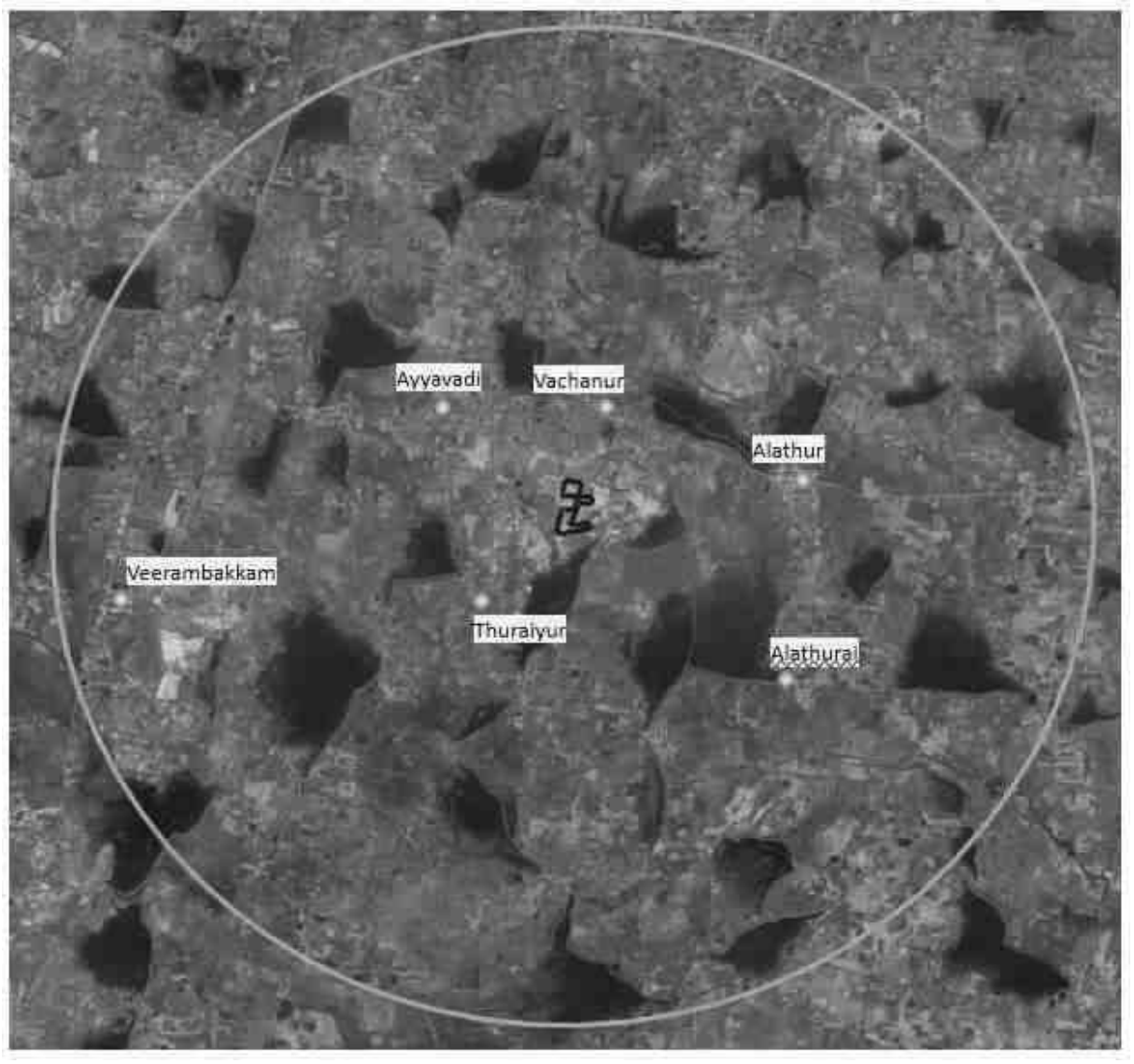


Figure 3-24 Soil Quality Monitoring Locations

Monitoring photos



Figure 3-25 Soil Quality Sampling Photos

To assess the soil quality of the study area, 6 monitoring stations were selected and the results are summarized below

Table 3-16 Soil Quality Analysis

S.No	Parameter	Unit	SQ1	SQ2	SQ3	SQ4	SQ5	SQ6
1	pH at 25 °C	-	7.58	6.9	6.89	6.97	7.02	7.46
2	Electrical Conductivity	µmhos/ cm	68.57	75.42	45.67	56.58	39.87	124.5
3	Dry matter content	%	99.54	92.15	97.64	98.96	96.54	94.58
4	Water Content	%	0.46	7.85	2.36	1.04	3.46	5.42
5	Organic Matter	%	0.48	0.56	0.72	0.79	1.21	0.96
6	Soil texture	-	LOAM	CLAY LOAM	loam	loam	loam	SANDY LOAM
7	Grain Size Distribution i. Sand	%	50.12 28.97	30.65 42.15	48.57 31.64	32.92 45.47	39.87 36.54	65.24 23.72
8	ii. Silt	%	20.91	27.2	19.79	21.61	23.59	11.04
9	iii.Clay	%	1.34	1.25	1.64	1.28	2.12	1.87
10	Phosphorous as P	mg/kg	664	542	420	370	410	462
11	Sodium as Na	mg/kg	345	310	628	586	654	290
12	Potassium as K	mg/kg	178	201	135	172	226	156

13	Nitrogen and Nitregenous Compounds	mg/kg	BDL (D.L.0.02)	BDL (D.L.0.02)	BDL (D.L.0.02)	BDL (D.L.0.02)	BDL (D.L.0.02)	BDL (D.L.0.02)
14	Total Soluble Sulphate	%	7.58	6.9	6.89	6.97	7.02	7.46
15	Porosity	%	68.57	75.42	45.67	56.58	39.87	124.5
16	Water Holding Cabacity	Inches/foot	99.54	92.15	97.64	98.96	96.54	94.58

Physical Properties:

Regular cultivation practices increase the bulk density of soils thus inducing compaction. This results in reduction in water percolation rate and penetration of roots through soils. The soils with low bulk density have favourable physical conditions whereas those with high bulk density exhibit poor physical conditions for agriculture crops. The bulk density of the soil in the study area ranged between 0.99 to 1.36 g/cc. The water holding capacity was found in the range of 92.15 Inches/Foot to 97.64 Inches/Foot

Chemical Properties:

Chemical characteristics of soils include pH, exchangeable cations and fertility status in the form of NPK values and organic matter. The value of the pH is acidic and alkaline and it ranges from 6.89 to 7.58. The organic matter varies from 0.48% to 1.21%, which indicates the soil is slightly fertile.

3.8.5 Ecology and Biodiversity

Ecology and Biodiversity is studied for 10 km radius around the project site. Project site is considered as core zone and from radius of 5 km radius, it is considered as buffer zone.

- Primary field survey is carried out for the assessment of flora and fauna
- In addition to that, Secondary data from Journals/Literature were studied and compiled to understand the species present

Survey Purpose and Approach:

The basic purpose is to explore the biological environment under Environment Impact Assessment (EIA) and to assist in the decision-making process and to ensure that the project options under consideration are bio-environmentally friendly. EIA identifies ways of improving project environmentally by preventing, minimizing, mitigating or compensating for adverse impacts before construction and development phase. The present study on the floral & faunal assessment of the proposed project is based on field survey of the area supported by secondary data from various governmental and non-governmental sources.

Objectives of the Study:

The objectives of this study were as follows:

- To conduct detail study for floral/faunal/avifaunal elements in the Study area.
- To assess scheduled species in the Study area (Rare, endangered, critically endangered, endemic and vulnerable).
- Baseline data for the study area along with a description of the existing terrestrial, wetland and aquatic vegetation.
- To identify impact of project on the biological environment, this will be discussed under Chapter 4.

Field Study and Methodology adopted

To assess the suitability of the methodology, random field survey was done. Field survey was conducted around 5 km radius from the project site and five locations were chosen based on the species density. Quadrat method is chosen for the proposed study as compared to other sampling methods, because they are relatively simple to use. Quadrat plots are uniform in size and shape and distributed randomly throughout the sample area, which makes the study design straightforward. They are also one of the most affordable techniques because they require very few materials.

Monitoring Locations

Table 3-17 Ecology & Biodiversity – Monitoring Locations

S. No	Location	Latitude	Longitude	No. of Quadrates		
				Trees (10mx10m)	Shrubs (5mx5m)	Herbs and grasses (1mx1m)
1.	Project Site					
2.	Ayyavadi	12°35'27.60"N,	12°35'27.60"N,	1	4	5
3.	Alathurai	12°33'59.33"N,	12°33'59.33"N,	1	4	5
4.	Veerambakkam	12°34'24.96"N,	12°34'24.96"N,	1	4	5
5.	Thuraiyur	12°34'24.48"N,	12°34'24.48"N,	1	4	5

Study outcome:

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

Sample plots were selected in such a way to get maximum representation of different types of vegetation and plots were laid out in different part of the study area of 5 km radius. Analysis of the vegetation will help in determining the relative importance of each species in the study area and to reveal if any economically valuable species is threatened in the process.

Calculation of Density, Frequency (%), Dominance, Relative Density, Relative Frequency, Relative Dominance & Important Value Index:

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

The details of trees, herbs and shrubs along with the Phytosociological parameters for the study area is shown below:

Table 3-18 Tree Species in the core zone

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Dominance	Relative Density	Relative Frequency	Relative Dominance	IVI
1	Pterocarpus santalinus	Senjantanam	2	2	6	0.33	33.33	1	0.28	1.74	2.20	4.45	8.39
2	Cocos nucifera	Thennai	2	2	6	0.33	33.33	1	0.07	1.74	2.20	1.11	5.05
3	Artocarpus heterophyllus	Palaa	4	4	6	0.67	66.67	1	0.28	3.48	4.40	4.45	12.33
4	Bombax ceiba	Sittan	4	4	6	0.67	66.67	1	0.50	3.48	4.40	7.92	15.79
5	Azadirachta indica	Veppam	1	1	6	0.17	16.67	1	0.15	0.87	1.10	2.29	4.26
6	Pterocarpus santalinus	Senjantanam	2	2	6	0.33	33.33	1	0.27	1.74	2.20	4.31	8.24
7	Butea monosperma	Parasa	3	3	6	0.50	50.00	1	0.23	2.61	3.30	3.61	9.51
8	Aegle marmelos	Vilvam	1	1	6	0.17	16.67	1	0.16	0.87	1.10	2.50	4.47
9	Causuarina equisetifolia	Savukku	10	5	6	1.67	83.33	2	0.13	8.70	5.49	1.98	16.17
10	Ficus Carica	Athi Maram	1	1	6	0.17	16.67	1	0.20	0.87	1.10	3.22	5.19
11	Cassia siamea	Manjal Konrai	12	6	6	2.00	100.00	2.00	0.15	10.43	6.59	2.39	19.42
12	Acacia nilotica	Karuvelai	2	2	6	0.33	33.33	1	0.18	1.74	2.20	2.85	6.79
13	Bambusa vulgaris	Moongil	4	4	6	0.67	66.67	1	0.08	3.48	4.40	1.27	9.14
14	Anacardium occidentale	Cashew	1	1	6	0.33	16.67	2	0.21	1.74	1.10	3.34	6.18
15	Delonix regia	Cemmayir-Konrai	1	1	6	0.17	16.67	1	0.21	0.87	1.10	3.34	5.31
16	Delonix elata	Perungondrai	5	1	6	0.83	16.67	5	0.17	4.35	1.10	2.62	8.06
17	Dalbergia sissoo	Shisham	2	2	6	0.33	33.33	1	0.44	1.74	2.20	6.96	10.89
18	Ficus benghalensis	Alai	2	2	6	0.33	33.33	1	0.08	1.74	2.20	1.19	5.13
19	Annona squamosa	Sitapalam	4	1	6	0.67	16.67	4	0.23	3.48	1.10	3.61	8.18
20	Carica papaya	Papaya	1	1	6	0.17	16.67	1	0.14	0.87	1.10	2.18	4.15
21	Ficus religiosa	Arasa maram	3	3	6	0.50	50.00	1	0.09	2.61	3.30	1.35	7.25
22	Polyalthia longifolia	Nettilinkam	5	3	6	0.83	50.00	1.67	0.14	4.35	3.30	2.18	9.83

23	Musa paradise	Vaazhai	3	3	6	0.50	50.00	1	0.08	2.61	3.30	1.19	7.09
24	Prosopis juliflora	Vaelikaruvai	3	3	6	0.50	50.00	1	0.21	2.61	3.30	3.34	9.25
25	Mangifera indica	Mamaram	8	6	6	1.33	100.00	1.333333	0.07	6.96	6.59	1.11	14.66
26	Terminalia catappa	Nattuvadamai	2	2	6	0.33	33.33	1	0.18	1.74	2.20	2.85	6.79
27	Morinda pubescens	Nuna	6	6	6	1.00	100.00	1	0.24	5.22	6.59	3.74	15.55
28	Thespesia populnea	Poovarasam	3	3	6	0.50	50.00	1	0.15	2.61	3.30	2.39	8.30
29	Tectona grandis	Thekku	3	3	6	0.50	50.00	1	0.12	2.61	3.30	1.88	7.79
30	Tamarindus indica	Puli	8	6	6	1.33	100.00	1.333333	0.20	6.96	6.59	3.09	16.64
31	Syzygium cumini	naval	1	1	6	0.17	16.67	1	0.11	0.87	1.10	1.79	3.75
32	Psidium guajava	Segapu	2	3	6	0.33	50.00	0.666667	0.09	1.74	3.30	1.43	6.47
33	Borassus flabelliformis	Panna maram	1	1	6	0.17	16.67	1	0.28	0.87	1.10	4.45	6.42
34	Citrus medica	Elumichai	2	2	6	0.33	33.33	1	0.23	1.74	2.20	3.61	7.54
	Total		**115**	**91**					**6.35**				

Table 3-19 Shrubs in the study area

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Relative Density	Relative Frequency	IUCN Conservation Status
1	Jatropagossypifolia	Kaatamanaku	28	17	24	1.17	0.71	1.65	14.43	17.17	Not Assessed
2	Lantana trifolia	Shrub verbana	10	3	24	0.42	0.13	3.33	5.15	3.03	Not Assessed
3	Robiniapseudoacacia	Black locust	17	5	24	0.71	0.21	3.4	8.76	5.05	Least Concern
4	Lantana camara	Unnichedi	9	6	24	0.38	0.25	1.5	4.64	6.06	Not Assessed
5	Calotropis gigantea	Erukam	14	12	24	0.58	0.50	1.17	7.22	12.12	Not Assessed
6	Stachytarpheaurticifolia	Rat tail	15	9	24	0.63	0.38	1.67	7.73	9.09	Not Assessed
7	Datura metal	Ummattangani	5	4	24	0.21	0.17	1.25	2.58	4.04	Not Assessed

8	Hibiscus rosa sinensis	Sembaruthi	3	2	24	0.13	0.08	1.5	1.55	2.02	Not Assessed
9	Tabernaemontanadivaricata	Crepe Jasmine	3	3	24	0.13	0.13	1	1.55	3.03	Not Assessed
10	Chloromolaena odorata	Venapacha	9	6	24	0.38	0.25	1.5	4.64	6.06	Least Concern
11	Euphorbia geniculata	Amman Pacharisi	3	3	24	0.13	0.13	1	1.55	3.03	Not Assessed
12	Catharanthus roseus	Nithyakalyani	3	3	24	0.13	0.13	1	1.55	3.03	Not Assessed
13	Woodfordiafruiticosa	Velakkai	3	3	24	0.13	0.13	1	1.55	3.03	Least Concern
14	Morindapubescens	Mannanunai	2	2	24	0.08	0.08	1	1.03	2.02	Not Assessed
15	Acalypha indica	Kuppaimeni	20	8	24	0.83	0.33	2.5	10.31	8.08	Not Assessed
16	Parthenium hysterophorous	Vishapoondu	50	13	24	2.08	0.54	3.85	25.77	13.13	Not Assessed

Table 3-20 Herbs & Grasses in the core zone

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Relative Density	Relative Frequency	IUCN Conservation status
1	Plumbago zeylanica	Chittiramoolam	3	3	30	0.10	0.10	1	1.19	3.23	Not assessed
2	Mimosa pudica	Thottacherungi	6	5	30	0.20	0.17	1.2	2.38	5.38	Least concern
3	Sida acuta	Malaidangi	10	3	30	0.33	0.10	3.33	3.97	3.23	Not assessed
4	Scrophularia nodosa	Sarakkothini	15	7	30	0.50	0.23	2.14	5.95	7.53	Not assessed
5	Helicteresisora	Valampuri	2	2	30	0.07	0.07	1	0.79	2.15	Not assessed
6	Cynodondactylon	Arugu	12	6	30	0.40	0.20	2	4.76	6.45	Not assessed
7	Sporobolus fertilis	Giant Parramatta Grass	9	4	30	0.30	0.13	2.25	3.57	4.30	Not assessed

8	Viburnum dentatum	Viburnum	5	5	30	0.17	0.17	1	1.98	5.38	Least concern
9	Heraculem spondylium	Hog Weed	20	10	30	0.67	0.33	2	7.94	10.75	Not assessed
10	Laportea canadensis	Peruganchori	30	20	30	1.00	0.67	1.5	11.90	21.51	Not assessed
11	Euphorbia hirta	Amman Pacharisi	5	4	30	0.17	0.13	1.25	1.98	4.30	Not assessed
12	Tridax procumbens	Vettukaayathalai	5	4	30	0.17	0.13	1.25	1.98	4.30	
13	Tephrosia purpurea	Kavali	20	4	30	0.67	0.13	5	7.94	4.30	
14	Sida cordifolia	Maanikham	45	4	30	1.50	0.13	11.25	17.86	4.30	
15	Tridax procumbens	Cuminipachai	15	4	30	0.50	0.13	3.75	5.95	4.30	
16	Ruelliastrepens	Grandinayagam	25	4	30	0.83	0.13	6.25	9.92	4.30	
17	Senna occidentalis	Nattamsakarai	25	4	30	0.83	0.13	6.25	9.92	4.30	

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

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

Table 3-21 Biodiversity Indices

Description	Formula
Species diversity – Shannon – Wiener Index	$H=\Sigma[(p_i)*\ln(p_i)]$ Where p_i : Proportion of total sample represented by species i:number of individuals of species i/ total number of samples

Evenness	H/H_{max} H_{max} = ln(s)= maximum diversity possible S=No. of species
Species Richness by Margalef	RI = S-1/ln N Where S = Total Number of species in the community N = Total Number of individuals of all species in the community

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

Table 3-22 Species Diversity for trees

Scientific Name	Common Name	No. of Species	Pi	ln (Pi)	Pi x ln (Pi)
Ficus carica	Athi maram	2	0.017857	-4.02535	-0.07188
Cassia siamea	ManjalKonrai	2	0.017857	-4.02535	-0.07188
Acacia nilotica	Karuvelai	4	0.035714	-3.3322	-0.11901
Bambusa vulgaris	Moongil	4	0.035714	-3.3322	-0.11901
Anacardium occidentale	Cashew	2	0.017857	-4.02535	-0.07188
Alstoniascholaris	Elilaipalai	2	0.017857	-4.02535	-0.07188
Butea monosperma	Parasa	3	0.026786	-3.61989	-0.09696
Aegle marmelos	Vilvam	1	0.008929	-4.7185	-0.04213
Causuarinaequisetifolia	Savukku	2	0.017857	-4.02535	-0.07188
Albizia amara	Wunja	1	0.008929	-4.7185	-0.04213
Cocos nucifera	Thennai	15	0.133929	-2.01045	-0.26926
Artocarpus heterophyllus	Palaa	2	0.017857	-4.02535	-0.07188
Bombax ceiba	Sittan	4	0.035714	-3.3322	-0.11901
Azadirachta indica	Veppam	10	0.089286	-2.41591	-0.21571
Delonix regia	Cemmayir-Konrai	1	0.008929	-4.7185	-0.04213
Delonixelata	Perungondrai	1	0.008929	-4.7185	-0.04213
Dalbergia sissoo	Shisham	1	0.008929	-4.7185	-0.04213
Ficus benghalensis	Alai	2	0.017857	-4.02535	-0.07188
Annona squamosa	Sitapalam	1	0.008929	-4.7185	-0.04213
Citrullus colocynthis	Kumatti	1	0.008929	-4.7185	-0.04213
Ficus religiosa	Arasamaram	3	0.026786	-3.61989	-0.09696
Polyalthia longifolia	Nettilinkam	5	0.044643	-3.10906	-0.1388
Musa paradise	Vaazhai	3	0.026786	-3.61989	-0.09696
Prosopis juliflora	Vaelikaruvai	3	0.026786	-3.61989	-0.09696
Mangifera indica	Mamaram	8	0.071429	-2.63906	-0.1885
Terminalia catappa	Nattuvadamai	2	0.017857	-4.02535	-0.07188
Morindapubescens	Nuna	6	0.053571	-2.92674	-0.15679
Thespesia populnea	Poovarasam	3	0.026786	-3.61989	-0.09696
Tectona grandis	Thekku	3	0.026786	-3.61989	-0.09696
Tamarindus indica	Puli	8	0.071429	-2.63906	-0.1885
Syzygiumcumini	naval	1	0.008929	-4.7185	-0.04213

Psidium guajava	Segapu	3	0.026786	-3.61989	-0.09696
Ziziphus mauritiana	Elandai	1	0.008929	-4.7185	-0.04213
Citrus medica	Elumichai	2	0.017857	-4.02535	-0.07188
Total		112			-3.22

H (Shannon Diversity Index) =3.22

Table 3-23 Species Diversity for Shrubs

Scientific Name	Common Name	No. of Species	Pi	ln (Pi)	Pi x ln (Pi)
Jatropagossypifolia	Kaatamanaku	28	0.14433	-1.93565	-0.27937
Lantana trifolia	Shrub verbana	10	0.051546	-2.96527	-0.15285
Robiniapseudoacacia	Black locust	17	0.087629	-2.43464	-0.21335
Lantana camara	Unnichedi	9	0.046392	-3.07063	-0.14245
Calotropis gigantea	Erukam	14	0.072165	-2.6288	-0.18971
Stachytarpheaurticifolia	Rat tail	15	0.07732	-2.55981	-0.19792
Datura metal	Ummattangani	5	0.025773	-3.65842	-0.09429
Hibiscus rosa sinensis	Sembaruthi	3	0.015464	-4.16925	-0.06447
Tabernaemontanadivaricata	Crepe Jasmine	3	0.015464	-4.16925	-0.06447
Chloromolaena odorata	Venapacha	9	0.046392	-3.07063	-0.14245
Euphorbia geniculata	Amman Pacharisi	3	0.015464	-4.16925	-0.06447
Catharanthus roseus	Nithyakalyani	3	0.015464	-4.16925	-0.06447
Woodfordiafruiticosa	Velakkai	3	0.015464	-4.16925	-0.06447
Morindapubescens	Mannanunai	2	0.010309	-4.57471	-0.04716
Acalypha indica	Kuppaimeni	20	0.103093	-2.27213	-0.23424
Parthenium hysterophorous	Vishapoondu	50	0.257732	-1.35584	-0.34944
		194			-2.3656

H (Shannon Diversity Index) =2.36

Table 3-24 Species Diversity for Herbs

Scientific Name	Common Name	No. of Species	Pi	ln (Pi)	Pi x ln (Pi)
Plumbago zeylanica	Chittiramoolam	3	0.011905	-4.43082	-0.05275
Mimosa pudica	Thottacherungi	6	0.02381	-3.73767	-0.08899
Sida acuta	Malaidangi	10	0.039683	-3.22684	-0.12805
Scrophularia nodosa	Sarakkothini	15	0.059524	-2.82138	-0.16794
Helicteresisora	Valampuri	2	0.007937	-4.83628	-0.03838
Cynodondactylon	Arugu	12	0.047619	-3.04452	-0.14498
Sporobolus fertilis	Giant Parramatta Grass	9	0.035714	-3.3322	-0.11901
Viburnum dentatum	Viburnum	5	0.019841	-3.91999	-0.07778

Heraculem spondylium	Hog Weed	20	0.079365	-2.5337	-0.20109
Laportea canadensis	Peruganchori	30	0.119048	-2.12823	-0.25336
Euphorbia hirta	Amman Pacharisi	5	0.019841	-3.91999	-0.07778
Tridax procumbens	Vettukaayathalai	5	0.019841	-3.91999	-0.07778
Tephrosia purpurea	Kavali	20	0.079365	-2.5337	-0.20109
Sida cordifolia	Maanikham	45	0.178571	-1.72277	-0.30764
Tridax procumbens	Cuminipachai	15	0.059524	-2.82138	-0.16794
Ruelliastrepens	Grandinayagam	25	0.099206	-2.31055	-0.22922
Senna occidentalis	Nattamsakarai	25	0.099206	-2.31055	-0.22922
		252			-2.56298

H (Shannon Diversity Index) =2.56

Table 3-25 Evenness and Species Richness by Margalef

Details	H	Hmax	Evenness	Species Richness (Margalef)
Trees	3.22	3.5	0.9	7
Shrubs	2.36	2.77	0.85	2.84
Herbs	2.56	2.83	0.9	2.89

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

Frequency Pattern

To understand the frequency pattern, the observed frequency is compared with the Raunkiaer's frequency. Any deviation from Raunkiaer's frequency implies disturbed community.

Classes of species in a community and normal value of class according to Raunkiaer

Class	Frequency (%)	Normal Value in the class
A	1-20	53
B	21-40	14

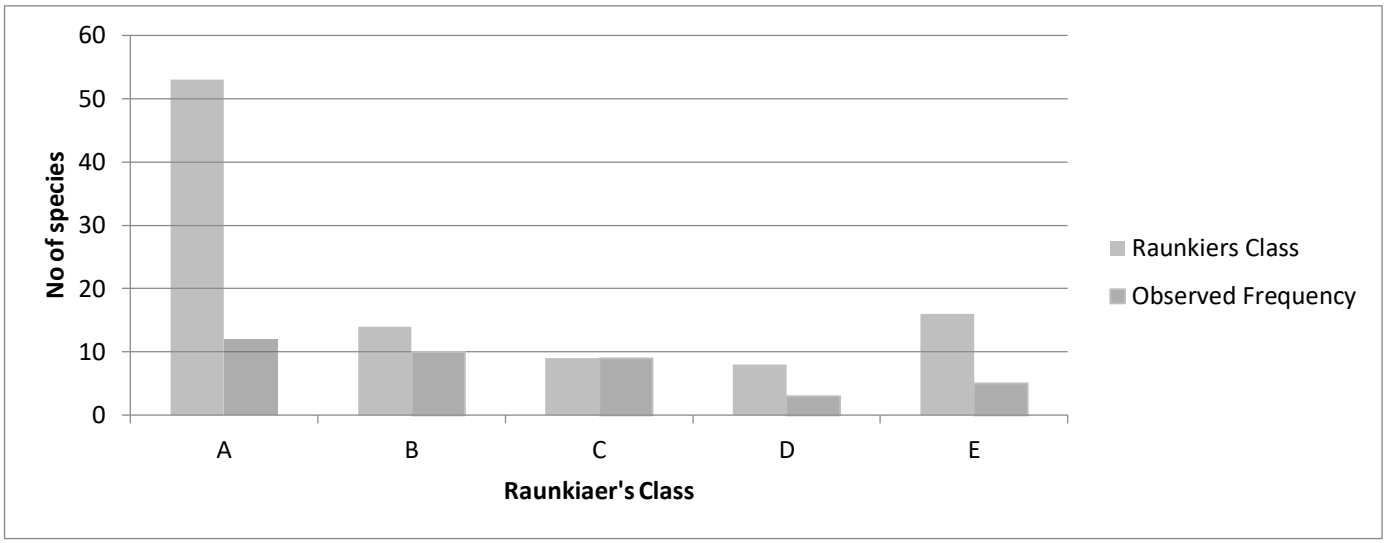
C	41-60	9
D	61-80	8
E	81-100	16

Where A>B>C>=<D<E

Raunkiaer's class for the observed species

S. No.	Scientific Name	Local Name	Frequency (%)	Class as per Raunkiaer's Law
1.	Ficus carica	Athi maram	33.33	B
2.	Cassia siamea	ManjalKonrai	33.33	B
3.	Acacia nilotica	Karuvelai	66.67	D
4.	Bambusa vulgaris	Moongil	66.67	D
5.	Anacardium occidentale	Cashew	33.33	B
6.	Alstoniascholaris	Elilaipalai	33.33	B
7.	Butea monosperma	Parasa	50.00	C
8.	Aegle marmelos	Vilvam	16.67	A
9.	Causuarinaequisetifolia	Savukku	33.33	B
10.	Albizia amara	Wunja	16.67	A
11.	Cocos nucifera	Thennai	100	E
12.	Artocarpus heterophyllus	Palaa	33.33	B
13.	Bombax ceiba	Sittan	66.67	D
14.	Azadirachta indica	Veppam	100	E
15.	Delonix regia	Cemmayir-Konrai	16.67	A
16.	Delonixelata	Perungondrai	16.67	A
17.	Dalbergia sissoo	Shisham	16.67	A
18.	Ficus benghalensis	Alai	33.33	B
19.	Annona squamosa	Sitapalam	16.67	A
20.	Citrullus colocynthis	Kumatti	16.67	A
21.	Ficus religiosa	Arasamaram	50.00	C
22.	Polyalthia longifolia	Nettilinkam	50.00	C
23.	Musa paradise	Vaazhai	50.00	C
24.	Prosopis juliflora	Vaelikaruvai	50.00	C
25.	Mangifera indica	Mamaram	100	E
26.	Terminalia catappa	Nattuvadamai	33.33	B

27.	Morindapubescens	Nuna	100	E
28.	Thespesia populnea	Poovarasam	50.00	C
29.	Tectona grandis	Thekku	50.00	C
30.	Tamarindus indica	Puli	100	E
31.	Syzygiumcumini	naval	16.67	A
32.	Psidium guajava	Segapu	50.00	C
33.	Ziziphus mauritiana	Elandai	16.67	A
34.	Citrus medica	Elumichai	33.33	B



Interpretation: The observed frequency is A>B>C<D>E, which follows Raunkiaer's Distribution Frequency and hence the ecology is undisturbed.

Floral study in the Buffer Zone:

Economically important Flora of the study area

Agricultural crops: Paddy, Maize are the main crop grown. Different fruits like Banana, papaya, mangoes, guava and vegetables like brinjal, drumsticks, onion, Coriander also grown by the local people.

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

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

Faunal Communities

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

- Point Survey Method: Observations were made in each site for 15 minutes duration.
- Road Side Counts: The observer traveled by motor vehicles from site to site, all sightings were recorded (this was done both in the day and night time). An index of abundance of each species was also established.
- Pellet and Track Counts: All possible animal tracks and pellets were identified and recorded (South Wood, 1978).

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

Methodology Adopted:

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

Study in the core zone:

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

Study in the core Zone

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

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

Table 3-26 List of faunal Species

Scientific Name	Common Name	Schedule of wild life protection act	IUCN conservation status
Mammals			
Funambulus pennanti	Palm Squirrel	IV	Least Concern
Mus rattus	Indian rat	IV	Not listed
Funambulus palmarum	Three stripped palm squirrel	IV	Least Concern
Herestes edwardsii	Common Mangoose	IV	Not listed
Mus musculus	Common Mouse	IV	Least Concern
Bandicota indica	Rat	IV	Least Concern
Lepus nigricollis	Indian Hare	IV	Least Concern

Felis catus	Cat	Not listed	Not listed
Canis lupus familiaris	Indian dog	Not listed	Not listed
Bos Indicus	Indian Cow	Not listed	Not listed
Bubalus bubalis	Buffalo	I	Not listed
Sus scrofa domesticus	Domestic pig	Not listed	Not listed
Birds			
Milvus migrans	Black kite	IV	Least concern
Saxicoloides fulicatus	Indian Robin	IV	Least concern
Phragamaticola aedon	Thick billed warbler	IV	Least concern
Pericrocotus cinnamomeus	Small Minivet	IV	Least concern
pseudibis papillosa	Black Ibis	IV	Least concern
Ergetta garzetta	Little Erget	IV	Least concern
Psittacula krameni	Rose ringed parakeet	IV	Least concern
Bubulcus ibis	Cattle Erget	IV	Least concern
Dicrurus marcocercus	Black drongo	IV	Least concern
Streptopelia chinensis	Spotted dove	IV	Least concern
Columba livia	Rock pigeon	IV	Least concern
Corvus splendens	House crow	IV	Least concern
Cypsirurus balasiensis	Asian palm swift	IV	Least concern
Ardeola grayii	Pond heron	IV	Least concern
Elanus caeruleus	Black-winged kite	IV	Least concern
Alcedo atthis	Small blue kingfisher	IV	Least concern
Cuculus canorus	Common Cukoo	IV	Least concern
Centropus sinensis	Greater coucal	IV	Least concern
Passer domesticus	House sparrow	IV	Least concern
Reptiles & Amphibians			
Chameleon zeylanicum	Chameleon	IV	Not listed
Calotes versicolor	Common garden lizard	II	Not listed
Bungarus caeruleus	Common krait	IV	Not listed
Ophisops leschenaultia	Snake eyed lizard	--	Not listed
Bufo melanostictus	Toad	IV	Least concern
Ptyas mucosa	Rat snakes	IV	Least concern
Hemidactylus sp.	House lizard	--	Not listed
Butterflies			
Danaus chrysippus	Plain Tiger	--	Not listed
Papilio demoleus	Common lime	--	Not listed

Euploea core	Common crow	--	Least concern
Danaus genutia	Common tiger	--	Not listed
Eurema brigitta	Small grass yellow	--	Least concern

3.9 Demography and Socio-Economics

The demography survey study is done within 10km from the project site. The population, Household, Sex ratio, Literacy rate, SC, ST details for all the villages in the study area is listed below,

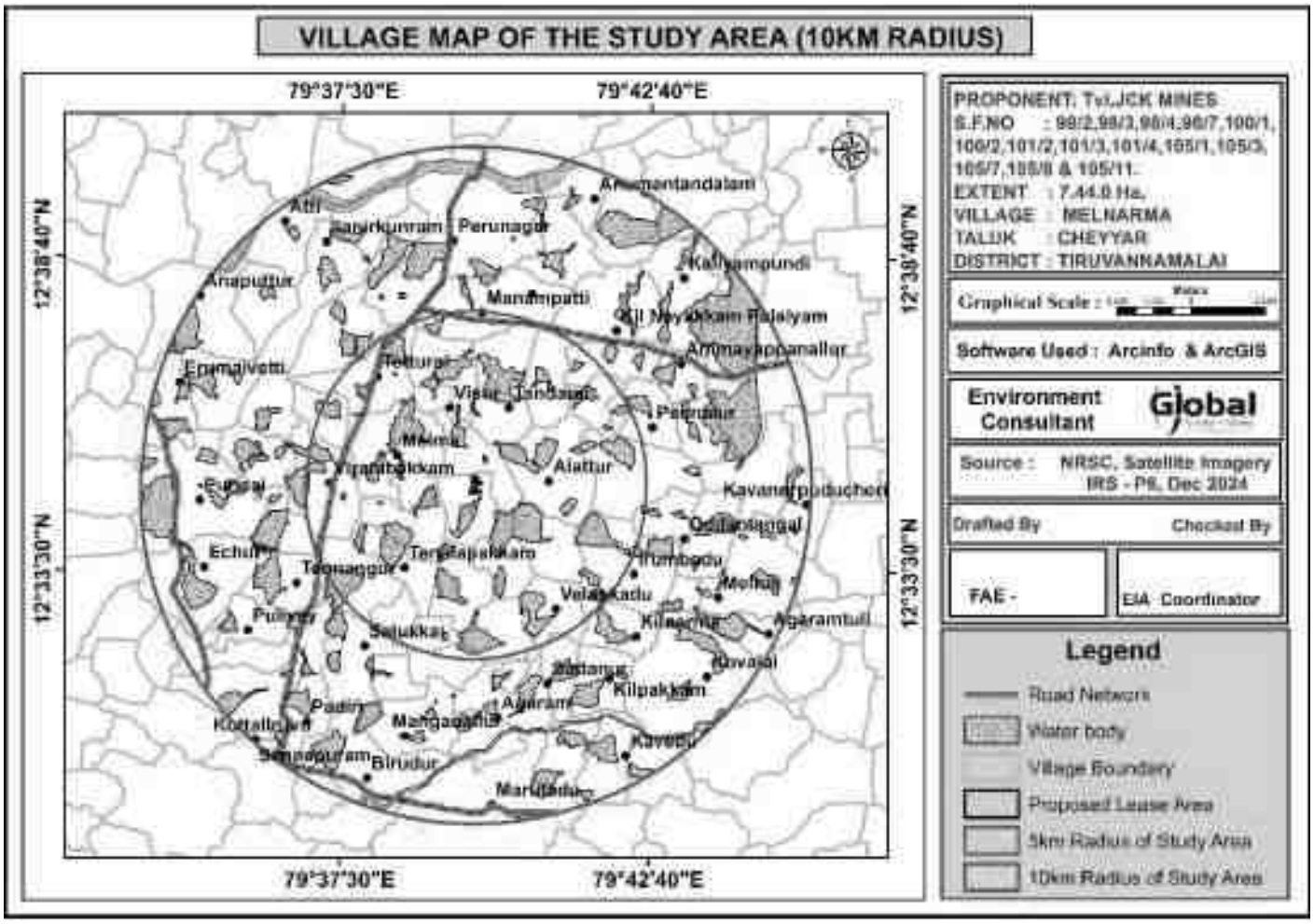


Figure 3-26 Villages around 10 km of the project site

Table 3-27 Demographic Profile – Study area

Sl.No.	Name of the Block	Census Town				Municipality			
			Total	Male	Female	Municipality	Total	Male	Female
1	Tiruvannamalai	Vengikkal	18244	9278	8966	Tiruvannamalai	145278	72406	72872
2	Arni	Sevur	10299	5213	5086	Arni	63671	31268	32403
		S.V.Nagaram	5894	2946	2948	Cheyyar	37802	18773	19029
		Paiyur	7555	3723	3832	Vandawasi	31320	15566	15754
3	West Arni	Mullipattu	4956	2537	2419	Total	278071	138013	140058
		Devikapuram	9800	4926	4874				
4	Cheyyar	Kilpupakkam	6912	3466	3446				
		Dusi	5577	2811	2766				
	District Total	Census Town	69237	34900	34337				

Source: Census of India, 2011

The Population of the district was 24,64,875 comprising 1235889 Men and 1228986 women as per 2011 census. The urban population is 494945 constituting 20 % of the total Population, the remaining 80% ie.1969930 is rural population. The density of population per sq.km was 398 persons in the 2011 census. The total literate among male are 909803 and that of female are 717010

TIRUVANNAMALAI DISTRICT PROFILE -2023-24			
Table No.	**GEOGRAPHICAL POSITION**		
1	1.North Latitude Between		Between 11.55 and 13.15'
	2.East Longitude Between		Between 78.20 and 79.50'
2	**AREA AND POPULATION**		
	1.Area in Square Kms		6188
	2.Total Population (As Per2011 Census)	2468875	
		a) Male	1235889
		b) Female	1228986
		c) Rural	1969930
		d) Urban	498945
	3.Density / Sq. Km		398
	4.Literate		
		a) Male (%)	83.11
		b) Female (%)	65.32
	5.Main workers (As Per 2011 Census) 970972		
		a) Total workers	1238137
		b) Male workers	738995
		c) Female workers	499182
		d) Rural workers	1048646
		e) Urban workers	189531
		f) Cultivators	265185
		g) Agricultural laborers	351310
		h) Household Industry	37020
		i) Other workers	316559
	j) Marginal workers		268105
	6.Non Workers		1229698
	7.Language spoken in the District		Tamil
3	**VITAL STATISTICS**		
	1.Birth		11.4
	2.Death		5.6
	3.Infant Death (%)		9.9
	4.Birth Rate (Per 1000 Population)		
	a) Rural		11.9
	b) Urban		8.0
	c) Combined		11.4
	5.Death Rate (Per 1000 Population)		
	a) Rural		5.6
	b) Urban		4.7
	c) Combined		5.0
	6.Infant Mortality Rate (Per 1000 Population)		
	a) Rural		10.4
	b) Urban		5.2
	c) Combined		9.9
	7.Expectation of Life at Birth		
	a) Male		-
	b) Female		-
	8.No.Of Deaths of Women due to problems related to child birth		
	a) At the time of delivery		0
	b) During Pregnancy		4
	c) After Child birth (within 42 days)		8
	d) Abortion		3

Source: District Statistical Handbook 2023-2024

Socio-economic survey methodology

Purposive sampling methods were used for selecting respondents (male and female) for household survey. For official information of village, Gram Panchyat member has been chosen. Structured questionnaire was used for survey. For group discussion, Panchyat bhavan, Aanganwadi bhavan, community halls were used. Out of total 40 villages, 5 villages

(13%) were surveyed for which selection criteria is based on proximity to the project site and area with dense and scarce populations were chosen. The chosen villages for the study include: **Vachanur, Alathurai, Thiraiyur, Ayyavadi and Veerambakkam.**

Table 3-28 Consolidated Report – Key Socio-Economic Indicator in the study area

S. No	Indicator	Percentage/Nos.
1	People below age 18	28
2	People age limit above 18	75
3	Literates	90
4	Illiterates	15
5	% of people employed in company	45
6	% of people self employed	32
7	% of people seasonally employed	4
8	% of people unemployed	12
9	% of houses covered with LPG Cooking gas	92
10	% of houses covered with toilet facility	85
11	% of houses covered with piped water supply	59

Salient Features in the study area

House pattern: It is notable that nearly 98% of the houses were pakka at survey area.

Employment: Main occupation of the people in the study area was agriculture

Fuel: All the households use LPG for cooking purpose

Main Crops: The cash crops include cotton, sugarcane, oilseeds, coffee, tea, rubber, coconut, gingelly and chillies. The important horticultural products are bananas and mangoes.

Migration: During survey, it was found that local population were migrating for employment purpose. Since due to the presence of various industrial units, migration from other places were also noted.

Sanitation: All the households were having toilet facilities in their houses. Drainage system was maintained in the study area.

Drinking Water Facilities: Ground water is the major source of drinking water in the villages wherein hand pumps, tap water and dug wells are installed.

Transportation Facility: For transportation purpose Auto, Public and Private Bus services

were available. Transportation facilities were frequently available in the study area and connecting major cities. Private vehicles like Bicycles & Motor Cycles were mostly used by villagers for transportation purpose

4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 Introduction

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

4.2 Environmental Impacts

Environmental Impacts can be group into Primary impacts & Secondary Impacts

Primary Impacts: These impacts are directly attributed by the project

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

Assessment of impacts is done for the following Environmental Parameters:

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

Table 4-1 Impact & Mitigation measures on Land Environment

<table>
<tr><th>Aspect</th><th>Impact</th><th>Mitigation Measures</th></tr>
<tr><td>Quarrying operation</td><td>The proposed 7.44.00 Ha mine is quarrying of 8,68,060m3 of rough stone 1,00,452m3 of Gravel formation. The quarry operation is proposed to carry out with Opencast, Semi-mechanized Mining with a bench height of 5m and bench width of 5m is proposed. At the end of 5 years, mining lease area will be converted into ultimate pit of
<table>
<tr><th>Pit No.</th><th>Length (m)</th><th>Width (m)</th><th>Depth (m)</th></tr>
<tr><td>I</td><td>140</td><td>130</td><td>57</td></tr>
<tr><td>II</td><td>128</td><td>52</td><td>22</td></tr>
<tr><td>III</td><td>249</td><td>99</td><td>47</td></tr>
</table>
This may lead to soil erosion, degradation & resource loss

The main impact of open cast mining on land-use is land degradation. The land is bound to be excavated for mining of Rough Stone and Gravel Quarry.</td><td>The proposed project site is not prone to any kind of soil erosion. In addition, garland drainage of 1m x 1m will be provided to avoid storm water run- off.

It is proposed to plant 4000 Nos. of local tree species (Neem, Magizham, Tamarind, Elandhai and Vilvam) along the roads, outer periphery of the mining area which enhances the binding property of the soil. It is proposed to improve the affected land wherever possible for better land use, so as to support vegetation and creation of water reservoir in the ultimate pit after quarrying

The overburden in the form of Gravel, after the excavation gravel will be directly loaded into tipper to the needy buyers for road project and construction works for filling and leveling of low-lying areas.</td></tr>
</table>

	Impact on soil of the study area will be minimal as there is no wastewater generated, heavy metal infusion, stack emissions. Impact due to transformation of terrain characteristics over the large area results in soil degradation. Solid waste will be generated from the mining activity as there will be refuse also generation of domestic waste. If it not properly managed, may cause odor and health problem to the workers.	The source of dust generation is majorly due to drilling, blasting, loading & unloading of the mined-out mineral, the impact will be mitigated by water sprinkling regularly once in 3hrs. The proposed mining activity is carried out in almost hilly terrain where the contour level difference is 9m. The 100% recovery is achieved by extracting the entire mineable reserve. Hence there will be no refuse generation due to the mining activity. Apart from that, a very meagre quantity of domestic waste will be generated in the project, which will be handed over to the local body on daily basis.

Table 4-2 Impact & Mitigation measures on water environment

Aspect	Impact	Mitigation Measures
Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.	The mining in the area may cause ground water contamination due to intersection of the water table and mine runoff.	The water table will not be intersected during mining, as the ultimate depth is limited up to 57-meter BGL, whereas the ground water table is at 68m below the ground level. The municipal wastewater will be disposed into septic tanks followed by soak pit. No chemicals consisting of toxic elements will be used for carrying out mining activity.

		For the management of surface run-off, rain water harvesting plan will be proposed. The total harvested rainfall is 26,548 Cum [(7.44.00 Ha x 0.98 x 0.35) + (0.3 Ha x 0.98 x 0.35)]. 10% will be evaporated and the remaining 23,893 Cum. will be harvested in two sumps each of capacity 12,000 Cu.m
	The ground water depletion may occur due to mining activity	The ground water table is at a depth of 68m the mining operation will not affect the aquifer. The ultimate pit at the end of the mining operation will be used for rain water storage, the stored water will be used for greenbelt development and further the stored water will be used for domestic purposes (other than drinking) after proper treatment.
	Chemicals consisting of nitrate used for blasting may pollute the surface run off	Further, the run-off water will be stored in sumps and after proper treatment; water will be used in the mining operation for dust suppression.
	Improper management of Domestic wastewater in the Mine lease may create unhygienic conditions in the site thereby causing health impacts to the labours	Provision of urinals/Latrines along with septic tank followed by soak pit arrangement will be provided in the Mine Lease area for the proper management of wastewater
Drainage	Mine drainage is surface water or groundwater that drains from an active or abandoned mine. One of the	As per the approved mining plan the ultimate pit limit is 57 m (BGL) for first five years. The ground water table is reported as 68m BGL.

	adverse impacts of mine drainage is it will contaminate the ground water.	The depth is safe and economic for the quarrying operation. Hence the quarrying operation may not affect the ground water.

Table 4-3 Impact and mitigation measures on air environment

Aspect	Impact	Mitigation Measures
Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.	During mining operation, fugitive dust and other air pollutants like particulate matter (PM10 & PM 2.5) will be generated.	It is proposed to plant 3000 Nos of local species (with 600 Nos each year) along the haul roads, outer periphery within the lease area to prevent the impact of dust in consultation with Forest department for the plantation of trees (Neem, Magizham, Tamarind, Elandhai and Vilvam) in two tier to combat air pollution and with herbs (Nerium) in between the tree species. 1000 Nos. of tree species will be planted outside the mine lease area
	The main source of pollutants arises due to drilling and blasting. 6 Nos. of Tipper will be used for loading nd unloading, 2 Nos. of Excavator (0.90 m bucket capacity (with rock breaker attachment) will be used for excavation of the mineral which contributes to the generation of fugitive dust. In addition, blasting will be done using explosives leading to the generation of dust. <u>Effect on Human</u>	Planning transportation routes of the mined-out mineral, so as to reach the nearest paved roads (an approach road) by shortest route connecting Kurambur-Melma Road Alternatively, paved road will be constructed between mine lease area and nearest paved road connectivity. The speed of trucks plying on the haul road will be limited to 20km/hr to avoid generation of dust. The trucks will be covered by tarpaulin. Overloading will be avoided.

	Adverse effect on human health of working labourers and neighboring villagers like effect on breathing and respiratory system, damage to lung tissue, influenza or asthma. Dust generation due to loading and unloading of mineral and due to transportation can also affect the workers as well as nearby villagers <u>Effect on Plants</u> Stomatal index may be minimized due to dust deposit on leaf.	Personal Protective Equipments (PPEs) like eye goggles, dust mask, leather gloves, safety shoes &boots will be provided to the workers engaged at dust generation points like excavation and loading points. 3 kLD of water will be proposed for sprinkling on unpaved roads to avoid dust generation during transportation.

AERMOD Modelling:

Impact Prediction: Impact prediction is a very important phenomenon in evaluating the environmentally potential adverse impacts for any proposed mine project. The impact prediction is always carried out under worst possible conditions so as to mitigate or to eliminate the environmental hazards. These predictions thus calculated are superimposed over the baseline data to calculate the net impact on the environment after the proposed mine Project comes into production.

Air Emissions: The impacts on air environment from a mining activity depend on various factors like production capacity, machinery involved, operations and maintenance of various equipment and vehicle. Apart from these, there will be other activities associated viz transportation of mineral and waste, stocking facilities and dump management within the mine lease area that may contribute to pollution.

The air-borne particulate matter generated by quarrying operations and transportation is mainly PM10 and PM2.5, and emissions of sulfur dioxide (SO2) and oxides of nitrogen (NO2) due to excavation/loading equipment and vehicles plying on haul roads are the cause of air pollution in the project area.

Furthermore, the loading, unloading, and transportation of rough stone, as well as wind erosion of the exposed area and movement of light vehicles, will cause pollution within a 500-meter radius of the project area due to quarrying activities. This has a cumulative impact on the ambient air environment around the project area.

Quantitative Estimation of Impacts on Air Environment: An attempt has been made to predict the incremental rise of various ground level concentrations above the baseline status in respect of air pollution due to proposed production of 8,68,060m3 of Rough Stone and 1,04,452m3 of gravel by the open-cast mechanized mining method.

The pollutants released into the atmosphere will disperse in the down wind direction and finally reach the ground at farther distance from the source. The concentration of ground level concentrations mainly depends upon the strength of the emission source and micrometeorology of the study area.

In order to estimate the ground level concentrations due to the emission from the proposed project, EPA approved Industrial Source Complex ISC AERMOD View Model has been employed.

The mathematical model used for predictions on air quality impact in the present study is ISC-AERMOD View-6.8.6. It is the next generation air dispersion model, which incorporates planetary boundary layer concepts.

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

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

Special features of AERMOD include its ability to treat the vertical in homogeneity of the planetary boundary layer special treatment of surface releases, irregularly shaped area sources, a plume model for the convective boundary layer, limitation of vertical mixing in the stable boundary layer, and fixing the reflecting surface at the stack base.

The AERMET is the meteorological preprocessor for the AERMOD. Input data can come from hourly cloud cover observations, surface meteorological observations and twice-a-day upper air soundings. Output includes surface meteorological observations and parameters and vertical profiles of several atmospheric parameters.

The AERMAP is a terrain preprocessor designed to simplify and standardize the input of terrain data for the AERMOD. Input data include receptor terrain elevation data. Output includes, for each receptor, location and height scale, which are elevations used for the computation of airflow around hills.

Salient features of the AERMOD model are given hereunder:

- ♣ Excavation operations are considered as area sources.
- ♣ Transportation of material on haulage roads has been considered as line source

The predicted ground level concentrations for study period computed using AERMOD model are plotted as isopleths.

Sources of Dust Emission:

The proposed mining is carried out by semi mechanized opencast method. The air borne particulate matter generated by ore handling operations, transportation and screening of ore is the main air pollutant. The emissions of sulphur dioxide (SO2), Oxides of Nitrogen (NOx) contributed by diesel operated excavation/loading equipment and vehicles plying on haul roads are marginal. Prediction of impacts on air environment has been carried out taking into consideration proposed production and net increase in emissions. Based on the various operations involved in the production of minerals, the various emission sources have been identified as given below.

a. Area sources.
b. Line sources.

Extraction of mineral from mine, are considered as area sources. Transportation of material from mining benches to various end points are considered as line sources. The impact of above sources on air environment is discussed below:

The other sources of air pollution are the dust generated during the movement of tippers on the haul road. Water tankers with spraying arrangement will be used for regular water sprinkling on the haul roads to ensure effective dust suppression. The tippers are well maintained so that exhaust smoke does not contribute abnormal values of noxious gases and un-burnt hydrocarbons.

Emission Details:

All the emissions discussed above are quantified for proposed maximum production of is 8,68,060m3 of Rough Stone and 1,04,452m3 of gravel by the open-cast mechanized mining method by the open-cast semi-mechanised mining method. The existing air quality levels are covered in the baseline scenario. Excavation, loading and transportation through tippers are the major sources, which are of significance. Therefore, the emissions considered for modeling are from drilling blasting, excavation & transportation rough stone.

The emissions are computed based on AP-42 emission factors. Operational hours, activity rate, wind speed and moisture content have been considered for estimation of emissions from point and area sources. For line source, apart from operational hours, activity rate, moisture, silt content and vehicle weight have been considered.

Predictions are carried out for the worst-case scenario of simultaneous operation of excavators (area sources) and tippers for transportation from mine pit to loading pit (line sources) over a distance of 500 m.

The number of working days has been taken at 300 days per year with 8 hours of operation/day, hence the concentrations predicted are considered to be the worst case. With control measures, the emissions have been taken at 30% of uncontrolled emissions for handling and 10% of uncontrolled emissions for transportation.

Meteorological Data: The meteorological data recorded continuously during the month of October 2024 – December 2024 on hourly basis on wind speed, wind direction and temperature has been processed to extract the 24- hourly mean meteorological data as per the guidelines of IMD and MoEF for application of AERMOD model. Stability classes computed for the mean hours is based on guidelines issued by CPCB on modelling. Mixing heights representative of the region have been taken from the available published literature.

Summary of Predicted Ground Level Concentrations: Ground level concentrations due to the mining activities have been estimated to know the incremental raise and extent of impact in the study area.

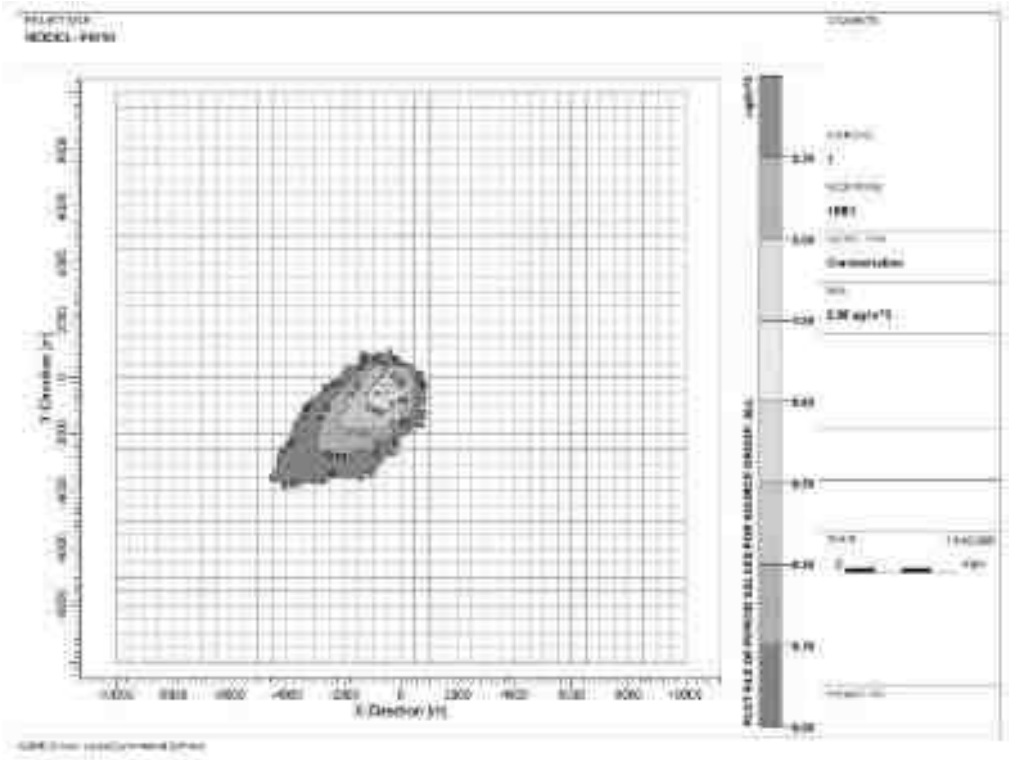


Figure 4-1Isopleth of GLC Prediction for PM10

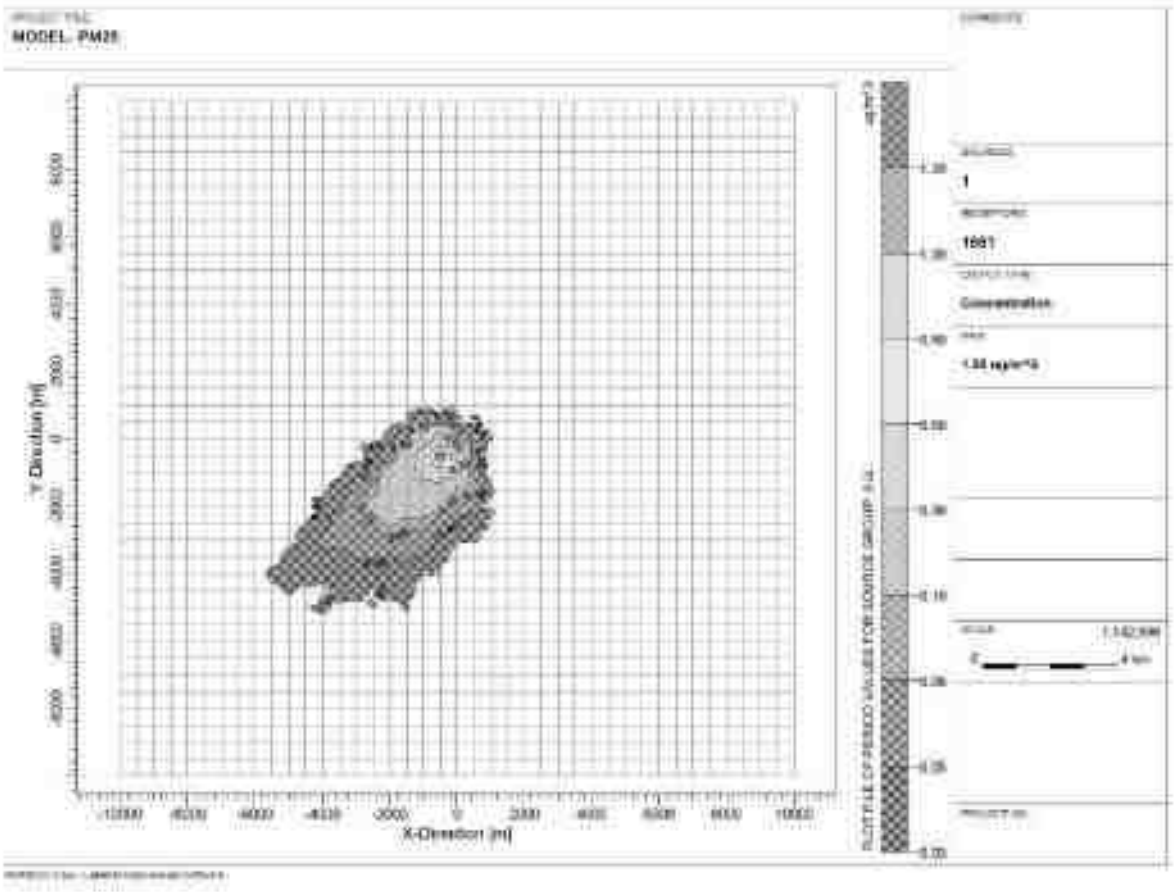


Figure 4-2Isopleth of GLC Prediction for PM2.5

Predicted Ambient Air Quality:

The post project Concentrations of PM10, PM2.5, (GLC) (base line + incremental) after adopting necessary control measures is given in Table No. 4-4 & 4-5

Table 4-4 Concentrations of PM10 after Project Implementation

S. No.	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in µg/m^3
1.	Project Site	70.0	<1	71.0	100
2.	Ayyavadi	55.1	<1	56.1	
3.	Alathurai	57.0	<1	58.0	
4.	Veerambakkam	57.8	<1	58.8	

5.	Thuraiyur	60.8	<1	61.8	
6.	Vachanur	61.9	<1	62.9	
7.	Alathur	62.5	<1	63.5	

Table 4-5 Concentrations of PM2.5 after Project Implementation

S. No.	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in µg/m^3
1.	Project Site	33.0	<1	34.0	60
2.	Ayyavadi	29.5	<1	30.5	
3.	Alathurai	29.5	<1	30.5	
4.	Veerambakkam	29.3	<1	30.3	
5.	Thuraiyur	30.4	<1	31.4	
6.	Vachanur	34.5	<1	35.5	
7.	Alathur	34.7	<1	35.7	

The above result seems that, even in the worst-case scenario, the resultant added concentrations with baseline figures show that the values of ambient air quality for PM10 are within the statutory limits in each case.

Table 4-6 Impact & Mitigation measures on Noise Environment and vibration

Aspect	Impact	Mitigation Measures
Loading and unloading, Transportation of the excavated mineral.	Usage of Equipments (Excavator – 82 dBA, Tipper - , Jack Hammer), Machinery and trucks used for transportation will generate noise. Noise from the machinery can cause hypertension, high stress level, hearing loss, sleep disturbance etc due to prolonged exposure. Number of vehicles will be increased due to the proposed mining activity hence vehicle may collate which may result in unwanted sound and can also cause impact on human health like breathing and respiratory system, damage to lung tissue, influenza or asthma.	• The machinery will be maintained in good running condition so that noise will be reduced to minimum possible level. • Awareness will be imparted to the workers once in six months about the permissible noise level and effect of maximum exposure to those levels. Adequate silencers will be provided in all the diesel engines of vehicles. • It will be ensured that all transportation vehicles carry a valid PUC Certificates. • Speed of trucks entering or leaving the mine will be limited to moderate speed (20km/hr) to prevent undue noise from empty vehicles. The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipment. • It is proposed to plant 4000 Nos. of local species (Neem, Mandharai, Athi, Ashoka and Villam) to reduce the impact of noise in the study area. The development of green belts around the periphery of the mine will be implemented to attenuate noise.

		• The trucks will be diverted on two roads and a District Road to avoid traffic congestion. • Health checkup camps will be organized once in six months. • Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas. • Provision of quiet areas, where employees can get relief from workplace noise.
Mining activities such as blasting, drilling and movement of machinery	Though vibration will be only felt by the people working inside the lease area it is usually undesired. Vibration may also cause flyrocks. It may frighten the birds and small insects in the lease area. However, it will be felt only for a short period.	• The DG set will be kept within the acoustic enclosure made by the stone blocks. • Drills will be equipped with sharp bits and wet drilling will be adopted. • A well-planned green belt is proposed for the mining to reduce noise level. • Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured. • Regular maintenance of the machineries and vehicles to reduce the noise level. • Use of ear muffs by the workers with occupational exposure to noise. • Carrying out blasting on limited scale, only from 12:00 PM to 2:00 PM

		• Control of fly rock and vibration by maintaining peak particle velocity within the standard as prescribed by the DGMS and MOEF & CC. • Shallow depth jackhammer drilling and blasting is proposed to be carried out with minimum use of explosive. • Supervising blasting by competent and statutory Foreman/ Mines Manager.

Table 4-7 Impact on Socio-economic Environment

Aspect	Impact	Mitigation Measures
Proposed implementation of Mining activity	Land acquisition for the implementation of the project may result in loss of assets, which in return will make the PAP to shift, losing their normal routine and livelihood	The proposed project is a Patta land registered in the name of Tmt. Santhi, Thiru. Sudhakaran, Thiru. Seenivasan, Thiru. Gopalan, Thiru. Boopalan, Thiru. Vetrivelan, Tmt. Sowmiya and Tmt. Parvathi vide patta no. 612, 623, 515, 641, 557, the applicant obtained consent from the pattadars and the land is vacant where there is no human settlement within 300m radius. Hence the project does not involve Rehabilitation and resettlement
Loading and Transportation of the mined-out mineral	The mining activities may cause dust emission, noise pollution thereby causing disturbance to the local habitat	No human activity is envisaged near the project site. The nearest human settlement is observed in Vachanur, which is 800m away from the project site.

Grazing and Rearing activities in the nearby villages	The Grazing and rearing of local animals like Sheep, Goat and cows is observed in the nearby villages, which may be affected due to the project as the movement of the vehicles may affect/injure the animals	It is proposed to use graveled road and nearest paved road and preferred not to use unpaved roads. In addition to that, the speed of trucks will be limited to 20km/hr to avoid any accidents
Employment opportunity	The project will improve the livelihood of the local people	After the development of the proposed mine, it will improve the livelihood of local people and also provide the direct and indirect employment opportunities. The rough stone for the infrastructural development in the area will be made available from the local markets at reasonably lower price.
Corporate Environmental Responsibility	The proposed project will help in natural resource augmentation & Community resource development	As a part of CER, Rs. 8,00,000 will be allocated. The detailed agenda, which is to be executed, has been framed. The salient features of the programme are as follows: Provision of Library, Plantation of trees and other developmental facilities to the Panchayat Union Middle School, Melnarma

Table 4-8 Impact & mitigation measures on Biological Environment

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

Planting of trees	Development of afforestation in the mine lease area will have a positive impact as the land was initially a barren.	7.5m safety distance will be provided all along the boundary of the mine lease area. This will attract avifauna thus enhancing the existing ecological environment.
Mining activities such as drilling, blasting etc.	The mining activity such as drilling, blasting etc. may affect the fauna due to noise and vibration	Sirens will be blown before blasting in the mines. To reduce noise levels, plantation will be done. Blasting will be carried out only in the allotted time.
	Accidental falling of animals	To prevent entry of animals, the mine lease surrounding area will be properly fenced with barbed wire.

Table 4-9 Impact & mitigation measures on occupational Health and safety

S. No	Aspect	Impact	Mitigation measure
1.	Risk due to the proposed mining	Accidents may occur in the mine area	Proper PPE kit (Safety jacket, Helmet, Safety Shoes, Gloves) etc will be provided to each and every employee in the mine lease concerning the safety of each labour
2.	Screening of Labors	Labors will be checked for health condition before employing them in mining activity	All the labours will be checked and screened for health before employing them After employing them, periodical medical checkups will be held once in every six months
3.	Blasting	Injury to the labours due to the blasting activity	Alarm system in the form of Siren will be engaged in the project site to caution the blasting activity. In addition to that, the blasting activity will be scheduled at particular time – 4.30 P.M to 5.30 P.M (or whenever required) so that the employees will be aware of the activity. Smoking

			will be banned in the site and sign boards will be displayed in various places at site

5 ANALYSIS OF ALTERNATIVES

5.1 Introduction

Analysis of alternative is a significant aspect in planning and designing any project. Cost benefit analysis should be work out along with other parameters while choosing an alternative in such a way that the production is maximum and the mining operation is environment friendly and cost effective. The mine plan and mine closure plan has been approved prior to submission of the Form-1 and PFR.

ToR issued by the SEIAA-TN vide ToR Identification No. TO24B0108TN5594899N Dated: 27/12/2024. The study for alternative analysis involves in-depth examination of site and technology.

5.2 Analysis for Site Alternative

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

5.3 Alternatives for Mining Technologies

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

Sr. No.	Particular	Alternative Option 1	Alternative Option 2	Remarks
1.	Technology	Opencast semi mechanized mining	Opencast mechanized mining	Opencast semi-mechanized mining is preferred
2.	Employment	Local employment.	Outsource employment	Local employment is preferred Benefits: Provides employment to local people along with financial benefits No residential building/ housing is required.
3.	Labour transportation	Public transport	Private transport	Local labors will be deployed from nearby villages so they will either reach mine site by bicycle or by foot. Benefits: Cost of transportation of labors will be negligible

4.	Material transportation	Public transport	Private transport	Material will be transported through trucks/trolleys on the contract basis Benefits: It will give indirect employment.
5.	Water	Private Tankers	Ground water	Water will be supplied from private tankers

6 ENVIRONMENTAL MONITORING PROGRAM

6.1 Introduction

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

Regular monitoring is as important as control of pollution since the efficacy of control measures can only be determined by monitoring. The project proponent will carry out the post project environmental monitoring (PPM) and timely compliance report submission to various regulatory authorities.

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

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

Table 6-1 Monitoring Schedule during mining

S. No.	Attributes	Parameters	Frequency	Location
1.	Ambient Air Quality at Mine Site & Fugitive Dust Sampling	PM 10, PM 2.5, SO_2, NO_X	Once in a Month	Project Site & Vachanur
2.	Ground water Quality	Drinking Water Parameters, as per IS - 10500: 2012	Half yearly	Project Site & Vachanur
3.	Surface Water Quality	Class will be assessed as per the CPCB Guidelines	Half yearly	Project Site & Vachanur
4.	Soil Quality	(Organic matter, Texture, pH, Electrical Conductivity, Permeability, Water holding capacity, Porosity)	Half yearly	Project Site & Vachanur
5.	Noise Level Monitoring	Noise level in dB(A) Quarterly/half yearly	Half yearly	Project Site & Vachanur

6.2 MEASUREMENT METHODOLOGY

Table 6-2 Measurement Methodology

Ambient Air Quality	Ambient air quality will be monitored for SO_2, NO_x, PM_{10} and $PM_{2.5}$. The instruments like high volume air samplers and Respirable dust samplers would be used for this purpose. These parameters will be monitored as mentioned in the monitoring schedule previously.
Water Quality	Water quality analysis will be done quarterly and the monitored parameters include pH, Temperature, TDS, etc. as specified by SPCB from time to time.
Noise Monitoring	Noise level will be monitored in working environment mainly noise producing sources over the boundary and around the mining area.
Green Belt and Afforested area	Continuous vigilance and monitoring of green belt will be done for performance and survival rate of the saplings. Watch and ward personnel will properly guard the plantation. Provision will be made for fertilizers application and watering on schedule.
Socio-Economics	Socio-economic of the core and buffer zone details elaborated in Chapter-3.

Reports to be generated

The Project Proponent will maintain records of each test and its interpretation so as to formulate an adequate Environmental Management Plan. The set of records planned to be maintained by Project Proponent are given in below table 6.2.

Table 6-3 Important records to be maintained by PP

S. No.	Particulars
1	Monitoring results for Air, Water & Soil.
2	Records of slope failure, land erosion & drainage.
3	Plantation Records
4	Environmental and related standards/ norms
5	Records pertaining to statutory consents, approvals.
6	Periodic Medical examination (PME) records.
7	Complain register (Environmental pollution)
8	Records on water and electricity consumption
9	Periodic progress records.
10	Environmental Expenses Records

7 ADDITIONAL STUDIES

7.1 General

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

7.2 Public Consultation

As the proposed mining project falls under 1(a), Category B1 – Cluster Mining, the project involves the Public Consultation and the same will be conducted under SPCB (TN) in Tiruvannamalai District. The proceedings of the same will be incorporated in the Final EIA Report

7.3 Risk Assessment and Management

Mining and allied activities are associated with several potential hazards both to the employees and the public at large. A worker in a mine should be able to work under conditions that are adequately safe and healthy. At the same time the environmental conditions should be such as not to impair his working efficiency. The various safeguards to be taken to ensure the safety of the mine and that of employees are provided in the Mines Act, 1952. Risk involves the occurrence or potential occurrence of some accidents consisting of an event or sequence of events. The risk assessment study covers the following:

- Identification of potential hazard areas
- Identification of representative failure cases
- Assess the overall damage potential of the identified hazardous events and the impact zones from the accidental scenarios
- Assess the overall suitability of the site from hazard minimization and disaster mitigation point of view
- Furnish specific recommendations on the minimization of the worst accident possibilities
- Preparation of broad DMP, On-site and Off-site Emergency Plan, which includes Occupational Health and Safety Plan

The complete mining will be carried out under the management control and direction of a qualified mine manager holding a manager's certificate of competency.

Moreover, mining staff will be sent to refresher courses from time to time to keep them alert. However, following natural/industrial hazards may occur during normal operation:

- Accident due to explosives
- Accident due to heavy mining equipment; and
- In order to take care of above hazard/disasters, the following control measures will be adopted.

- All safety precautions and provisions of the Mine Act, 1952, the MMR, 1961 and the Mines Rules, 1955 will be strictly followed during all mining operations
- Entry of unauthorized persons will be prohibited
- Firefighting and first-aid provisions in the mine's 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
- Training and refresher courses for all the employees working in hazardous premises; under mines rules all employees of mines will have to undergo the training at a regular interval working of mine, as per approved plans and regularly updating the mine plans.
- Cleaning of mine faces will be regularly done.
- Handling of explosives, charging and blasting will be carried out by competent persons only.
- Regular maintenance and testing of all mining equipment as per manufacturer's guidelines.
- Suppression of dust on the haulage roads. Adequate safety equipment will be provided at explosive magazine
- Increasing the awareness of safety and disaster through competitions, posters and other similar drives. For any type of above disaster, a rescue team will be formed by training the mining staff with specialized training.

7.3.1 Identification of hazards in open cast mining

There are various factors, which can cause disaster in the mines. These hazards are as follows: Identification of Hazards in Opencast Mine is given in below,

- Drilling
- Blasting
- Overburden handling
- Heavy Machinery

Drilling:

The drilling is carried out using jack hammers with a diameter of hole is 32-36 mm up to 1.5m long drilling will be utilized. The breakages of drill rods may blast injuring the nearby personnel. These can be easily remedied as follows:

- Maintain and operating the equipment's as per the manufacturer's manual.
- Compressor is kept at a safe distance from the main operation area and operated, so that in the event of any disruption the personnel in the operating area are safe.

Blasting:

Most of the accidents from blasting occur due to the projectiles, as they may sometimes go even beyond the danger zone, mainly due to overcharging of the shot-holes as a result of certain special features of the local ground. Flying rocks are

encountered during initial and final blasting operations. Vibrations also lead to displacement of adjoining areas. Dust and noise are also problems commonly encountered during blasting operations.

The blasting is the predominating method of breaking rocks in various surface and underground mines. At the same time some damaging impacts on environment are evident: noise, gas, dust, fly rock and ground vibration.

The considering factor is most important for safety of natural objects in the vicinity of mining area.

The ground vibration parameters, crucial for safety of endangered objects have a significant correlation with charge weight and distance of blasting.

This study tried to associate the main vibration parameter, particle velocity with blasting parameters and properties of vibration medium.

- Precautionary Measures to Avoid Accidents due to Blasting
- The lessee is advised to store the explosives as per the Indian Explosive act, 1958
- The explosives to be used in mines being a small quantity, the district collector may be approached to keep the stocks not exceeding 5kgs at time or any other quantity permined by the concerned authorities in a portable magazine of S & B types.
- The lessee is advised to engage an authorized explosive agency to carry out proposed control blasting.
- The Proposed Control Blasting time at a day is proposed to 5PM to 6 PM.
- First Aid Box will be keeping ready at all the time.
- Necessary precautionary announcement will be carried out before the proposed Control Blasting operation.

Overburden handling

The overburden in the form of Gravel, after the excavation gravel will be directly loaded into tipper to the needy buyers for road project and construction works for filling and levelling of low-lying areas.

Heavy machinery

Most of the accidents during transport of tippers and other heavy vehicles are often attributable to mechanical failures and human errors.

7.3.2 Precautionary Measures to Prevent Accidents due to Trucks and Dumpers

All transportation within the main working shall be carried out directly under the supervision and control of the management.

The vehicles must be maintained in good condition and checked thoroughly at least once a week by the competent person authorized for the purpose by the Management.

Road signs shall be provided at each and every turning point especially for the guidance of the drivers at the night.

To avoid danger while reversing vehicles especially at the embankment and tipping points, all areas for reversing of lorries should as far as possible be made man free.

A statutory provision of the fences, constant education, training etc. will go a long Way in reducing the incidents of such accidents.

A Load consisting of large rocks must not be over the edge. This is unsafe and may damage equipment.

The movement of the dumpers will be governed under the Code of Traffic rule.

Storage of explosives

There will not be any storage of explosives during the operation of the quarry. The blasting will be done by contractors authorized by the Government.

Safety measures at site

- Adequate care has been taken in deciding the size of the bench for the working as well as ultimate pit.
- Adequate drainage system at the top of the pit and also on the benches shall be made to prevent erosion of the benches.
- The quarries will be protected by garland drains around the periphery for storm water drainage.

7.4 Disaster Management Plan:

7.4.1 Objective

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. For effective implementation of the disaster management plan, it should be widely circulated and personnel training through rehearsals/drills. 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:

- Effect the 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;
- Identify any dead;
- Provide for the needs of relatives;
- Provide authoritative information to the news media;
- 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 effect, it is to optimize operational efficiency to rescue rehabilitation and render medical help and to restore normalcy.

EMERGENCY ORGANIZATION (EO):

It is recommended to setup an emergency organization. A senior executive (mine manager) who has control over the affairs of the mine would be heading the emergency organization. He would be designated as site controller. As per the general organization chart, in the mines, the mines manager would be designated as the Incident Controller (IC). The incident controller would be reporting to the site controller. Each incident controller, for him-self, organizes a team responsible for controlling the incidence with the personnel under his control. Shift In-charge would be the reporting officer, who would bring the incidence to the notice of the incidence controller and site controller. Emergency coordinators would be appointed who would undertake the responsibilities like firefighting, rescue, rehabilitation, transport and provide essential and support services. For this purposes, Security in-charge, personnel department, essential services personnel would be engaged. All these personnel would be designated as key personnel.

In each shift, electrical supervisor, electrical fitters, pump house in-charge and other maintenance staff would be drafted for emergency operations. In the event of power or communication system failure, some of staff members in the mine offices would be drafted and their services would be utilized as messengers for quick passing of communications. All these personnel would be declared as essential personnel.

EMERGENCY COMMUNICATION (EC):

Whoever notices an emergency situation such as fire, growth of fire etc. would inform his immediate superior and Emergency Control Center (ECC). The person on duty in the emergency control center would appraise the site controller. Site Controller verifies the situation from the incident controller of that area or the Shift In-charge and takes a decision about an impending on site emergency. This would be communicated to the entire incident controllers, emergency coordinators. Simultaneously, the emergency warning system would be activated on the instructions of the site controller.

EMERGENCY RESPONSIBILITIES:

The responsibilities of the key personnel are appended below:

Site Controller:

On receiving information about emergency, he would rush to emergency control center and take charge of ECC and the situations which all are given below:

Assesses the magnitude of the situation on the advice of incident controller and decides;

- Whether the affected area needs to be evacuated;
- Whether personnel who are at assembly points need to be evacuated;
- Declares Emergency and orders for operation of emergency siren;

- Organizes announcement by public address system about location of emergency;
- Assesses which areas are likely to be affected, or need to be evacuated or are to be alerted;
- Maintains a continuous review of possible development and assesses the situation in consultation with Incident Controller and other Key Personnel as to whether shutting the mine operation required and if evacuation of persons is required;
- Directs personnel for Rescue, rehabilitation, transport, fire, brigade, medical and other designated mutual support systems locally available, for meeting emergencies;
- Controls evacuation of affected areas, if the situation is likely to go out of control or effects are likely to go beyond the mine boundary, informs to District Emergency Authority, Police, Hospital and seeks their intervention and help;
- Informs the statutory authorities;
- Gives a public statement if necessary;
- Keeps record of chronological events and prepares an investigation report and preserves evidence; and
- On completion of On-Site Emergency and restoration of normalcy, declares all clear and orders for all clear warning.

Incident Controller:

- Assembles the incident control team;
- Directs operations within the affected areas with the priorities for safety to personnel; minimize damage to property and environment and minimize the loss of materials;
- Directs the shutting down the operations and areas likely to be adversely affected by the emergency;
- Ensures that all key personnel help is sought;
- Provides advice and information to the Fire and Security Officer and the Local Fire Services as and when they arrive;
- Ensures that all non-essential workers/staff of the affected areas evacuated to the appropriate assembly points, and the areas are searched for causalities;
- Has regard to the need for preservation of evidence so as to facilitate any inquiry into the cause and circumstances which caused or escalated the emergency;
- Co-ordinates with emergency services at the site;
- Provides tools and safety equipment to the team members;
- Keeps in touch with the team and advise them regarding the method of control to be used; and
- Keeps the Site Controller of Emergency informed of the progress being made.

Emergency Coordinator – Rescue, Fire Fighting

- On knowing about emergency, rushes to ECC;

- Helps the incident Controller in containment of the emergency;
- Ensure fire pumps in operating conditions and instructs pump house operator to ready for any emergency with standby arrangement;
- Guides the firefighting crew i.e. firemen, trained mine personnel and security staff;
- Organizes shifting the firefighting facilities to the emergency site, if required;
- Takes guidance of the Incident Controller for firefighting as well as assesses the requirements of outside help;
- Arranges to control the traffic at the incident area;
- Directs the security staff to the incident site to take part in the emergency operations under his guidance and supervision;
- Evacuates the people in the mine or in the nearby areas as advised by Site Controller;
- Searches for casualties and arranges proper aid for them;
- Assembles search and evacuation team;
- Arranges for safety equipment for the members of this team;
- Decides which paths the evacuated workers should follow; and
- Maintains law and order in the area, and if necessary, seeks the help of police.

Emergency Coordinator – Medical, Mutual Aid, Transport and Communication. In the event of failure of electric supply and thereby internal telephone, sets up communication point and establishes contact with the Emergency Control Center (ECC).

- Organizes medical treatment to the injured and if necessary, will shift the injured to nearby hospitals;
- Mobilizes extra medical help from outside, if necessary;
- Keeps a list of qualified first aiders of the mines and seek their assistance;
- Maintains first aid and medical emergency requirements;
- Makes sure that all safety equipment is made available to the emergency team;
- Assists Site Controller with necessary data and to coordinate the emergency activities;
- Assists Site Controller in updating emergency plan, organizing mock drills verification of inventory of emergency facilities and furnishing report to Site Controller;
- Maintains liaison with Civil Administration;
- Ensure availability of canteen facilities and maintenance of rehabilitation center;
- He will be in liaison with Site Controller/Incident Controller;
- Ensure transportation facility;
- Ensures availability of necessary cash for rescue/rehabilitation and emergency expenditure;
- Controls rehabilitation of affected areas on discontinuation of emergency; and
- Makes available diesel/petrol for transport vehicles engaged in emergency operation.

Emergency Coordinator – Essential Services:

He would assist Site Controller and Incident Controller;
Maintains essential services like Diesel Generator, Water, Fire Water, power supply for lighting;
Gives necessary instructions regarding emergency electrical supply, isolation of certain sections etc. to shift in-charge and electricians; and
Ensures availability of adequate quantities of protective equipment and other emergency materials, spares etc.

GENERAL RESPONSIBILITIES OF EMPLOYEES DURING AN EMERGENCY:

During an emergency, it becomes more enhanced and pronounced when an emergency warning is raised, the workers in-charge, should adopt safe and emergency shut down and attend any prescribed duty as essential employee. If no such responsibility is assigned, he should adopt a safe course to assembly point and await instructions. He should not resort to spread panic. On the other hand, he must assist emergency personnel towards objectives of Disaster Management Plan.

EMERGENCY FACILITIES:

Emergency Control Center (ECC): The Mine Office Block is identified as Emergency Control Center. It would have external Telephone, Fax, and Telex facility. All the Site Controller/ Incident Controller Officers, Senior Personnel would be located here. Also, it would be an elevated place.

The following information and equipment are to be provided at the Emergency:

Control Center (ECC):

- Intercom, telephone;
- Safe contained breathing apparatus;
- Fire suit/gas tight goggles/gloves/helmets;
- Hand tools, wind direction/velocities indications;
- Public address megaphone, hand bell, telephone directories;
- Mine layout, site plan;
- Emergency lamp/torch light/batteries;
- Plan indicating locations of hazard inventories, sources of safety equipment, work road plan, assembly points, rescue location vulnerable zones, escape routes;
- Hazard chart;
- Emergency shut-down procedures;
- Nominal roll of employees;
- List of key personnel, list of essential employees, list of Emergency Coordinators;
- Duties of key personnel;

- Address with telephone numbers and key personnel, emergency coordinator, essential employees; and
- Important address and telephone numbers including Government agencies, neighbouring industries and sources of help, outside experts, population details around the Mine.

Assembly Point:

Number of assemblies depending upon the mine location would be identified wherein employees who are not directly connected with the disaster management would be assembled for safety and rescue. Emergency breathing apparatus, minimum facilities like water etc. would be organized. In view of the size of mine, different locations should be ear marked as assembly points. Depending upon the location of hazard, the assembly points are to be used.

Emergency Power Supply:

Mine facilities are connected to power supply from the SEB. In the event of any grid supply failure, Diesel Generator will be provided at the mine, which is operated as soon as any power failure occurs. Thus water pumps, mine lighting and emergency control center, administrative building and other auxiliary services are connected to emergency power supply. In all the blocks flame proof type emergency lamps would be provided.

Fire Fighting Facilities:

First aid firefighting equipment suitable for emergency should be maintained in each operation areas of the mine as per statutory requirements.

Location of Wind Sock:

On the top of the administration block, windsocks would be installed to indicate direction of wind for emergency escape.

Emergency Medical Facilities:

Stretchers, gas masks and general first aid materials for dealing with chemical burns, fire burns etc. would be maintained in the medical center as well as in the emergency control room. Private medical practitioners help would be sought. Government hospital would be approached for emergency help.

First aid facilities would be augmented. Names of medical personnel, medical facilities in the area would be prepared and updated. Necessary specific medicines for emergency treatment of burns patients and for those affected by toxicity would be maintained.

Breathing apparatus and other emergency medical equipment would be provided and maintained. The help of nearby industrial managements in this regard would take on mutual support basis.

Ambulance:

An ambulance with driver availability in all the shifts, emergency shift vehicle would be ensured and maintained to transport injured or affected persons. Number of persons would be trained in first aid so that, in every shift first aid personnel would be available.

EMERGENCY ACTIONS:

Emergency Warning:

Communication of emergency would be made familiar to the personnel inside the mine and people outside. An emergency warning system would be established.

Evacuation of Personnel:

In the event of an emergency, unconnected personnel have to escape to assembly point. Operators have to take emergency shutdown procedure and escape. Time Office maintains a copy of deployment of employees in each shift. If necessary, persons can be evacuated by rescue teams.

All Clear Signal:

Also, at the end of an emergency, after discussing with Incident Controllers and Emergency coordinators, the Site Controller orders an all-clear signal. When it becomes essential, the site controller communicates to the district emergency authority, police and fire service personnel regarding help required or development of the situation into an Off-Site Emergency

GENERAL:

Employee Information:

During an emergency, employees would be warned by raising siren in specific pattern. Employees would be provided with information related to fire hazards, antidotes and first aid measures. Those who would designate as key personnel and essential employees should be given training to emergency response.

Co-ordination with Local Authorities:

Keeping in view of the nature of emergency, two levels of coordination are proposed. In the case of an On-Site Emergency, resources within the organization would be mobilized and, in the event, extreme emergency local authorities help should be sought.

In the event of an emergency developing into an offsite emergency, local authority and District emergency Authority (normally the Collector) would be appraised and under his supervision, the Off-Site Disaster Management Plan would be exercised. For this purpose, the facilities that are available locally, i.e. medical, transport, personnel, rescue accommodation, voluntary organizations etc. would be mustered. Necessary rehearsals and training in the form of mock drills should be organized.

Mutual Aid:

Mutual aid in the form of technical personnel, runners, helpers, special protective equipment, transport vehicles, communication facility etc. should be sought from the neighbouring industrial management's.

Mock Drills:

Emergency preparedness is an important aspect of planning in Industrial Disaster Management. Personnel would be trained suitably and prepared mentally and physically in emergency response through carefully planned, simulated procedures. Similarly, the key personnel and essential personnel should be trained in the operations.

Important Information

Important information such names and addresses of key personnel, essential employees, medical personnel, transporters address, address of those connected with Off Site Emergency such as Police, Local Authorities, Fire Services, District Emergency Authority should be prepared and maintained.

The Unit Head is in charge for disaster management and monitors all activities related to disaster management/risk assessment in case of any such situations.

Care and maintenance during temporary discontinuance:

In case, of any temporary closure or discontinuous of mining operations, the following steps are proposed.

a. Notice to be served to all concerned authority.

b. The mining pit area shall be covered by temporary fencing.

c. Watchman will be posted round the clock to prevent any unauthorized or inadvertent entry of public.

d. Works on stabilization of dumps to provided vegetal cover would be taken up.

e. Construction of garland or retaining walls around the dumps will be attempted.

f. Watering of plants in the afforested area will be considered.

g. All safety precautions shall be taken care off as per rule.

7.5 Cumulative Environmental Impact Assessment Study

The cumulative production load of existing and proposed rough stone quarries within cluster is shown in below table.

Description		P1	P2
Name of the Quarry		Tvl. JCK Mines	Tvl. JCK Mines
Geological Resources in m3	Rough stone	24,28,305	40,89,195
	Gravel	88,302	1,48,698

Mineable Reserves in m3	Rough stone	11,93,870	8,68,060
	Gravel	75,280	1,00,452
Five years plan period as in the approved mining plan	Rough stone	11,93,870	8,68,060
	Gravel	75,280	1,00,452
Production per day in Tonne	Peak Production	2229.54	1857.48
Lorry Loads per day in Nos	-	223	186
Employment in Nos		33	35
Proposed Depth in meters		57 m	57 m
Status of the quarry		Existing	Proposed

Based on the above production quantities the emissions due to various activities in all the 2 mines (1 Existing + 1 Proposed) includes various activities like ground preparation, excavation, handling and transport.

Emission Estimation from Cluster

The AERMOD atmospheric dispersion modeling (AERMOD Cloud remote version) is used for assessment of incremental Ground level concentration (GLC) for the cluster area. Area source model taken into consideration taking into consideration of wet drilling and loading of the cluster mines. Further line source model was taken into consideration for transportation through haul road. Baseline meteorological studies were conducted for the period of October - December 2024. The following sources are considered.

Emission sources & Quantification of the cluster area:

Various point and non-point sources of emissions from Proposed Rough Stone and Gravel Quarry of Tvl. JCK Mines is quantified and presented below:

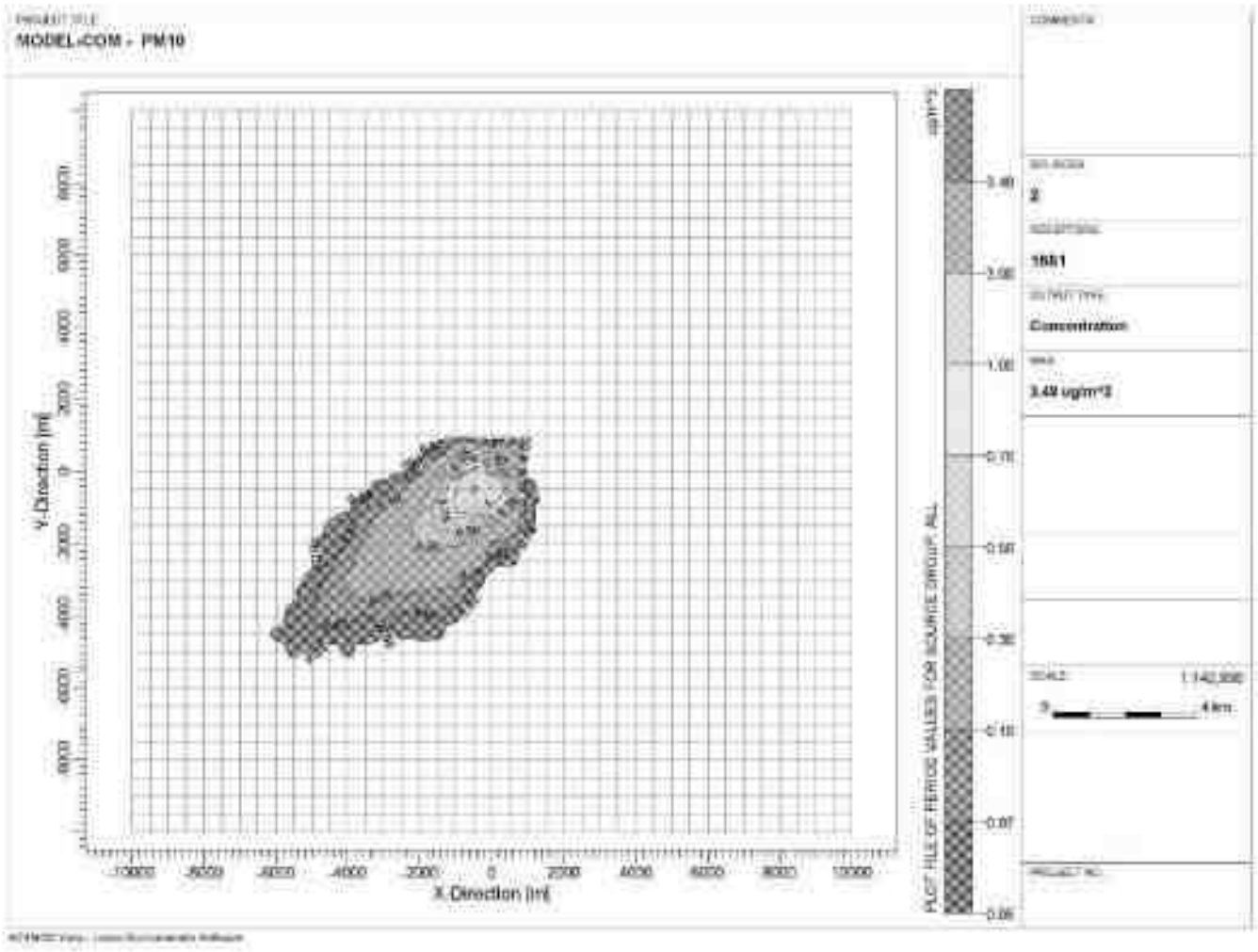


Figure 7-1 Isopleth of GLC Prediction – Cumulative for PM 10

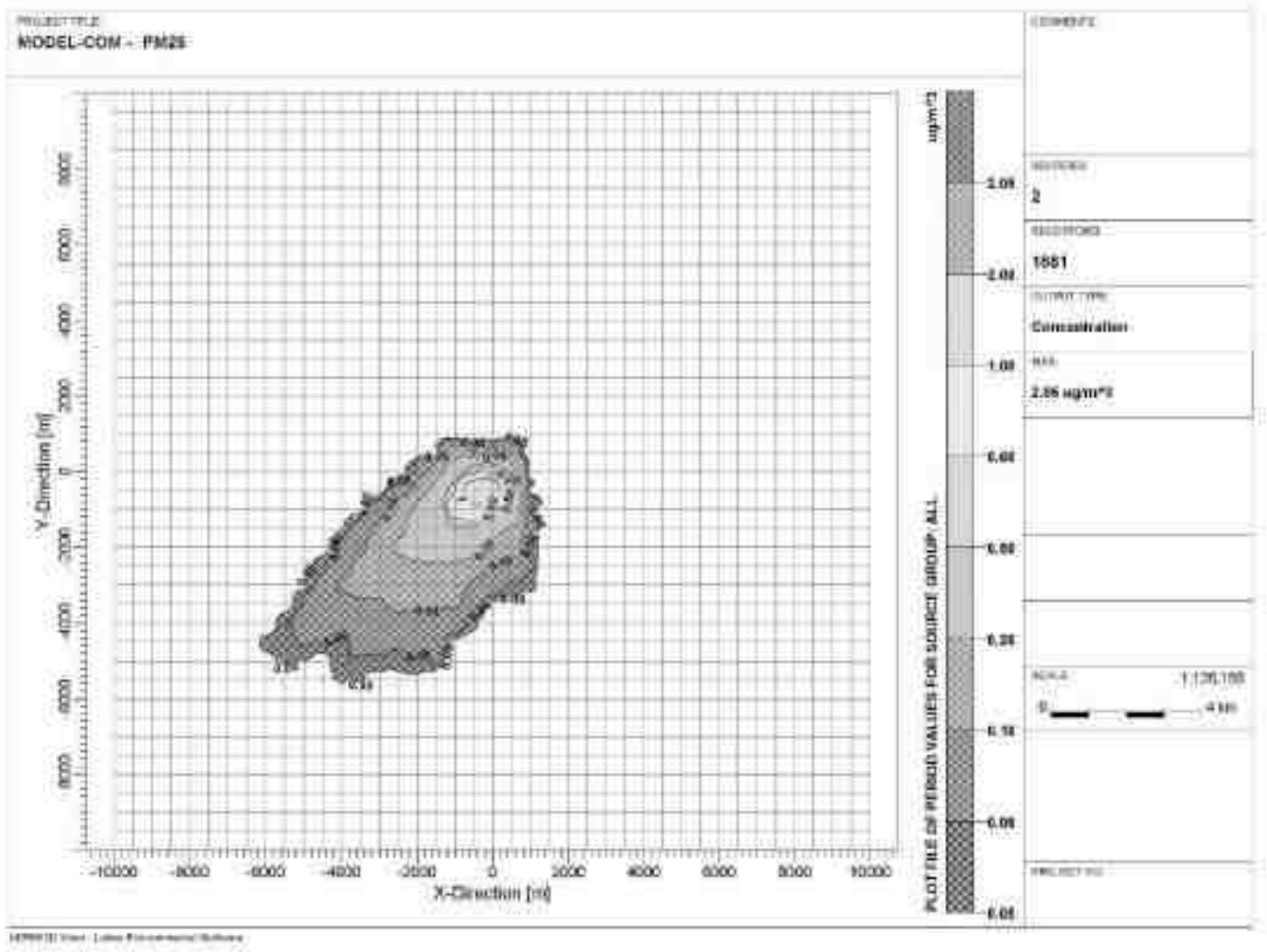


Figure 7-2 Isopleth of GLC Prediction – Cumulative for PM 2.5

Predicted Ambient Air Quality:

The post project Concentrations of PM10, PM2.5, (GLC) (base line + incremental) after adopting necessary control measures is given in Table No. 7-1 & 7-2

Table 7-1 Concentrations of PM 10 after Project Implementation

S. No.	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in µg/m^3
1.	Project Site	70.0	<1	71.0	100
2.	Ayyavadi	55.1	<1	56.1	
3.	Alathurai	57.0	<1	58.0	

4.	Veerambakkam	57.8	<1	58.8	
5.	Thuraiyur	60.8	<1	61.8	
6.	Vachanur	61.9	<1	62.9	
7.	Alathur	62.5	<1	63.5	

Table 7-2 Concentrations of PM 2.5 after Project Implementation

S. No.	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in µg/m^3
1.	Project Site	33.0	<1	34.0	60
2.	Ayyavadi	29.5	<1	30.5	
3.	Alathurai	29.5	<1	30.5	
4.	Veerambakkam	29.3	<1	30.3	
5.	Thuraiyur	30.4	<1	31.4	
6.	Vachanur	34.5	<1	35.5	
7.	Alathur	34.7	<1	35.7	

The above results seem that, even in the worst-case scenario, the resultant added concentrations with baseline figures show that the values of ambient air quality for PM10 are within the statutory limits. The mitigation measures undertaken in the mine for control of air pollution are given below.

- Wet drilling will be practiced in drilling operation.
- Water sprinkling will be done in haul roads & loading etc.
- The mines workers are provided with the dust masks.
- DG sets shall be periodically maintained as per manufacturer's specifications.

7.6 Progressive Mine Closure Plan

There is no proposal for back filling, reclamation and rehabilitation. The quarried pits after the end of the life of lease will be fenced to prevent inherent entry of public and cattles. Measures will be taken as per the Acts and Rules. The quarried pit will be fenced by using Barbed wire fencing to prevent inherent entry of public and cattle. Drilling will be

carried out by wet drilling mode to control the dust propagation into the air. Blasting will be carried out on limited scale. Mist Water spraying on haul road is proposed to prevent the dust propagation into the air.

7.7 Slope Stability Study

The proposed quarry is a very small quarry and the production is also less. Opencast Semi-mechanized mining with a bench height of 5m and bench width of 5m and 45° Slope is proposed. The depth of mining is proposed as 57m (BGL), which is the ultimate pit limit. Also, there is no overburden since the entire mined out material will be utilized.

As far as technical factors are concerned, the following precautionary measures will be adopted:

- ♣ Strict adherence to DGMS norms
- ♣ Frequent inspection by Mines-in-charge/Mines Manager

7.8 Natural Resource Conservation

There are no natural resources within the premises. The conservation strategies for energy will be followed in the proposed mine lease area. The pollutants of the mine will be minimized by adopting appropriate mitigation measures as mentioned Chapter 4 to prevent the effects on nearest water bodies. No surface runoff from the project site will be let into the nearby waterbody.

7.9 Reclamation and Rehabilitation:

It is a fresh mining lease applied area. Reclamation and rehabilitation will be carried out at the end of the life of the mine. The mined-out pit is proposed to be used as small reservoir for storing much needed rainwater at the end of the life of the mine when the mine reaches its ultimate pit limit. Since the surrounding areas are dry and experiences low rainfall, any amount of storage of water will be beneficial for recharging the groundwater in the adjacent areas. Along the permanent roads and vacant places, afforestation is being carried out at present. Before closure of the mine, barbed fencing wire will be constructed to prevent inadvertent entry of cattle and human beings. A watchman (Security guard) will be posted around the clock to prevent inherent entry of public and cattle which are growing in and around the area

8 PROJECT BENEFITS

8.1 General

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

8.2 Improvements in the physical infrastructure

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

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

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

c. Enhancement of Green Cover & Green Belt Development: As a part of reclamation plan, native tree species will be planted along the safety boundary (2.44.00 Ha) of the mine lease area. A suitable combination of trees that can grow fast and also have good leaf cover will be adopted to develop the green belt. It is proposed to plant 4000 numbers of native species along with some fruit bearing and medicinal trees during the mining plan period.

8.3 Improvements in the Social Infrastructure

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

As a part of CER, Rs. 8 Lakhs will be allocated. The detailed agenda, which is to be executed has been framed. The salient features of the programme are as follows:

Provision of Library, Plantation of trees and other developmental facilities to the Panchayat Union Middle School, Melnarma

8.4 Employment potential – Skilled; Semi-skilled and unskilled

The proposed project will create direct and indirect employment within nearby areas, depending upon the availability of skilled and unskilled manpower. During mining, about 35 people will be employed.

8.5 Other tangible benefits

As mentioned above, the project will have employment & trade opportunities with the inception of the quarrying activities. Thus, these considerable employment & trade opportunities will eventually result in appreciable economic benefits to the local people & businesses/contractors.

8.5.1 Corporate Social Responsibility

The CER funds will be utilised for the following activities to Panchayat Union Middle School, Melnarma

S. No.	Proposed CER Activities	Cost in Lakhs
1	♣ Establishment of Library with racks ♣ Plantations inside the school premises (50 Nos.) ♣ Providing computer & printer ♣ Providing black board, lights, fans, tables, chairs, writing tables, sitting tables & cupboards ♣ Providing RO water purifier, water motor & sports materials ♣ Construction of toilet and maintenance of the same for the entire lease period	8.00
	Total CER Cost	8.00



Figure 8-1 Copy of letter from Panchayat Union Middle School, Melnarma Village

9 ENVIRONMENTAL COST BENEFIT ANALYSIS

As per EIA Notification 2006 (amended from time to time), this chapter of the 'Environmental Cost Benefit Analysis' is applicable only if it is recommended at the Scoping stage. However, as per the standard TORs awarded by the (EAC), the Environmental Cost Benefit Analysis is not asked for and hence has not been prepared

10 ENVIRONMENTAL MANAGEMENT PLAN

10.1 Introduction

This chapter will provide information about Environmental Management Plan (EMP), which includes the administrative and technical setup, summary matrix of EMP, the cost involved to implement the EMP, both during the construction and operational phase. This chapter will also describe the proposed post-monitoring scheme for effective implementation of the mitigation measures.

10.2 Administrative and Technical Setup

The project proponent has taken extensive measures to delineate the environmental monitoring plan for compliance of various environmental regulations. The Environment Management Plan (EMP) will consist of all mitigation measures for each component of the environment due to the activities increased during the entire life cycle to minimize adverse environmental impacts resulting from the activities of the project.

Since this is a very small quarry, the mines in-charge will take care of all environment related aspects. He will ensure effective implementation of environment management plan and to ensure compliance of environmental statutory guidelines through Mine Management Level. The action plan for monitoring consists of monitoring of following environmental components.

- 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.

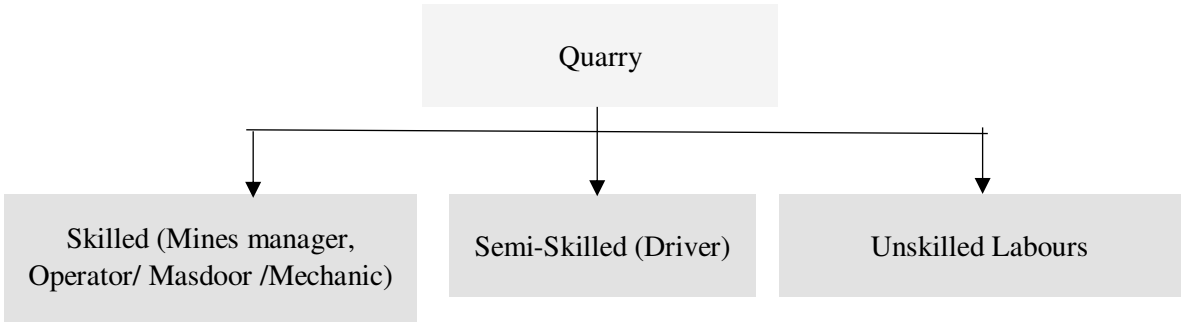


Figure 10-1 Organization Chart

Table 10-1Detailed Environmental Management Plan

S. No	Impacts on Environment	Activity /Aspect	Anticipated impacts	Mitigation measures
1.	Air	Fugitive emissions during operation activity	Due to quarrying activity, fugitive dust and other air pollutants like particulate matter (PM10 & PM 2.5) will be generated.	Trees will be planted along the safety distance of the Mine Lease area. Water will be sprinkled in the site as dust suppression measure. Sharp drill bits will be used for drilling and regrinding will be done periodically to minimize the generation of dust. Wet drilling to suppress the dust emission from drill machine
			Blasting of explosive may result in increase of nitrogen oxides, which may get diluted by the wind	Controlled blasting and optimization of use of explosive energy will help in reducing the above emissions
		During Loading	Dust emission during loading operation	Latest loading equipment like hydraulic excavators of large capacity will be used with dumpers. This reduces the number of buckets to fill from height and thus comparatively less dust generation
		During transportation	Dust emission during transportation	All the haulage roads including the main ramp from crusher to mines pit will be kept wide, leveled, compacted and properly maintained and watered regularly during the shift operation to prevent generation of dust due to movement of dumpers, and other vehicles.
				Periodic air quality survey will be carried out to monitor the changes consequent upon mining activities as per the norms of TNPC Board.
2.	Water	Wastewater generation	Improper management of Domestic wastewater in the Mine lease may create unhygienic conditions in the site thereby causing health impacts to the labors	Provision of urinals/Latrines along with septic tank followed by soak pit arrangement will be provided in the Mine Lease area for the proper management of wastewater

		Surface water runoff due to rain	Improper management of surface runoff may pollute the nearest waterbody	Storm water drains will be provided. Rainwater harvesting pits will be proposed to capture the surface run-off
3.	Noise	Mining activities like drilling, blasting, loading and transportation	Noise from the machinery can cause hypertension, high stress level, hearing loss, sleep disturbance etc due to prolonged exposure. Apart from Mining activities like drilling, blasting may generate noise	Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas
4	Vibration	Ground Vibration and Fly Rock Control	The quarrying activity such as drilling and blasting may cause ground vibration, which in turn can disturbance to the local public	Controlled blasting using delay detonators will be carried out to maintain the PPV value well within the prescribed standards of DGMS. Drilling and blasting will be carried under the supervision of qualified persons.
4.	Land	Improper management of Storm water Runoff	Storm water Runoff may result in Soil Erosion	Garland drainage of 1m x 1m will be provided to avoid storm water run- off.
4.	Social Responsibility	Mining workers	Unhygienic site sanitation facilities may cause health damage to workers.	The objective is to ensure health and safety of the workers with effective provisions for the basic facilities of sanitation, drinking water, safety of equipments or machinery etc. The following will be done in the site ✓ By complying with the safety procedures, norms and guidelines (as applicable) as outlined in the National Building Code of India, Bureau of Indian Standards. ✓ Provide adequate number of decentralized latrines and urinals ✓ Providing Septic tank along with Soak pit arrangement ✓ Providing First Aid room, conducting frequent health checkups to labor and conducting free medical camps ✓ Providing safety helmet, Gloves, Jacket & Boots

				✓ Providing measures to prevent fires. Firefighting extinguishers and buckets of sand will be provided in the construction site
6.	Building materials resource conservation	Building Material consumption	Use of farfetched construction materials than the locally available construction materials may lead to over exploitation of natural resources & increase in carbon footprint.	• Use of locally available construction materials.

10.3 Environmental Policy

- The Project Proponent has stipulated a well-defined Environmental policy by which the lessee is committed to conducting business with a strong environmental conscience towards the community, customers, and employees. The Environment policy is given as below.
- The Environment policy of "Rough Stone and Gravel Quarry of Tvl. JCK Mines is that the rules and commitment are driven towards conservation of the environment.
- The lessee is committed to efficient use of natural resources based on the reduce, recycle and reuse method.
- The project is committed to the identification of possible impacts and will take the necessary management steps to mitigate the impacts.
- Environment performance will be regularly monitored and reported for continual improvement of our environment and health performance.

Table 10-2 Budgetary allocation - EMP

Activities	Mitigation Measure	Capital cost	Recurring Cost per Annum
Air Environment	Compaction, gradation and drainage on both sides for Haulage Road	0.74	0.74
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	8.00	0.50
	Muffle blasting – To control fly rocks during blasting	0.00	0.05
	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	2.00	0.20
	No overloading of trucks/tippers/tractors	0.00	0.19
	Stone carrying trucks will be covered by tarpaulin	0.00	0.10
	Enforcing speed limits of 20 km/hr within ML area	0.30	0.03
	Regular monitoring of exhaust fumes as per RTO norms	0.00	0.05
	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	0.00	1.49
	Installing wheel wash system near gate of quarry	0.50	0.20
	Sub-Total (A)	**11.54**	**3.55**
Noise Environment	Provision for Portable blaster shed	0.50	0.02
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	0.00	22.84
	Sub-Total (B)	**0.50**	**22.86**
Waste Management	Provision for domestic waste collection and disposal through authorized agency	0.25	0.20
	Installation of dust bins	0.05	0.02

	Sub-Total (C)	**0.30**	**0.22**
Mine Closure	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	0.74	0.05
	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum	14.88	0.10
	Plantation inside ML area (1800 Nos.)	6.00	0.90
	Plantation outside ML area (200 Nos.)	2.25	0.23
	Sub-Total (D)	**23.87**	**1.28**
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	0.10	0.01
	Air, Water, Noise and Soil Quality Sampling every 6 Months for Compliance Report of EC Conditions	0.00	0.50
	Workers will be provided with Personal Protective Equipment's	1.40	0.35
	Health checkup for workers will be provisioned	0.00	0.35
	First Aid facility Provision	0.00	0.15
	Signage & boards for safety precautions	0.10	0.02
	No parking will be provided on the transport routes. Separate provision on the south side of the hill will be made for vehicles.	3.72	0.10
	Installation of CCTV cameras in the mines and mine entrance	0.30	0.05
	Implementation as per Mining Plan and ensure safe quarry working	0.00	10.80
	Slope Stablitiy Action plan	2.00	0.00
	Sub-Total (E)	**7.62**	**12.33**
	Grant Total	**43.84**	**40.23**

Table 10-3 Budgetary allocation – EMP for five years

Sl. No	Year	Capital cost (Lakhs)	Recurring Cost @ 5% Escalation (Lakhs)
1	1st Year	43.84	40.23
2	2nd Year	0.0	42.24
3	3rd Year	0.0	44.35
4	4th year	0.0	46.57
5	5th year	0.0	48.90
Total		43.84	**222.30**
Grand Total (Lakhs)		**266.13**	
The total EMP Cost is 266.13 Lakhs for a period of Five years have been proposed. i.e., Capital cost of Rs. 43.84 Lakhs + Recurring cost of Rs. 222.30 lakhs.			

11 SUMMARY AND CONCLUSION

11.1 Prelude

This chapter gives the overall summary of the proposed Rough Stone and Gravel Quarry at S.F.Nos. 98/2, 98/3,98/4,98/7, 100/1, 100/2, 101/2, 101/3,101/4,105/1, 105/3, 105/7,105/8 and 105/11 over an extent of 7.44.0 Ha in Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu (Cluster Area: 11.91.0 Ha)

11.2 Project Overview

Table 11-1 Project Overview

<table>
<tr><th>S. No.</th><th>Particulars</th><th>Details</th></tr>
<tr><td>1.</td><td>Proponent Name</td><td>Tvl. JCK Mines represented by Thiru. J. K. Vettrivelan (Partner)</td></tr>
<tr><td>2.</td><td>Proposed project</td><td>Rough Stone & Gravel Quarry of Tvl. JCK Mines</td></tr>
<tr><td>3.</td><td>Extent</td><td>7.44.0 Ha and the cluster area within 500 m radius including the proposed mine is 11.91.0 Ha > 5 Ha</td></tr>
<tr><td>4.</td><td>Location</td><td>S.F. Nos. 98/2, 98/3,98/4,98/7, 100/1, 100/2, 101/2, 101/3,101/4,105/1, 105/3, 105/7,105/8 and 105/11 of Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu</td></tr>
<tr><td>5.</td><td>Co-ordinates of the project site</td><td>
<table>
<tr><th rowspan="2">Corners</th><th colspan="2">Co- ordinates</th></tr>
<tr><th>Latitude</th><th>Longitude</th></tr>
<tr><td>1</td><td>12° 34' 47.32"N</td><td>79° 39' 39.29"E</td></tr>
<tr><td>2</td><td>12° 34' 50.95"N</td><td>79° 39' 39.78"E</td></tr>
<tr><td>3</td><td>12° 34' 50.89"N</td><td>79° 39' 39.93"E</td></tr>
<tr><td>4</td><td>12° 34' 54.82"N</td><td>79° 39' 41.21"E</td></tr>
<tr><td>5</td><td>12° 34' 54.20"N</td><td>79° 39' 43.80"E</td></tr>
<tr><td>6</td><td>12° 34' 54.86"N</td><td>79° 39' 45.03"E</td></tr>
<tr><td>7</td><td>12° 34' 58.88"N</td><td>79° 39' 45.75"E</td></tr>
<tr><td>8</td><td>12° 34' 58.82"N</td><td>79° 39' 40.79"E</td></tr>
<tr><td>9</td><td>12° 35' 00.84"N</td><td>79° 39' 41.23"E</td></tr>
<tr><td>10</td><td>12° 35' 04.08"N</td><td>79° 39' 41.66"E</td></tr>
<tr><td>11</td><td>12° 35' 03.51"N</td><td>79° 39' 44.74"E</td></tr>
<tr><td>12</td><td>12° 35' 03.09"N</td><td>79° 39' 47.03"E</td></tr>
<tr><td>13</td><td>12° 34' 58.87"N</td><td>79° 39' 46.01"E</td></tr>
<tr><td>14</td><td>12° 34' 58.83"N</td><td>79° 39' 46.81"E</td></tr>
<tr><td>15</td><td>12° 34' 58.33"N</td><td>79° 39' 50.78"E</td></tr>
<tr><td>16</td><td>12° 34' 56.30"N</td><td>79° 39' 50.11"E</td></tr>
<tr><td>17</td><td>12° 34' 56.56"N</td><td>79° 39' 48.10"E</td></tr>
<tr><td>18</td><td>12° 34' 56.43"N</td><td>79° 39' 48.05"E</td></tr>
<tr><td>19</td><td>12° 34' 56.64"N</td><td>79° 39' 46.15"E</td></tr>
<tr><td>20</td><td>12° 34' 52.85"N</td><td>79° 39' 45.00"E</td></tr>
</table>
</td></tr>
</table>

			21	12° 34' 49.46"N	79° 39' 43.30"E
			22	12° 34' 49.70"N	79° 39' 49.67"E
			23	12° 34' 48.23"N	79° 39' 49.83"E
			24	12° 34' 47.92"N	79° 39' 47.22"E
			25	12° 34' 47.79"N	79° 39' 47.22"E
			26	12° 34' 47.51"N	79° 39' 44.76"E
			27	12° 34' 47.09"N	79° 39' 44.71"E
			28	12° 34' 47.55"N	79° 39' 42.60"E
			29	12° 34' 46.23"N	79° 39' 42.12"E
6.	Topography	Plain Terrain			
7.	Site Elevation above MSL	≃ 93 m from above MSL			
8.	Topo Sheet No.	57 P/10			
9.	Minerals of Mine	Rough Stone & Gravel			
10.	Proposed production in m^3	100452 Cu.m of Gravel and 868060 Cu.m of Rough Stone			
11.	Ultimate Depth of mining	57m (AGL)			
12.	Method of Mining	Opencast, Semi-Mechanized Mining with a bench height of 5m and bench width of 5m is proposed			
13.	Drilling/Blasting	Drilling and controlled Blasting is proposed			
14.	No. of Working days	300 Days			
15.	Water requirement & Source	9.5 kLD and will be sourced from local vendors			
16.	Manpower	35 Nos.			
17.	Project Cost	Rs. 509.346 lakhs			
18.	Mining Plan Approval	Joint Director (A/c), O/o. Assistant Director, Dept. of Geology & Mining, Tiruvannamalai vide Rc.No. 549/Kanimam/2024 dated 23.09.2024.			
19.	Safety Zone	2.44.00 Ha will be maintained as safety zone and tree saplings will be planted in this area			
20.	Ground water level	68 m BGL			

Table 11-2 Environmental Settings of the Project

S. No.	Particulars	Details
1.	Nearest Highway	(NH-179B) Tiruvannamalai-Chennai – 24.00km (SE) (SH-116) Kancheepuram – Vandavasi – 3.8km (W)
2.	Interstate boundary	Nil within 10 km radius
3.	Nearest Railway Station	Pakkam – 24.0km, SE
4.	Nearest Airport	Chennai - 72 km, NE

5.	Nearest Port	Chennai - 85 km, NE
6.	Nearest Village	Vachanur – 680m, N
7.	Water bodies	• Odai – 560m (NE) • Kuttai – 435m (W) • Kulam – 550m (NE) • Melnarma Tank – 270m (S) • Thukkuvadi Tank – 420m (SE) • Thuraiyur Tank – 1.0km (SW) • Vachanur Tank- 930m (NW) • Alathur Chitheri – 980m (NE) • Uthiramerur Lake – 7.2km (NE) • Cheyyar River – 8.7km (N) • Subam River - 7.2km (SE)
8.	Reserved Forest	Venkunam RF – 7.3 km (SW)
9.	Eco Sensitive Zone and Wildlife Sanctuary (Notified)	Nil within 10km Radius Karikili Bird Sanctuary – 19.0 km (E
10.	Archaeological important places	Nil within 10 km radius
11.	Defense Installations	Nil within 10 km radius
12.	Nearest Port	Nil within 10 km radius
13.	Seismic Zone	Nil within 10 km radius

11.3 Baseline Status

Season: Post-Monsoon

Period of Collection: October to December 2024

Number of Monitoring Locations

Parameters	No. of Monitoring Locations
Meteorology	01
Ambient Air Quality	07
Surface Water Quality	
Ground Water Quality	07
Ground Water Level	02

Noise Level	07
Soil Quality	06

Meteorological Parameters

Parameters	Min. Value	Max. Value	Mean Value
Temperature (°C)	17	35.9	27.3
Wind Speed (m/s)	1	8.8	2.9
Relative Humidity (%)	33.9	98.1	71.8
Solar Radiation (W/m^2)	144.38	164.9	152.3

Rainfall Data:

	Total rainfall (mm)	No. of Rainy Days	Average annual rainfall (mm)
Rainfall	1.1	55	815

Predominant wind direction during monitoring period: North East

Ambient Air Quality

Core Zone	Pollutant	Unit	Min	Max	Mean	Standards
Core Zone	PM10	Micro Gram per Meter Cube	50.0	70	61.1	100
Core Zone	PM2.5	Micro Gram per Meter Cube	23.6	33.0	28.7	60
Core Zone	SO2	Micro Gram per Meter Cube	5.7	8.9	7.1	80
Core Zone	NOx	Micro Gram per Meter Cube	9.5	12.4	10.7	80

Buffer Zone	Pollutant	Unit	Min	Max	Mean	Standards
Buffer Zone	PM10	Micro Gram per Meter Cube	43.3	61.9	50.3	100
Buffer Zone	PM2.5	Micro Gram per Meter Cube	18.9	34.5	24.4	60
Buffer Zone	SO2	Micro Gram per Meter Cube	3.6	4.4	5.0	80
Buffer Zone	NOx	Micro Gram per Meter Cube	5.8	12.9	8.9	80

Ground Water Quality

Buffer Zone	Pollutant	Unit	Observed Value		Standard Desirable Limits	Standard Permissible Limits
			From	To		
Buffer Zone	pH	-	6.92	7.84	6.5	8.5
Buffer Zone	TDS	Micro Gram per Litre	238	1120	500	2000
Buffer Zone	Total Hardness	Micro Gram per Litre	170	442	200	600
Buffer Zone	Chlorides	Micro Gram per Litre	34.3	360	250	1000
Buffer Zone	Fluoride	Micro Gram per Litre	0.23	0.66	1	1.5
Buffer Zone	Iron	Micro Gram per Litre	0.02	0.12	0.3	No relaxation

Core Zone	Pollutant	Unit	Observed Value		Standard Desirable Limits	Standard Permissible Limits
			From	To		
Core Zone	pH	-	7.32	7.32	6.5	8.5
Core Zone	TDS	Micro Gram per Litre	612	612	500	2000
Core Zone	Total Hardness	Micro Gram per Litre	432	432	200	600
Core Zone	Chlorides	Micro Gram per Litre	81.3	81.3	250	1000
Core Zone	Fluoride	Micro Gram per Litre	0.32	0.32	1	1.5
Core Zone	Iron	Micro Gram per Litre	0.08	0.08	0.3	No relaxation

Ground Water Level (Phreatic Surface)

motoring Location	Range of Water Table Pre-monsoon Season (in m below ground level)		Range of Water Table Post-Monsoon Season (in m below ground level)	
Buffer Zone	**From (Pre-monsoon)**	**To (Pre-monsoon)**	**From (post-monsoon)**	**To (post-monsoon)**
Buffer Zone	**66**	**67**	**67**	**68**

motoring Location	Range of Water Table Pre-monsoon Season (in m below ground level)		Range of Water Table Post-monsoon Season (in m below ground level)	
CORE ZONE	From (Pre-monsoon)	To (Pre-monsoon)	From (Post-monsoon)	To (Post-monsoon)
CORE ZONE	66	67	67	68

Noise Level

Monitoring Location	Category	Observed Noise Level(dB(A))				Prescribed Standard(dB(A))	
Buffer Zone		Day Time Level		Night Time Level		Day Time Level	Night Time Level
		From	To	From	To		
Buffer Zone	Residential area	44.4	49.8	37.1	40.1	55	45
Monitoring Location	Category	Observed Noise Level(dB(A))				Prescribed Standard(dB(A))	
Buffer Zone		Day Time Level		Night Time Level		Day Time Level	Night Time Level
		From	To	From	To		
Core	Industrial area	46.1	46.1	38.8	38.8	75	70

Soil Quality

Monitoring Location	Soil Texture	Particle Size Distribution (%)			Water Holding Capacity (%)	Porosity (%)
		Sand	Silt	Clay		
Buffer Zone	Clay	31.64	19.79	1.64	8.2	56.58
Monitoring Location	Soil Texture	Particle Size Distribution (%)			Water Holding Capacity (%)	Porosity (%)
		Sand	Silt	Clay		
Core Zone	Loam	28.97	20.91	1.34	8.2	68.57

Chemical Properties

Monitoring Location	Criteria Parameter	Observed Value		Unit	Permissible Standard
Buffer Zone		From	To		

Monitoring Location	Criteria Parameter	Observed Value		Unit	Permissible Standard
Buffer Zone		From	To		
Buffer Zone	Phosphorus	370	542	mg	-
Buffer Zone	Potassium	135	226	mg	-
Buffer Zone	Nitrogen	BDL	BDL	mg	-

Monitoring Location	Criteria Parameter	Observed Value		Unit	Permissible Standard
Core Zone		From	To		
Core Zone	Phosphorus	664	664	mg	-
Core Zone	Potassium	178	178	mg	-
Core Zone	Nitrogen	BDL	BDL	mg	-

11.4 Anticipated Impacts and mitigation measures

The potential impacts and appropriate mitigation measures are listed below:

Table 11-3Anticipated impacts & suggestive mitigation measures

S. No.	Potential Impact	Mitigation Measures
1.	The main impact in the air environment is dust emission during various mining activities such drilling, blasting, excavation, loading and transportation. The dust emission may affect the quality of ambient air in the and around the mine area. The increased emission may cause respiratory & Cardiovascular problems in human health	Proper mitigation measures like water sprinkling on haul roads will be adopted to control dust emissions. To control the emissions regular preventive maintenance of equipment will be carried out on contractual basis. Plantation will be carried out along approach roads & mine premises.

2.	Waste water will be generated due to mining activity and from other domestic activities. These may contaminate the ground water leading to ground water. The mining activity may affect the ground water table	No waste water will be generated from the mining activity of minor minerals as the project only involves lifting of over burden from mine site. The wastewater generated from the domestic activity will be disposed off safely through the proposed septic tank. Mining will not intersect ground water table. Hence the water table will not be impacted due to the proposed project
3.	Noise will be generated in the mine area during various mining activities such as blasting, drilling, excavation. During transportation of the mined-out mineral, there may be noise generation due to the movement of vehicles. This may impact the health condition of the workers by creating headache	Periodical monitoring of noise will be done. No other equipment except the transportation vehicles and Excavator (as & when required) for loading will be allowed at site. Noise generated by these equipment shall be intermittent and does not cause much adverse impact. Plantation will be carried out along approach roads. The plantation minimizes propagation of noise and also arrest dust.
4.	Solid waste will be generated from the mining activity as there will be refuse after 95% recovery and also generation of domestic waste	The 100% recovery is achieved by extracting the entire mineable reserve. Hence there will be no refuse generation due to the mining activity. Apart from that, a very meagre quantity of domestic waste will be generated in the project, which will be handed over to the local body on daily basis.
5.	During mining activities, there are chances of workers getting health issues or may be prone to accidents	Dust masks will be provided as additional personal protection equipment to the workers working in the dust prone area. Periodical trainings will be conducted to create awareness about the occupational health hazards due to activities like blasting, drilling, excavation. Worker's health related problem if any, will be properly addressed.

11.5 Environmental Monitoring program

A monitoring programme for all the physical environment, which includes Ambient Air Quality, Surface & Ground Water & Wastewater Quality and Noise as per CPCB/MoEF&CC/Tamil Nadu Pollution Control Board (TNPCB) shall be maintained.

11.6 Disaster Management Plan

No high-risk accidents are anticipated as it is small scale mechanized Quarry with essential light machinery. The area is not prone for landslides, seismic activities, subsidence, floods, inundation etc. As there are no rivers and habitation in

the vicinity of probable disaster from the mine lease area. Elaborate description in respect of Risk Assessment and disaster Management plan are detailed in Chapter – 7.

11.7 Project benefits

The proposed project benefits the local community by providing them employment opportunity. Total 35 Nos. will be employed in the proposed quarrying activity. It also provides indirect job opportunity to many people, thereby improving the standard of living. Quarrying activity produces materials gravel, rough stone, sand which are used in construction and other industries, thereby contributing to the economic development of the local region. CER fund of Rs. 8 Lakhs will be used for the development of school in the study area.

11.8 Conclusion

To carry out the EIA study, 10km buffer zone was considered around the proposed site. Studies were conducted within the buffer zone, to obtain the information regarding the existing status of environment, for predicting the impacts if any due to proposed expansion activity and EMP regarding the project.

The studies done on different environmental parameters mandated by CPCB/ IS10500:2012/NAAQMS for noise, water, soil and air.

Appropriate models and techniques were used to predict the impact of the proposed project and to minimize impacts at every level of development, mitigation measures were suggested.

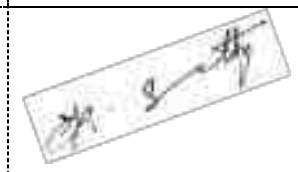
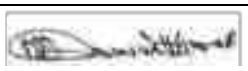
It can be concluded on a positive note that after the implementation of the mitigation measures and environmental management plans, the proposed project would result in minimal and controlled impacts during the operational phase.

12 DISCLOSURE OF CONSULTANT

In order to assess the potential environmental impacts due to the proposed Rough Stone and Gravel Quarry at S.F.Nos. 98/2, 98/3,98/4,98/7, 100/1, 100/2, 101/2, 101/3,101/4,105/1, 105/3, 105/7,105/8 and 105/11 over an extent of 7.44.0 Ha in Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu (Cluster Area: 11.91.0 Ha), the project proponent has engaged M/s. Global Mining Solutions, Salem to undertake EIA study. The nature of consultancy service rendered covers terrestrial environmental assessment.

Table 12-1 Declaration of Experts

S. No.	Functional areas	Name of the expert/s	Involvement (Period and task)	Signature and date
1.	AP	Dhanalakshmi Ramanathan	1. Selection of Baseline Monitoring stations based on the wind direction 2. Interpretation of Baseline data by comparing it with standards prescribed by CPCB against the type of area 3. Identification of sources of air pollution and suggesting mitigation measures to minimize impact Period: Oct 24 to Dec 24	
2.	WP	Abirami Kaliaperumal	1. Selection of baseline Monitoring Locations for Ground water analysis and also identifying nearest surface water to be studied 2. Interpretation of baseline data collected 3. Identification of impacts based on the baseline study conducted and also to the ground water and nearby surface water due to the proposed project 4. Preparation of suitable and appropriate mitigation plan Period: Oct 24 to Dec 24	
5.	SHW	Ramadoss N	1. Identification of nature of solid waste generated 2. Categorization of the generated waste and estimating the quantity of	

			waste to be generated based on the per capita basis. Identification of impacts of SHW on Environment 3. Suggesting suitable mitigation measures by recommending appropriate disposal method for each category of waste generated Period: Oct 24 to Dec 24	
4.	SE	Sarasvathy K	1. Primary data collection through the census questionnaire 2. Obtaining Secondary data from authenticated sources and incorporating the same in EIA report. 3. Impact assessment & proposing suitable mitigation plan 4. CSR budget allocation by discussing with the local body and allotting the same for need based activity. Period: Oct 24 to Dec 24	
5.	EB	Saravanan S	1. Primary data collection through field survey and sheet observation for ecology and biodiversity 2. Secondary Collection through various authenticated sources 3. Prediction of anticipated impacts and suggesting appropriate mitigation measures. Period: Oct 24 to Dec 24	
6.	HG	Ravinthiran N	1. Study of existing surface drainage arrangements in the core and buffer zone, impact due to mining on these drainage courses and suggestion of mitigative measures 2. Determination of groundwater use pattern, development of rainwater harvesting program. 3. Storm water management through garland drainage system. Period: Oct 24 to Dec 24	
7.	GEO	Valliappan Meyyappan	Field survey for assessing regional and local geology, aquifer distribution,	

			Determination of groundwater use pattern, development of rainwater harvesting program. Period: Oct 24 to Dec 24	
8.	SC	Shisupal Sing	1. Interpretation of baseline report 2. Identification of possible impacts on soil, prediction of soil conservation and suggesting suitable mitigation measures. Period: Oct 24 to Dec 24	
9.	AQ	Srilatha Thiruveedhula	1. Collection of Meteorological data for the baseline study period 2. Plotting wind rose plot and thereby selecting the monitoring locations based on the wind pattern 3. Estimation of sources of air emissions and air quality modelling is done 4. Interpretation of the results obtained 5. Identification of the impacts and suggesting suitable mitigation measures. Period: Oct 24 to Dec 24	
10.	NV	Dhanalakshmi Ramanathan	1. Selection of monitoring locations 2. Interpretation of baseline data 3. Prediction of impacts due to noise pollution and suggestion of appropriate mitigation measures Period: Oct 24 to Dec 24	
11.	LU	Srilatha Thiruveedhula	1. Collection of Remote sensing satellite data to study the land use pattern. 2. Primary field survey and limited field verification for land categorization in the study area 3. Preparation of Land use map using Satellite data for 10km radius around the project site. Period: Oct 24 to Dec 24	
4.	RH	S.V. Prashant	1. Identification of the risk 2. Interpreting consequence contours	

			3. Suggesting risk mitigation measures Period: Oct 24 to Dec 24	

I, hereby, certify that I was a part of the EIA team in the following capacity that developed the above EIA.

EIA Coordinator: Manikandan Manickam

Signature and Date:

Period of involvement: October 2024 to December 2024

Contact information: M/s. Global Mining Solutions
Plot No. 6, SF NO. 13/2, A2, VS City,
RC Chettypatty, Kottamettupatty,
Omalur, Salem,
Tamil Nadu – 636 455

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

I, Prabhu, hereby, confirm that the above-mentioned experts prepared the EIA report of Proposed Mining of Rough stone and Gravel Quarry Over an Extent of 7.44.0 Ha by Tvl. JCK mines. I also confirm that the consultant organization shall be fully accountable for any mis-leading information mentioned in this statement.

Signature:

Name:

Designation:

Name of the EIA consultant organization:

NABET Certificate No. & Issue Date:

TM-FAE:

S.No	Name of TM (FAE)	Functional Area	Approved FAE (to work under)	Period of involvement	Type of work	Signature
1	M.Prabu	LU	T.Srilatha	Oct 2024 to Dec 2024.	Associated with FAE in preparing Land use map based on satellite imagery, Land use classification and analysis, Impact prediction on surrounding land environment	
		HG	Ashok Kumar		Associated with FAE in studying hydrogeological pattern of study area, Studying ground water and the impact of the project on ground water	
2	M. Manikandan	EB	S.Saravanan	Oct 2024 to Dec 2024.	Associated with the expert in baseline data collection related to ecology of the study area	
		SC	Shishupal Singh		Associated with the expert in Soil monitoring, secondary data collection on soil type, soil management practices, utilization of top soil	

TM-FAA:

S. No	Name of TM (FAA)	Functional Area	Approved FAE (to work under)	Period of involvement	Type of work	Signature
1	S. Kamaraj	HG	Ashok Kumar Rajagopal	Oct 2024 to Dec 2024.	Associated with Experts in studying hydrogeological pattern of study area, Studying ground water and the impact of the project on ground water	
2	Asan Ali S	GEO	Valliappan Meyyappan	Oct 2024 to Dec 2024.	Associated with the expert in preparing Geological map, assessing stability of quarry slope faces and dump, management plan for mine stability, after use of mining quarry and geological features of the area	
		NV	Srilatha Thiruveedhula		Associated with the expert in monitoring and analysis of blast induced ground vibration in order to develop the site-specific equation for its prediction, monitoring of fly rocks & air blast (noise), preparation of SOP's for the safety blasting practice in the mines.	
3	Mownica. B	AP	Dhanalakshmi Ramanathan	Oct 2024 to Dec 2024	Associated with expert team in assessing existing air quality, impact of the project on ambient air and suggesting mitigation measures for air pollution	
		NV	Dhanalakshmi Ramanathan		Associated with the expert team in suggesting control measures for noise and Ground Vibration.	
4	G.Balasubramani	GEO	Valliappan Meyyappan	Oct 2024 to Dec 2024	with the expert in preparing Geological map, assessing stability of quarry slope faces and dump, management plan for mine stability, after use of mining quarry and geological features of the area	

		NV	Srilatha Thiruveedhula		Associated with the expert in monitoring and analysis of blast induced ground vibration in order to develop the site-specific equation for its prediction, monitoring of fly rocks & air blast (noise), preparation of SOP's for the safety blasting practice in the mines.	

ANNEXURE-1

File No: 11441
Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment Authority(SEIAA), TAMIL NADU)
***

Dated **27/12/2024**

To,

Tvl.JCK Mines,
Tvl.JCK Mines, Thiru.J.K.Srinivasan (Partner) S/o.Kannan,No.782, Mariamman kovil street, Jambodai village, Azhividaithangi post, Vembakkam Taluk, Tiruvannamalai District., Tiruvannamalai , TIRUVANNAMALAI, TAMIL NADU, Tiruvannamalai , 604402
tvljckmines@gmail.com

Subject: Grant of Terms of Reference under the provision of the EIA Notification 2006- as amended regarding.

Sir/Madam,

Sub: SEIAA, Tamil Nadu – Proposed Rough Stone and Gravel quarry lease over an extent 7.44.0 Ha at S.F.Nos. 98/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7, 105/8, and 105/11 of Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu by Tvl. JCK 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/505329/2024, Dated:12.11.2024.
2. Your application submitted for Terms of Reference dated: 13.11.2024.
3. Minutes of the 516th meeting of SEAC held on 06.12.2024.
4. Minutes of the 781st SEIAA meeting held on 23.12.2024.

2. The particulars of the proposal are as below :

(i) TOR Identification No.	TO24B0108TN5594899N
(ii) File No.	11441
(iii) Clearance Type	TOR
(iv) Category	B1
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals
(vii) Name of Project	Rough Stone and Gravel Quarry of Tvl. JCK Mines, Thiru.J.K. Vettrivelan (Partner)
(viii) Name of Company/Organization	JCK MINES
(ix) Location of Project (District, State)	TIRUVANNAMALAI, TAMIL NADU
(x) Issuing Authority	SEIAA

(xii) Applicability of General Conditions	no
(xiii) Applicability of Specific Conditions	no

3. 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.

4. The above-mentioned proposal has been considered by (SEIAA) Appraisal Committee of SEIAA in the meeting held on 18.12.2024 & 19.12.2024. 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.

5. 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 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).

6. 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 for instant proposal of M/s. JCK MINES under the provisions of EIA Notification, 2006 and as amended thereof.

7. The Ministry/SEIAA-TN reserves the right to stipulate additional conditions, if found necessary.

8. The Terms of Reference 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.

9. This issues with the approval of the Competent Authority.

Copy To

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Principal Secretary to Government, Environment, Climate Change and Forests Department, Tamil Nadu.
3. The Additional Chief Secretary to Government, Natural Resources Department, Tamil Nadu.
4. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
5. The Chairperson, TNPC Board,76, Mount Salai, Guindy, Chennai-32
6. The District Collector, Tiruvannamalai District.
7. The Commissioner of Geology and Mines, Guindy, Chennai-32
8. Assistant Director, Department of Geology & Mining, Tiruvannamalai District.
9. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Integrated Regional office of MoEF&CC, Sasthri Bhawan, Nungambakkam, Chennai.
11. File Copy.

Annexure 1

Specific Terms of Reference for (Mining Of Minerals)

1. Seiaa Specific Conditions :

S. No	Terms of Reference
1.1	The authority noted that the subject was appraised in the 516th SEAC meeting held on 06.12.2024. After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant **Terms of Reference (ToR) along with Public Hearing** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC, standard conditions stipulated by MoEF&CC & the conditions mentioned in Annexure of this minutes.

2. Seac Conditions - Site Specific

S. No	Terms of Reference
2.1	1. The mining activity is restricted to the depth of 47m below ground level. Hence, the proponent shall submit the revised mining plan approved by the competent authority. 2. **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**. 3. Since waterbodies are situated nearby, the PP shall carry out the scientific studies to assess the hydrogeological condition of the quarry to determine impacts of the mining operation on the ground water conditions in the waterbodies. 4. The proponent shall furnish photographs of adequate fencing, garland drainage built with siltation tank & green belt along the periphery including replantation of existing trees; maintaining the safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan. 5. The Proponent shall carry out Bio diversity study as a part of EIA study and the same shall be included in the Report. 6. The PP shall prepare the EMP for the entire project life of mine, i.e, 10 years and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine. 7. The PP shall carry out the comprehensive studies on the cumulative environmental impacts of the existing & proposed quarries which included drilling & blasting, loading & hauling on the surrounding village and structures.

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

S. No	Terms of Reference
	(v) Details of illegal/illicit mining (vi) Violation in the quarry during the past working. (vii) Quantity of material mined out outside the mine lease area (viii) Condition of Safety zone/benches (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m. 2. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site. 3. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc. 4. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry. 5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report. 6. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site. 7. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC. 8. However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level. 9. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent. 10. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site. 11. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences. 12. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines, 13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines? 14. Quantity of minerals mined out. · Highest production achieved in any one year · Detail of approved depth of mining. · 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

S. No	Terms of Reference
	benches. 15. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone). 16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc., 17. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan. 18. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same. 19. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment. 20. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. 21. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study. 22. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind. 23. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted. 24. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given. 25. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided. 26. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered. 27. Description of water conservation measures proposed to be adopted in the Project should be 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

S. No	Terms of Reference
	activity. 30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific. 31. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible. 32. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner. 33. Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner 34. A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period. 35. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period. 36. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed. 37. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations. 38. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation. 39. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given. 40. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc. 41. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB. 42. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine. 43. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.

4. Seiaa Standard Conditions :

S. No	Terms of Reference
4.1	**Cluster Management Committee**

S. No	Terms of Reference
	1. Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry. 2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc., 3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines. 4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network. 5. The committee shall deliberate on risk & emergency management plan, fire safety & evacuation plan and sustainable development goals pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan. 6. The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail in the EIA Report. 7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner. 8. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public in the vicinity. **Agriculture & Agro-Biodiversity** 9. Impact on surrounding agricultural fields around the proposed mining Area. 10. Impact on soil flora & vegetation around the project site. 11. Details of type of vegetation including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetation all along the boundary of the proposed mining area shall committed mentioned in EMP. 12. The Environmental Impact Assessment should study the agro-biodiversity, agro-forestry, horti-cultural plantations, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem. 13. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services. 14. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock. **Forests** 15. The project proponent shall detailed study on impact of mining on Reserve forests and free ranging wildlife. 16. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna. 17. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection. 18. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site. **Water Environment** 19. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period. **20. Erosion Control measures.** 21. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease

S. No	Terms of Reference
	area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas. 22. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir. 23. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities. 24. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts. 25. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components. 26. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites. 27. The EIA shall include the impact of mining activity on the following: a) Hydrothermal/Geothermal effect due to destruction in the Environment. b) Bio-geochemical processes and its foot prints including environmental stress. c) Sediment geochemistry in the surface streams. **Energy** 28. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished. **Climate Change** 29. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities. 30. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock, soil health and physical, chemical & biological soil features. 31. Impact of mining on pollution leading to GHGs emissions and the impact of the same on the local livelihood. **Mine Closure Plan** 32. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued. **EMP** 33. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued and the scope for achieving SDGs. 34. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan. **Risk Assessment** 35. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining. **Disaster Management Plan** 36. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued. **Others** 37. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc. 38. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.

S. No	Terms of Reference
	39. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.

Standard Terms of Reference for (Mining of minerals)

1.

S. No	Terms of Reference
1.1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994
1.2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given
1.3	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee
1.4	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ toposheet, topographic sheet, geomorphology and geology of the areashould be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone)
1.5	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics
1.6	Details about the land proposed for mining activities should be givenwith information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority
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

S. No	Terms of Reference
1.9	The study rea will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period
1.10	Land use of the study rea delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given
1.11	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given
1.12	A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees
1.13	Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished
1.14	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated
1.15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given
1.16	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted
1.17	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlifeand copy furnished
1.18	A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled- I fauna found in the study area, the necessary plan alongwith budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost

S. No	Terms of Reference
1.19	Proximity to Areas declared as Critically Polluted or the Project areas likely to come under the Aravali Range, (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered
1.20	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority)
1.21	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report
1.22	One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given
1.23	Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map
1.24	The water requirement for the Project, its availability and source should be furnished. A detailed 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

S. No	Terms of Reference
	groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished
1.29	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out
1.30	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same
1.31	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given.The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution
1.32	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines
1.33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report
1.34	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report
1.35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health 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

S. No	Terms of Reference
	any, occupational health impacts besides other impacts specific to the proposed Project
1.39	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project
1.40	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given
1.41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out
1.42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report
1.43	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc
1.44	Besides the above, the below mentioned general points are also to be followed:- a) All documents to be properly referenced with index and continuous page numbering. b) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated. c) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project. d) Where the documents provided are in a language other than English, an English translation should be provided. e) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted. f) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed. g) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation. h) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable. i) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area
1.45	**<u>In addition to the above, the following shall be furnished:-</u>** **<u>The Executive summary of the EIA/EMP report in about 8-10 pages should be prepared incorporating the information on following points:</u>** 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. 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.

S. No	Terms of Reference
	8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be shall be submitted along with EIA report. 9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report. 10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010. 11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas. 12. The EIA study report shall include the surrounding mining activity, if any. 13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures. 14. A study on the geological resources available shall be carried out and reported. 15. A specific study on agriculture & livelihood shall be carried out and reported. 17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of is acquisition, nearby (in 2-3 km.) water body, population, with in 10km other industries, forest , eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary) 18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population 19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk. 20. Likely impact of the project on air, water, land, flora-fauna and nearby population 21. Emergency preparedness plan in case of natural or in plant emergencies 22. Issues raised during public hearing (if applicable) and response given 23. CER plan with proposed expenditure. 24. Occupational Health Measures 25. Post project monitoring plan 26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies. 27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities. 28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines. 29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals. 30. Reserve funds should be earmarked for proper closure plan. 31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC.2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan. **Besides the above, the below mentioned general points should also be followed:-** a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided. b. All documents may be properly referenced with index, page numbers and continuous page numbering. c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated. d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF& CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.

S. No	Terms of Reference
	e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J -l1013/77/2004-IA-II(I) dated 2nd December, 2009, 18th March 2010, 28th May 2010, 28th June 2010, 31st December 2010 & 30th September 2011 posted on the Ministry's website http://www.moef.nic.in/ may be referred. § After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above mentioned points, the proponent will take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006. § The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance. § The TORs with public hearing prescribed shall be **valid for a period of three years** from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.

ANNEXURE-2

ANNEXURE 1

ந.க.எண்.549/கனிமம்/2023

உதவி இயக்குநர் அலுவலகம்,
புவியியல் மற்றும் சுரங்கத்துறை,
திருவண்ணாமலை-4.
நாள். 28.08.2024.

தெரிவிக்கை

பொருள் கனிமங்களும் குவாரிகளும் - சிறுகனிமம் - திருவண்ணாமலை மாவட்டம் - செய்யார் வட்டம் - மேல்நர்மா கிராமம் - புல எண்கள். 98/2 (0.62.0), 98/3 (0.59.5), 98/4 (0.54.5), 98/7 (0.57.0), 100/1 (0.40.5), 100/2 (0.40.0), 101/2 (0.33.0), 101/3 (0.87.5), 101/4 (0.84.5), 105/1 (0.40.5), 105/3 (0.65.0), 105/7 (0.42.0), 105/8 (0.40.5) மற்றும் 105/11 (0.37.5) ஆகியவற்றின் மொத்தப்பரப்பு 7.44.0 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க - குவாரி குத்தகை உரிமம் வழங்கக்கோரி Tvl.JCK Mines என்ற நிறுவனத்தின் பங்குதாரர் திரு.J.K.வெற்றிவேலன் என்பவர் விண்ணப்பம் செய்தது - பரிந்துரை அறிக்கை வரப்பெற்றது - சுரங்கத் திட்டம் (Mining plan) தயார் செய்து சமர்ப்பிக்க கோருவது - தொடர்பாக.

பார்வை
1. Tvl.JCK Mines என்ற நிறுவனத்தின் பங்குதாரர் திரு.J.K.வெற்றிவேலன் என்பவர் வெம்பாக்கம் வட்டம் விண்ணப்ப நாள்.21.12.2023.
2. இவ்வலுவலக கடித ந.க.எண்.549/கனிமம்/2023 நாள்.26.12.2023
3. வட்டாட்சியர், செய்யார் அவர்களின் கடித ந.க.எண்.ஆ1/1109/2024 நாள்.12.03.2024
4. சார் ஆட்சியர், செய்யார் அவர்களின் கடித ந.க.எண்.ஆ1/50/2024 நாள்.22.07.2024.
5. உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை திருவண்ணாமலை அவர்களின் புலத்தணிக்கை நாள். 27.08.2024
6. தொடர்புடைய ஆவணங்கள்.

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திருவண்ணாமலை மாவட்டம், செய்யார் வட்டம், மேல்நர்மா கிராமம் புல எண்கள். 98/2 (0.62.0), 98/3 (0.59.5), 98/4 (0.54.5), 98/7 (0.57.0), 100/1 (0.40.5), 100/2 (0.40.0), 101/2 (0.33.0), 101/3 (0.87.5), 101/4 (0.84.5), 105/1 (0.40.5), 105/3 (0.65.0), 105/7 (0.42.0), 105/8 (0.40.5) மற்றும் 105/11 (0.37.5) ஆகியவற்றின் மொத்தப்பரப்பு 7.44.0 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க 5 ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் வழங்கக்கோரி Tvl.JCK Mines என்ற நிறுவனத்தின் பங்குதாரர் திரு.J.K.வெற்றிவேலன் என்பவர் அளித்த பார்வை 1-ல்

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கரணும் விண்ணப்பம் மீது பார்வை 2-ல் காணும் இவ்வலுவலக கடிதம் மூலம் சார் ஆட்சியர், செய்யார் அவர்களின் அறிக்கை கோரப்பட்டது.

அதனைத்தொடர்ந்து பார்வை 4-ல் காணும் சார் ஆட்சியர், செய்யார் மற்றும் பார்வை 5-ல் காணும் திருவண்ணாமலை மாவட்ட புவியியல் மற்றும் சுரங்கத்துறை உதவி புவியியலாளர் ஆகியோரின் அறிக்கைகள் பரிசீலிக்கப்பட்டது.

மேற்காணும் பரிந்துரை அறிக்கைகளின்படி திருவண்ணாமலை மாவட்டம், செய்யார் வட்டம், மேல்நர்மா கிராமம் புல எண்கள். 98/2 (0.62.0), 98/3 (0.59.5), 98/4 (0.54.5), 98/7 (0.57.0), 100/1 (0.40.5), 100/2 (0.40.0), 101/2 (0.33.0), 101/3 (0.87.5), 101/4 (0.84.5), 105/1 (0.40.5), 105/3 (0.65.0), 105/7 (0.42.0), 105/8 (0.40.5) மற்றும் 105/11 (0.37.5) ஆகியவற்றின் மொத்தப்பரப்பு 7.44.0 ஹெக்டேர் பரப்பளவில் புல எண் 105/2-ல் உள்ள அரசு ஏரி புறம்போக்குக்கு 50மீட்டர் பாதுகாப்பு இடைவெளி அமைக்க புல எண்கள் 105/1, 105/3, 101/4, 101/3 ஆகிய புலங்களின் மேற்கு பகுதியில் பாதுகாப்பு இடைவெளி அமைத்து 5 ஆண்டுகளுக்கு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959, விதி 19(1), 20 மற்றும் 22-ன்படி விண்ணப்பதாரர் Tvl.JCK Mines என்ற நிறுவனத்தின் பங்குதாரர் திரு.J.K.வெற்றிவேலன், என்பவருக்கு சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் வழங்க பரிந்துரை செய்யப்பட்ட 7.44.0 ஹெக்டேர் பரப்பின் கற்குவாரி செய்ய உகந்த புலம் (Precise Area) என தீர்மானித்து கீழ்கண்ட நிபந்தனைகளுக்குட்பட்டு அறிவிப்பு செய்யப்படுகிறது.

நிபந்தனைகள்

1. ஏரி புறம்போக்கான புல எண் 105/2-ற்க்கு 50 மீட்டர் பாதுகாப்பு இடைவெளி விட ஏதுவாக புல எண்கள் 105/1, 105/3, 101/3, 101/4 ஆகியவற்றின் மேற்கு பகுதியில் பாதுகாப்பு இடைவெளி அமைத்து 50 மீட்டருக்குள் ஏரி புறம்போக்கு புல எண் 105/2 வராத வண்ணம் சுரங்கதிட்டத்தினை தயார் செய்ய வேண்டும்.

2. அருகில் உள்ள பட்டா நிலங்களுக்கு 7.5மீ மற்றும் அரசு நிலங்களுக்கு 10மீ பாதுகாப்பு இடைவெளி விடவேண்டும்

3. பொதுமக்களுக்கும் அருகிலுள்ள நிலங்களுக்கும் எவ்வித பாதிப்பும் ஏற்படுத்தக்கூடாது.

4. குவாரிப்பணி தொடங்குவதற்கு முன்பாக குவாரியை சுற்றி முள் கம்பிவேலி அமைத்து குவாரிப்பணி தொடங்க வேண்டும்.

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தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதிகள் 41 மற்றும் [illegible]-ன்படி சாதாரண கற்கள் மற்றும் இதர சிறு கனிமங்களுக்கு குவாரி குத்தகை உரிமம் வழங்கும் முன்பு ஒப்புதல் பெறப்பட்ட சுரங்கத்திட்ட அறிக்கை மற்றும் சுற்றுநிலை சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மை சான்று பெறப்பட வேண்டுமென வரையறுக்கப்பட்டுள்ளது.

எனவே, Tvl.JCK Mines என்ற நிறுவனத்தின் பங்குதாரர் திரு.J.K.வெற்றிவேலன் என்பவர் ஒப்புதல் பெறப்பட்ட சுரங்கத்திட்ட அறிக்கை மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மை சான்றினை பெற்று சமர்ப்பிக்கும் பட்சத்தில் திருவண்ணாமலை மாவட்டம், செய்யார் வட்டம், மேல்நர்மா கிராமம் புல எண்கள். 98/2 (0.62.0), 98/3 (0.59.5), 98/4 (0.54.5), 98/7 (0.57.0), 100/1 (0.40.5), 100/2 (0.40.0), 101/2 (0.33.0), 101/3 (0.87.5), 101/4 (0.84.5), 105/1 (0.40.5), 105/3 (0.65.0), 105/7 (0.42.0), 105/8 (0.40.5) மற்றும் 105/11 (0.37.5) ஆகியவற்றின் மொத்தப்பரப்பு 7.44.0 ஆகியவற்றின் ஹெக்டேரில் புல எண் 105/2-ல் உள்ள அரசு ஏரி புறம்போக்குக்கு 50மீட்டர் பாதுகாப்பு இடைவெளி அமைக்க புல எண்கள் 105/1, 105/3, 101/4, 101/3 மேற்கு பகுதியில் பாதுகாப்பு இடைவெளி அமைத்து 5 ஆண்டுகளுக்கு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி எண் 19(1) மற்றும் 20-ன் கீழ் 5 ஆண்டுகளுக்கு குத்தகை உரிமம் வழங்க உரிய நடவடிக்கை மேற்கொள்ளப்படும் என்ற விவரம் தெரிவிக்கப்படுகிறது.

மேலும், இவ்வறிப்பு கிடைக்கபெற்ற 90 நாட்களுக்குள் மேற்சொன்ன நிபந்தனைகளையும் குறிக்கும் வகையில் வரைவு சுரங்கத்திட்ட அறிக்கை தயார் செய்து இணை இயக்குநர் (கூ.பொ), புவியியல் மற்றும் சுரங்கத்துறை திருவண்ணாமலை அவர்களிடம் ஒப்புதல் பெற சமர்ப்பிக்குமாறு அறிவுறுத்தப்படுகிறது.

இணை இயக்குநர் (கூ.பொ),
உதவி இயக்குநர் அலுவலகம்,
புவியியல் மற்றும் சுரங்கத்துறை,
திருவண்ணாமலை.

28/8/24

பெறுநர்:

Tvl.JCK Mines,
பங்குதாரர் திரு.J.K.வெற்றிவேலன்
எண்.782 மாரியம்மன் கோவில் தெரு,
ஜம்போடை கிராமம், அழிவிடைதாங்கி அஞ்சல்,
வெம்பாக்கம் வட்டம், திருவண்ணாமலை மாவட்டம்.

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ANNEXURE-3

From

Thiru.A.Arumuganainar, M.Sc.,
Joint Director (A/c),
O/o. Assistant Director,
Geology and Mining,
Tiruvannamalai - 4.

To

Tvl.JCK Mines,
Partner Thiru.J.K.Vettrivelan,
No.782 Mariamman Kovil Street,
Jambodai Village, Azhividaithangi Post,
Tiruvannamalai District.

Rc.No.549/Kanimam/2024, dated: 23.09.2024.

Sir,

Sub: Quarries and Minerals – Minor Mineral - Rough stone and Gravel - Tiruvannamalai District – Cheyyar Taluk – Melnarma village Patta Land in SF.Nos.98/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7, 105/8 and 105/11 over an extent of 7.44.0 Hectare – Application preferred by **Tvl.JCK Mines - Precise area communicated – Submission of three copies of draft Mining Plan for approval** - Approval accorded - regarding.

Ref: 1. Application from Tvl.JCK Mines, Partner Thiru. J.K.Vettrivelan, No.782 Mariamman Kovil Street, Jambodai Village, Azhividaithangi Post, Tiruvannamalai District dated 21.12.2023.

2. Precise Area Communication Notice Rc.No.549/ Kanimam/2024, dated 28.08.2024.

3. Mining Plan submitted by Tvl.JCK Mines, Partner Thiru. J.K.Vettrivelan, Chengalpattu District dated, 12.09.2024

******

Tvl.JCK Mines, Partner Thiru. J.K.Vettrivelan has preferred an application for the grant of Rough Stone and Gravel quarry lease over an extent of 7.44.0 Hectare of Patta land in SF.Nos. 98/2 (0.62.0), 98/3 (0.59.5), 98/4 (0.54.5), 98/7 (0.57.0), 100/1 (0.40.5), 100/2 (0.40.0), 101/2 (0.33.0), 101/3 (0.87.5), 101/4 (0.84.5), 105/1 (0.40.5), 105/3 (0.65.0), 105/7 (0.42.0), 105/8 (0.40.5) and 105/11 (0.37.5) of Melnarma Village, Cheyyar Taluk, Tiruvannamalai District for a period of 5 years vide the reference 1st cited and the precise area has been communicated to the applicant vide 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 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 in Cu.m	Mineable Reserves in Cu.m
57m below ground level	Rough Stone : 40,89,195 Gravel : 1,48,698	Rough Stone : 8,68,060 Gravel : 1,00,452

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:

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

ii. This approval of the mining plan does not in any way convey the approval of the Government in terms or any other provisions of the Mines and Minerals (Development and Regulation) Act, 1957, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Explosives Act, 1884 (Central Act IV of 1884) Minor Mineral Concession and Development Rules, 2010 and the Rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.

iii. The mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.

iv. The validity of the mining plan is co-terminus with the lease period.

v. Quarrying shall be done in accordance with the approved Mining Plan.

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. A safety distance of 7.5m and 10m should be provided to the adjoining patta and Poramboke lands respectively.

viii. A safety distance of 50m should be provided to the permanent structures (Water bodies, Highways, Electrical lines and Railway tracks).

ix. The applicant should not cause any hindrance to adjacent lands and public while quarrying operation.

x. Barbed wire fencing should be erected all along the boundary of the lease granted area before quarrying operation.

xi. The applicant should use jackhammer and mild explosive during blasting in quarry.

xii. Quarrying operation should be done proper scientific method only.

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

I) Existing Quarries

Sl. No.	Name of the Owner	Village & S.F. Nos.	Extent in Hect.	Lease Period	Remarks
1	Tvl.JCK Mines No.782, Mariyamman Koil Street, Jambodai Village, Azhividaithangal Post, Vembakkam Taluk.	Melnarma 100/3, 100/5, 100/6, 100/7, 100/8, 100/9, 100/10, 100/11, 100/12 & 100/13	4.47.0	15-07-2020 to 14-07-2025	Existing quarry

ii) Abandoned quarries

Sl. No.	Name of the Owner	Village & S.F. Nos.	Extent in Hect.	Lease Period	Remarks
...Nil...					

iii)Present Proposed Quarries

Sl. No	Name of the Owner	Village & S.F. Nos.	Extent in Hect.
1	Tvl.JCK Mines, Partner Thiru.J.K.Vettrivelan, No.782 Mariamman Kovil Street, Jambodai Village, Azhividaithangi Post, Tiruvannamalai District.	Melnarma 98/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7, 105/8 and 105/11	7.44.0

Encl: 2 Copies of Approved Mining Plan.

Joint Director (Addl. Ch.),
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 Commissioner of Geology and Mining, Chennai-32.
3. The District Collector, Tiruvannamalai.

APPROVAL MINING PLAN

MINING PLAN FOR MELNARMA ROUGH STONE & GRAVEL QUARRY

(Prepared under rule 19(1), 41 & 42 of Tamil Nadu Minor Mineral Concession Rules, 1959)

LOCATION OF THE QUARRY LEASE APPLIED AREA

STATE	:	TAMIL NADU
DISTRICT	:	TIRUVANNAMALAI
TALUK	:	CHEYYAR
VILLAGE	:	MELNARMA
S.F.NOS	:	98/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7, 105/8, and 105/11
EXTENT	:	7.44.0Ha

FOR

APPLICANT

Tvl.JCK Mines,

Thiru.J.K.Vettrivelan (Partner),

No.782, Mariamman Kovil Street, Jambodai village,

Azhividaithangi post, Vembakkam Taluk,

Tiruvannamalai District.

PREPARED BY

C.Natarajan, M.Sc.,M.Phil.,

Qualified Person

No.93/36E2, Subramaniyar Kovil Street,

Omalur Taluk, Salem District, Tamil Nadu,

Pin code-636 455.

MOBILE: 97502 23535 & 94446 54520.

ECO-FRIENDLY

SUSTAINABILITY

SAFETY





(PPE)

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Tvl.JCK Mines,
J.K.Vettrivelan (Partner),
No.782, Mariamman Kovil Street,
Jambodai village, Azhividaithangi post,
Vembakkam Taluk, Tiruvannamalai District.

CONSENT LETTER FROM THE APPLICANT

The Mining Plan in respect of **Rough Stone and Gravel** quarry over an extent of 7.44.0hectares of Patta lands in S.F.Nos.98/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7, 105/8, and 105/11 of Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State has been prepared by

C.Natarajan, M.Sc.,M.Phil.,
Qualified Person

I request the Joint Director (additional i/c)/Assistant Director, Department of Geology and Mining, Tiruvannamalai District to make further correspondence regarding modifications of the Mining Plan with the said Qualified Person on this following address.

C.Natarajan, M.Sc.,M.Phil.,
Qualified Person
No.93/36E2, Subramaniyar Kovil Street,
Omalur Taluk, Salem District,
Tamil Nadu, Pin code-636 455.
Mobile:97502 23535 & 94446 54520.

I hereby undertake that all modifications so 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 building on me in all respects.

Signature of the Applicant
For Tvl. JCK Mines

J.K.Vetrivelan (Partner)

Place: Tiruvannamalai
Date: 29.08.2024

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Tvl.JCK Mines,
J.K.Vettrivelan (Partner),
No.782, Mariamman Kovil Street,
Jambodai village, Azhividaithangi post,
Vembakkam Taluk, Tiruvannamalai District.

DECLARATION

The Mining Plan in respect of **Rough Stone and Gravel** quarry over an extent of 7.44.0hectares of Patta lands in S.F.Nos.98/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7, 105/8, and 105/11 of Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State has been prepared with my consultation and I have understood the contents and agree to implement the same in accordance with the Mining Laws.

Signature of the Applicant
For Tvl. JCK Mines

J.K.Vetrivelan (Partner)

Place: Tiruvannamalai
Date: 29.08.2024

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C.Natarajan, M.Sc.,M.Phil.,
Qualified Person
No.93/36E2,Subramaniyar Kovil Street,
Omalur Taluk, Salem District,
Tamil Nadu, Pin code-636 455.
Mobile:97502 23535 & 94446 54520.

CERTIFICATE

This is to certify that, the provisions of under rules 19, 41 & 42 as Amended in under Tamil Nadu Minor Mineral Concession Rules, 1959, have been observed the Mining Plan for the grant of **Rough Stone and Gravel** quarry lease over an extent of 7.44.0hectares of Patta lands in S.F.Nos.98/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7, 105/8, and 105/11 of Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State applied by Tvl.JCK Mines, for fresh quarry lease.

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

Certified
Signature of Qualified Person.

C.Natarajan, M.Sc.,M.Phil.,
Qualified Person
C.NATARAJAN M.Sc.,M.Phil.,
Qualified Person

Place: Salem
Date: 30.08.2024

C.Natarajan, M.Sc.,M.Phil.,
Qualified Person
No.93/36E2, Subramaniyar Kovil Street,
Omalur Taluk, Salem District,
Tamil Nadu, Pin code-636 455.
Mobile:97502 23535 & 94446 54520.

CERTIFICATE

Certified that, in preparation of Mining Plan for **Rough Stone and Gravel** quarry over an extent of 7.44.0hectares of Patta lands in S.F.Nos.98/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7, 105/8, and 105/11 of Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State for Tvl.JCK Mines covers all the provisions of Mines Act, Rules, and Regulations etc., made there under and whenever specific permission are required, the applicant will approach the Director General of Mines Safety, Chennai. The standards prescribed by DGMS in respect of Mines Health will be strictly implemented.

Certified
Signature of Qualified Person.

C.Natarajan, M.Sc.,M.Phil.,
Qualified Person

Place: Salem
Date: 30.08.2024

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CERTIFICATE

Certified that I, C.Natarajan, residing at No.93/36 E2, Subramaniyar Kovil Street, Omalur Taluk, Salem District, Tamil Nadu, Pin Code-636 [illegible] I am a Post graduate in Geology (M.Sc., Geology) from Annamalai University and more than five years of experience in mining Field.

Rule 15(1)(a) and (b) of Minerals (Other than Atomic, Hydro Carbons Energy Minerals) concession Rules 2016 stipulates the eligibility for preparing Mining Plans as *"(1)(a) a post graduate degree in Geology granted by a university established" and (1)(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 (1)(a) and (1)(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 in respect of Rough Stone and Gravel quarry lease applied for an extent of 7.44.0Ha of (Patta lands) in S.F.Nos.98/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7, 105/8, and 105/11 of Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, by Tvl.JCK Mines, for a period of five years. Since the Mining Plan is prepared as per the provisions contained in Rule 15(1) (a) and (b) of Minerals (Other than Atomic, Hydro Carbons Energy Minerals) concession Rules 2016, the same may be approved by the Competent Authority.

C.Natarajan, M.Sc.,M.Phil.,

Qualified Person

C.NATARAJAN M.Sc.,M.Phil.,
Qualified Person

Place: Salem

Date: 30.08.2024

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Annexure

S. No.	Description	Annexure
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3.0	Satellite imagery map	I-B
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MINING PLAN FOR MINOR MINERALS

ROUGH STONE AND GRAVEL

Over an extent of 7.44.0hectares of Patta land in S.F.Nos. 98/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7, 105/8, and 105/11 of Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

(PREPARED UNDER RULE 19(1), 41 and 42 OF TNMMCR 1959)

1.0 Introduction and Executive Summary;

1. The present Mining Plan is prepared for Tvl.JCK Mines, Thiru.J.K.Vettrivelan (Partner), No.782, Mariamman Kovil Street, Jambodai village, Azhividaithangi post, Vembakkam Taluk, Tiruvannamalai District.
2. The application was processed by the Joint Director (additional i/c), Department of Geology and Mining, Tiruvannamalai, and passed an order vide Rc.No. 549/Kanimam/2024, dated 28.08.2024 directing the applicant to produce approved Mining Plan under Rule 41(5) of the Tamil Nadu Minor Mineral Concession Rules, 1959 and Environmental Clearance Certificate under Rule 42 from the State Level Environmental Impact Assessment Authority (SEIAA) for the grant of quarry lease to quarry **Rough Stone and Gravel** over an extent of 7.44.0 hectares of Patta lands in S.F.Nos. 98/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7, 105/8, and 105/11 of Melnarma Village, Cheyyar Taluk, Tiruvannamalai District of Tamil Nadu State for a period of five years.
3. Accordingly, Mining Plan is prepared under the provisions of rule 19(1), 41 and 42 as per the amendments under Tamil Nadu Minor Mineral Concession Rules, 1959 by incorporating following the conditions imposed in the precise area communication letter.

a) The Eri poramboke situated in S.F.No.105/2, mining plan should be prepared after leaving a safety distance of 50m on the west side of S.F.Nos.105/1, 105/3, 101/3, 101/4.

b) A safety distance of 7.5m should be provided patta lands and 10m safety distance should be provided to the adjacent Government lands.

c) The applicant should not cause any hindrance to adjacent lands and public while quarrying operation.

d) Barbed wire fencing should be erected all along the boundary of the lease granted area before quarrying operation.

4. Geological Resources is estimated at 40,89,195m³ of Rough stone and 1,48,698m³ of gravel formation and Mineable Reserves is estimated at 8,68,060m³ of Rough Stone and 1,04,452m³ of gravel formation and after leaving necessary safety distance from the lease boundary as indicated in the precise area letter and relevant mining laws in force.

5. The production schedule is proposed production of 8,68,060m³ of Rough Stone and 1,04,452m³ of gravel formation for the period of five years.

6. The applicant ensured that, child labours under 18 years of age will not be engaged for quarrying operation.

7. The applicant ensure that will appoint should have valid certified persons (Mines Manager, Foreman, Mate) during quarrying operation.

8. Environmental parameters,

i) The area does not attract the Forest Conservation Act, 1980 as there is no forest around 7.15km radius.

ii) There is no interstate boundary around 10Kms radius.

iii) There is no wild life animal sanctuary within 10Kms radius from the project site area under the Wildlife (Protection) Act, 1972.

Therefore the project seeks clearance only from State Level Environmental Impact Assessment Authority (SEIAA).

9. Environmental measures to be adopted shall be,

i) Dust Control at source while drilling and blasting.

ii) Dust suppression at loading point and transport haul roads.

iii) Noise Control in blasting, control of fly rock missiles and vibration by doing peak particle velocity with in standard as prescribed by the DGMS and MOEF.

iv) Unnecessary land degradation should be avoided or damaged land should be reclaimed or rehabilitated.

v) Avoid uneven rat hole mining and follow scientific and systematic mining by safe bench system of open cast mining.

vi) Mining near major fracture zones if any should be avoided to control ground water fluctuation in the adjacent agricultural lands.

vii) Emission test of vehicles should be in tack to maintain minimum emission level of flue gases.

viii) Noise level should not exceed 80db and the vehicles should use only permitted Air Horn while on road near residential areas.

ix) Safety zones as prescribed by the Department of Geology and Mining from adjacent infrastructures should be strictly adhere to.

x) And any other conditions as stipulated by the concerned authorities should be followed to protect the environment.

EXECUTIVE SUMMARY:

a.	Name of the Village Panchayat	:	Melnarma
b.	Name of the Panchayat Union	:	Arasunapalai
c.	The proposed total Minable Reserves	:	8,68,060m³ of Rough Stone, 1,00,452m³ of gravel formation
d.	The proposed quantity of reserves (level of production) for Five years to be mined is(Recoverable reserves)	:	8,68,060m³ of Rough Stone, 1,00,452m³ of gravel formation
e.	Total extent of the area	:	7.44.0Ha
f.	Proposed Period of mining	:	Five Years
g.	Existing depth	:	It is fresh quarry lease applied area
h.	Proposed Depth of mining	:	57m (maximum) below ground level for the proposed mining plan.
i.	Method of mining/level of mechanization	:	Opencast, Semi-mechanized Mining with a bench height of 5m and bench width of 5m is proposed.
j.	Types of Machineries used in the quarry	:	Machineries like Tractor mounted compressor attached with Jack hammers, Excavators are proposed to deploy for quarrying operation.
k.	Cost of the Project A. Fixed Assets Cost B. Operational Cost C. EMP Cost		Rs. 47,64,000/- Rs. 83,00,000/- Rs. 8,20,000/- Total Project cost=**Rs. 1,38,84,000/-**

l. The area applied for lease is bounded by twenty nine corners and the coordinates are clearly marked in plate no II.

Corners	Co- ordinates		Distance between the corners		
	Latitude	Longitude			
1	12° 34' 47.32"N	79° 39' 39.29"E	1-2	=	112.6m
2	12° 34' 50.95"N	79° 39' 39.78"E	2-3	=	5.0m
3	12° 34' 50.89"N	79° 39' 39.93"E	3-4	=	126.8m
4	12° 34' 54.82"N	79° 39' 41.21"E	4-5	=	80.4m
5	12° 34' 54.20"N	79° 39' 43.80"E	5-6	=	42.2m
6	12° 34' 54.86"N	79° 39' 45.03"E	6-7	=	125.6m
7	12° 34' 58.88"N	79° 39' 45.75"E	7-8	=	149.6m
8	12° 34' 58.82"N	79° 39' 40.79"E	8-9	=	63.4m
9	12° 35' 00.84"N	79° 39' 41.23"E	9-10	=	100.4m
10	12° 35' 04.08"N	79° 39' 41.66"E	10-11	=	94.6m
11	12° 35' 03.51"N	79° 39' 44.74"E	11-12	=	70.2m
12	12° 35' 03.09"N	79° 39' 47.03"E	12-13	=	133.2m
13	12° 34' 58.87"N	79° 39' 46.01"E	13-14	=	24.2m
14	12° 34' 58.83"N	79° 39' 46.81"E	14-15	=	120.8m
15	12° 34' 58.33"N	79° 39' 50.78"E	15-16	=	65.4m

	16	12° 34' 56.30"N	79° 39' 50.11"E	16-17 =	61.4m
	17	12° 34' 56.56"N	79° 39' 48.10"E	17-18 =	4.2m
	18	12° 34' 56.43"N	79° 39' 48.05"E	18-19 =	57.8m
	19	12° 34' 56.64"N	79° 39' 46.15"E	19-20 =	7.4m
	20	12° 34' 52.85"N	79° 39' 45.00"E	20-21 =	116.2m
	21	12° 34' 49.46"N	79° 39' 43.30"E	21-22 =	192.6m
	22	12° 34' 49.70"N	79° 39' 49.67"E	22-23 =	45.6m
	23	12° 34' 48.23"N	79° 39' 49.83"E	23-24 =	74.8m
	24	12° 34' 47.92"N	79° 39' 47.22"E	24-25 =	4.2m
	25	12° 34' 47.79"N	79° 39' 47.22"E	25-26 =	72.4m
	26	12° 34' 47.51"N	79° 39' 44.76"E	26-27 =	13.0m
	27	12° 34' 47.09"N	79° 39' 44.71"E	27-28 =	74.4m
	28	12° 34' 47.55"N	79° 39' 42.60"E	28-29 =	43.0m
	29	12° 34' 46.23"N	79° 39' 42.12"E	29-1 =	80.4m

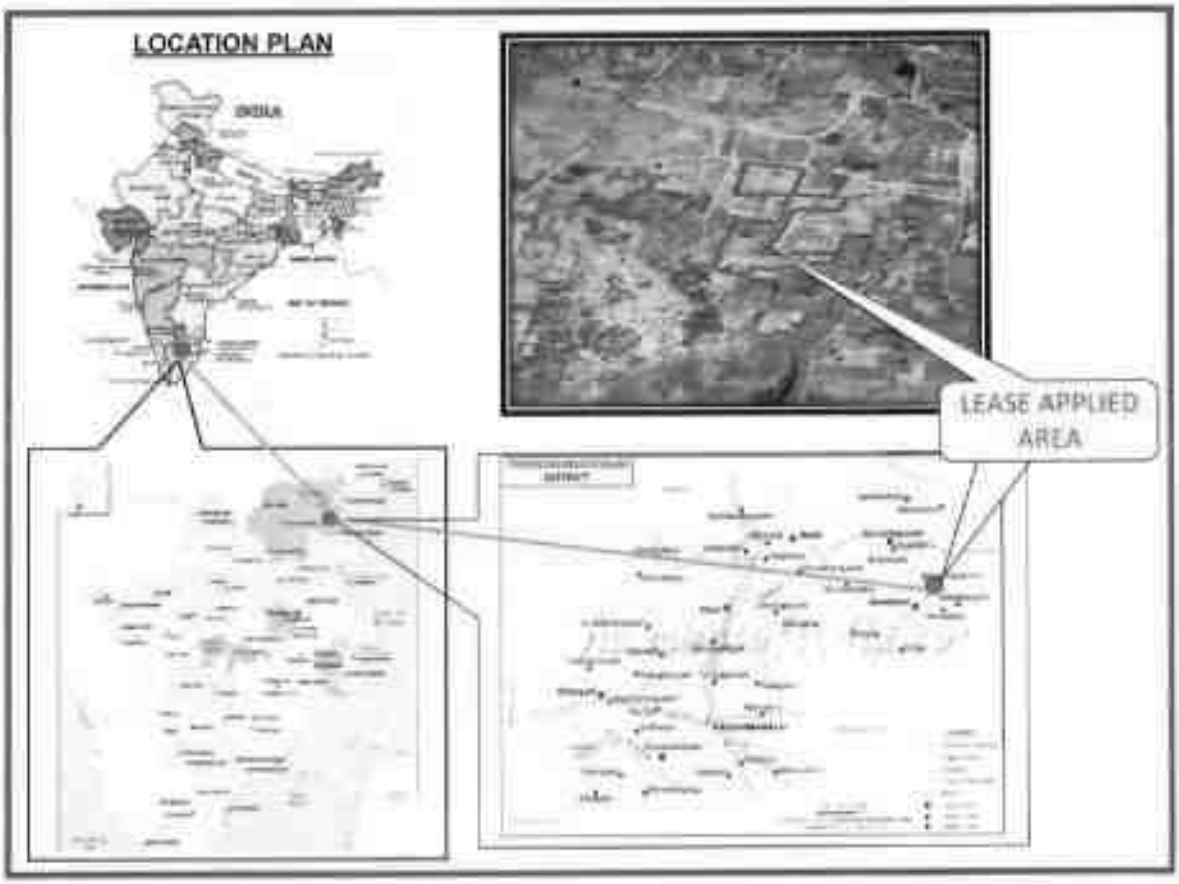
2.0 General Information:

2.1	a.	Name of the Applicant	:	Tvl.JCK Mines, Thiru.J.K.Vettrivelan (Partner),
	b.	Address of the Applicant with phone No and e-mail id if any	:	No.782, Mariamman Kovil Street, Jambodai village, Azhividaithangi post, Vembakkam Taluk, Tiruvannamalai District. Pincode-604402 Cell No.9786228697
	c.	Status of the Applicant	:	Partnership firm
2.2	a.	Mineral Which the applicant intends to mine	:	Rough Stone and Gravel.
	b.	Precise area communication letter No.	:	Precise area communication letter received from the Joint Director (additional i/c), Department of Geology and Mining, Tiruvannamalai, vide Re. No.549/Kanimam/ 2024, dated 28.08.2024.
	c.	Period of permission / lease granted	:	The Joint Director (additional i/c), Department of Geology and Mining, Tiruvannamalai, has grant of lease period for **five years.**
	d.	Name and Address of the QP preparing Mining Plan	:	**C.Natarajan, M.Sc.,M.Phil.,** **Qualified Person** No.93/36E2, Subramaniyar Kovil Street, Omalur Taluk, Salem District, Tamil Nadu, Pin-636 455. Mobile: 97502 23535 & 94446 54520.

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3.0 Location:

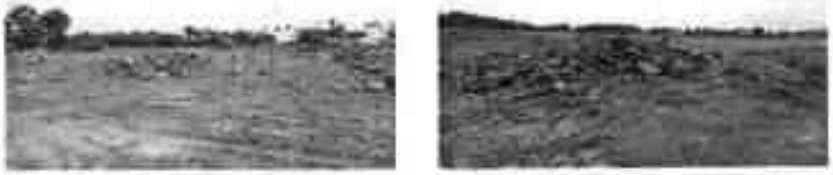
S.No		Details of the Area:
1	Corner Coordinates	Latitude :12°34'46.23"N to 12°35'04.58"N Longitude :79°39'39.29"E to 79°39'50.78"E
2	Toposheet Number	57 P/10
3	The altitude of the area	93m (MSL)
4	Extent	7.44.0Ha
5	Survey Nos	98/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7, 105/8, and 105/11
6	Village	Melnarma
7	Taluk	Cheyyar
8	District	Tiruvannamalai
9	State	Tamil Nadu



a.	Classification of the Area (Ryotwari / poramboke / others)	:	Patta land
b.	Ownership / Occupancy of the Applied area (Surface rights)	:	It is patta land registered in the name of Tmt.Santhi, Thiru.Sudhakaran, Thiru.Seenivasan, Thiru.Gopalan, Thiru.Boopalan, Thiru.Vetrivelan, Tmt.Sowmiya and Tmt.Parvathi vide patta no. 612, 623, 515, 641, 557, the applicant obtained consent from the pattadars Please refer annexure no.IV and VII.
c.	Toposheet No. with Latitude and Longitude	: : :	Topo Sheet No: 57 P / 10 Latitude :12°34'46.23"N to 12°35'04.08"N Longitude :79°39'39.29"E to 79°39'50.78"E
d.	Existence of Public Road / Railway line if any nearby the area and approximate distance	:	There is an existing road from the area leads to Vachanur– Pinnathur road on east side of the area. The Nearest Railway line is Tindivanam – Chennai line which is about 24Km on the southeast side of the area.



SATELLITE IMAGERY OF THE LEASE APPLIED AREA



TOPOGRAPHICAL VIEW OF LEASE APPLIED AREA

Fig. Location of the lease Applied Area

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PART - A

4.0 Geology and Mineral Reserves:

4.1	a.	Topography	:	➢ The area applied for quarry lease is exhibits almost plain topography covered by Gravel formation. The massive Charnockite formation is noticed below 3m (Avg) Gravel formation and sloping towards southeastern side of the area, the altitude of the area is above 93m (maximum) from MSL. ➢ No major river is found nearby the lease applied area. ➢ Water table is found at a depth of 68m in summer and 65m in rainy seasons. ➢ Temperature of the area is reported to be 18°C to a maximum of 42°C during summer. ➢ Rainfall of this area is about 800mm to 900 mm during the both NE & SW monsoons.
	b.	General Geology of the Area	:	The area is underlain by the wide range of metamorphic rocks of peninsular gneissic complex. These rocks are extensively weathered and overlain by the recent valley fills and alluvium at places. The geological formations found in the district are Archaean rocks like Gneisses, Granites, Charnockites basic granulites and calc-gneisses. The younger formations are Quartz veins and pegmatite. The rock type noticed in the area for lease is Charnockite which contains mostly Quartz and Feldspar with some ferromagnesian minerals. The Charnockite is part of peninsular Gneisses, a high grade metamorphic rock. The strike of the Charnockite formation is N45°E –S45°W with dipping towards SE80°. The general geological succession of the area is given as under.

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				AGE	**ROCK TYPE**
				Recent -	Gravelly soil
				Unconformity	
				Archaean -	Dolerite dyke Charnockite. Peninsular Gneissic complex and Calc Gneiss
4.2		Details of Exploration already carried out if any	:	No exploration was carried out, as the Rough stone formations are clearly visible from adjacent existing quarry pit.	
4.3	a.	Estimation of Reserves	:	The Geological and Recoverable reserves are estimated by cross sectional method. Totally eight sections have been drawn, four sections drawn length wise as (X-Y), (X1-Y1), (X2-Y2), (X3-Y3) and another four sections drawn width wise as (A-B), (C-D), (E-F), (G-H) to cover maximum area considered for lease. The Plans and Sections have been drawn with a scale of 1:1000 and 1:500 respectively. Please refer plate No.III.	

a. Geological Resources

The quarrying is restricted up to a depth of 57m (maximum) below ground level only. Availability of Resources is given below.

Table No-1

Section	Length in (m)	Width in (m)	Depth in (m)	Volume in m^3	Gravel formation in m^3	Geological Resources of Rough stone in m^3
XY-AB	160	149	2	71520	47680	
	160	149	55	1311200		1311200
Total					**47680**	**1311200**
X1Y1-CD	147	68	2	29988	19992	
	147	68	55	549780		549780
Total					**19992**	**549780**
X2Y2-EF	89	130	2	34710	23140	
	89	130	55	636350		636350
Total					**23140**	**636350**
X2Y2-GH	163	103	2	50367	33578	
	163	103	55	923395		923395
Total					**33578**	**923395**
X3Y3-GH	59	206	2	36462	24308	
	59	206	55	668470		668470
Total					**24308**	**668470**
Grand Total					**148698**	**4089195**

Gravel Formation : 1,48,698m^3

The Geological Resources of Rough stone : 40,89,195m^3

b. Mineable Reserve

The mineable reserve calculated by deducting 7.5m, 10m and 5[illegible] safety distance and bench loss.

Table No-2

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m^3	Gravel in m^3	Mineable Reserves of Rough stone in m^3
XY-AB	I	140	132	2	36960	36960	
	II	134	126	5	84420		84420
	III	124	116	5	71920		71920
	IV	114	106	5	60420		60420
	V	104	96	5	49920		49920
	VI	94	86	5	40420		40420
	VII	84	76	5	31920		31920
	VIII	74	66	5	24420		24420
	IX	64	56	5	17920		17920
	X	54	46	5	12420		12420
	XI	44	36	5	7920		7920
	XII	34	26	5	4420		4420
Total						**36960**	**406120**
X1Y1-CD	I	128	52	2	13312	13312	
	II	122	46	5	28060		28060
	III	112	36	5	20160		20160
	IV	102	26	5	13260		13260
	V	92	16	5	7360		7360
Total						**13312**	**68840**
X2Y2-EF	I	79	109	2	17222	17222	
	II	76	103	5	39140		39140
	III	71	93	5	33015		33015
	IV	66	83	5	27390		27390
	V	61	73	5	22265		22265
	VI	56	63	5	17640		17640
	VII	51	53	5	13515		13515
	VIII	46	43	5	9890		9890
	IX	36	33	5	5940		5940
	X	26	23	5	2990		2990
Total						**17222**	**171785**

X2Y2-GH	I	154	52	2	16016	16016	
	II	151	49	5	36995		36995
	III	146	44	5	32120		32120
	IV	141	39	5	27495		27495
	V	136	34	5	23120		23120
	VI	131	24	5	15720		15720
	VII	126	14	5	8820		8820
Total						**16016**	**144270**
X3Y3-GH	I	43	197	2	16942	16942	
	II	37	194	5	35890		35890
	III	27	189	5	25515		25515
	IV	17	184	5	15640		15640
Total						**16942**	**77045**
Grand Total						**100452**	**868060**

The mineable reserve is computed as 8,68,060m³ of Rough stone, 1,00,452m³ of Gravel formation upto a depth 57m (maximum) below ground level only.

5.0 Mining:

5.1	Method of Mining	:	1. Opencast method of semi mechanized mining with 5.0m height 5m width of the bench. 2. However, as far as the quarrying of Rough stone is concerned, observance of the provisions of Regulation 106(2) (b) as above is seldom[possible due to various inherent petrogenetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the above regulation from the Director of mines safety for which necessary provision is available with the regulation 106 (2) (b) of MMR-1961, under Mine Act-1952.

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5.2	Mode of Working	:	The rough stone is proposed to quarry 5m bench height, 5m width with conventional opencast semi-Mechanized method. The quarry operation involves shallow jack hammer drilling, slurry blasting, excavation, loading and transportation of Rough stone to the needy buyers. The production of Rough stone in this quarry involves the following method which is typical for Rough Stone quarrying in contrast to other major mineral mining. Splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy buyers. Occasionally hydraulic excavators are attached with rock breakers for fragmentation to avoid secondary blasting. The primary boulders thus splitted are removed from the pits by excavators and further made to smaller sizes by rock breakers attached in excavators. It is a conventional opencast semi mechanized method of mining.
5.3	Proposed bench height & Width	:	Quarrying of Rough Stone is proposed bench height of 5m and bench width of 5m.
5.4	Details of Overburden / Mineral Production proposed for the first 5 years.	:	The overburden in the form of Gravel, after the excavation of Gravel and Rough stone will be directly loaded into tipper to the needy crushers/other buyers for road project and construction works for filling and leveling of low lying areas.

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The Yearwise Production and Development Table

Table No -3

Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m^3	Gravel in m^3	Mineable reserve of Rough stone in m^3
I	XY-AB	I	140	132	2	36960	36960	
		II	134	126	5	84420		84420
		III	124	116	5	71920		71920
	X1Y1-CD	I	128	52	2	13312	13312	
Total							**50272**	**156340**
II	X2Y2-EF	I	79	109	2	17222	17222	
	X2Y2-GH	I	154	52	2	16016	16016	
	X3Y3-GH	I	43	197	2	16942	16942	
	XY-AB	IV	114	106	5	60420		60420
		V	104	96	5	49920		49920
		VI	94	86	5	40420		40420
		VII	84	76	5	31920		31920
Total							**50180**	**182680**
III	XY-AB	VIII	74	66	5	24420		24420
		IX	64	56	5	17920		17920
		X	54	46	5	12420		12420
		XI	44	36	5	7920		7920
		XII	34	26	5	4420		4420
	X1Y1-CD	II	122	46	5	28060		28060
		III	112	36	5	20160		20160
		IV	102	26	5	13260		13260
		V	92	16	5	7360		7360
	X2Y2-EF	II	76	103	5	39140		39140
	X2Y2-GH	II	10	49	5	2450		2450
Total								**177530**
IV	X2Y2-GH	II	141	49	5	34545		34545
		III	146	44	5	32120		32120
	X3Y3-GH	II	37	194	5	35890		35890
		III	27	189	5	25515		25515
	X2Y2-EF	III	71	93	5	33015		33015
		IV	36	83	5	14940		14940
Total								**176025**

V	X2Y2-EF	IV	30	83	5	12450		12450
		V	61	73	5	22265		
		VI	56	63	5	17640		17640
		VII	51	53	5	13515		13515
		VIII	46	43	5	9890		9890
		IX	36	33	5	5940		5940
		X	26	23	5	2990		2990
	X2Y2-GH	IV	141	39	5	27495		27495
		V	136	34	5	23120		23120
		VI	131	24	5	15720		15720
		VII	126	14	5	8820		8820
	X3Y3-GH	IV	17	184	5	15640		15640
Total								**175485**
Grand Total							**100452**	**868060**

The applicant has proposed to carry out 8,68,060m³ of Rough stone 1,00,452m³ of Gravel formation upto a depth of 57m (maximum) below ground level for the period of five years.

5.5		Machineries to be used		
	a.	Drilling	:	It is proposed to use following machineries for quarrying rough stone

S.No	Type	Nos	Dia Hole mm	Make	Motive power
1	Jack hammer	8	32	Atlas Copco	Compressed air
2	Compressor	2	-	Atlas Copco	Diesel Drive

	b.	Loading	:	Excavator of 0.90m³ bucket capacity (with Rock breaker attachment) (2No).
	c.	Transportation	:	Tipper 6Nos (5/10Ts) capacity.

5.6		Disposal of Overburden	:	The overburden in the form of gravel, after the excavation gravel will be directly loaded into tipper to the needy buyers for road project and construction works for filling and leveling of low lying areas.
5.7		Brief Note on Conceptual Mining Plan for the entire lease period	:	Conceptual Mining Plan is prepared with an object of five years of systematic development of bench lay outs, selection of ultimate pit limit, depth of quarrying, ultimate pit slope, selection of sites for construction of infrastructures etc. Ultimate pit size is designed based on certain practical factors such as the economical depth of mining, safety zones, permissible areas etc. Ultimate Pit dimension is given as under,

Ultimate Pit dimension

Pit No	Length (max) in (m)	Width (Avg) in (m)	Depth(max) in(m)
I	140	130	57
II	128	52	22
III	249	99	47

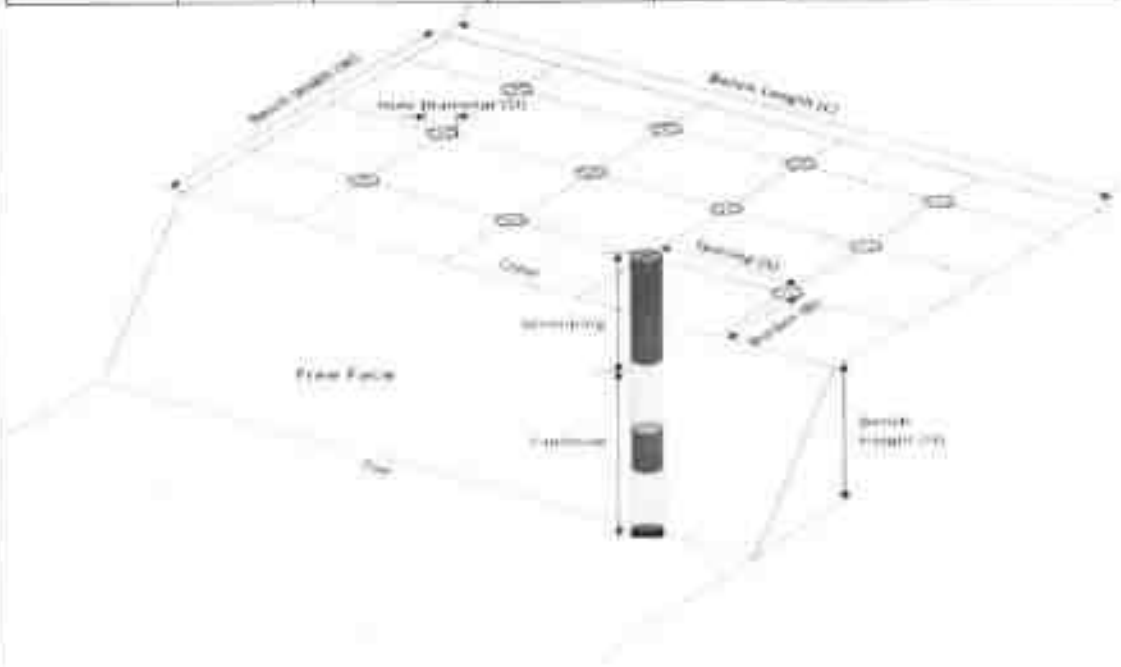
Afforestation has been proposed on all along the boundary barrier by planting trees.

All the baseline information studies like Air Quality monitoring, Noise and Vibration monitoring, Water Analysis studies will be carried out every year as per the MOEF norms.

6.0 Blasting:

6.1	Blasting Pattern	:	The massive formation shall be broken into pieces of portable size by drilling and blasting using jack hammers and shot hole blasting. Powder factor of explosives for breaking such hard rock shall be in the order of 6 to 7 Tonnes per K.g of explosives. Blasting parameters are as follows.

Diameter of the hole	Spacing	Depth	Burden for hole	Pattern of hole	Inclination of hole
32-36mm	0.6m	1 to 1.5m	0.6m	Zig Zag	70° from the horizontal



6.2	Types of Explosives	:	Small dia, 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough stone. No deep hole drilling or primary blasting is proposed.

6.3	Measures proposed to minimize ground vibration due to blasting	:	➢ Controlled blasting measures will be adopted for minimizing ground vibration and fly rock. ➢ Shallow depths jackhammer drilling and blasting is proposed to be carried out with minimum use of explosive mainly to give shattering effect in rough stone for easy excavation and to control fly rock.

Number of holes	:	502
Powder factor	:	6Ts/Kg of explosives
Total explosive required	:	251Kg slurry explosives
Charge / hole	:	0.5Kg
Blasting time	:	12-2 Pm

6.4	Storage of Explosives and safety measures to be taken while blasting	:	➢ The applicant will engage an authorized explosive agency to carry out the small amount of blasting and it will be supervised by competent and statutory foreman/ mines manager. ➢ ***The applicant ensure that will appoint the Mate (Should have Valid Blaster Certificate) during Blasting Operation.***

7.0 Mine Drainage:

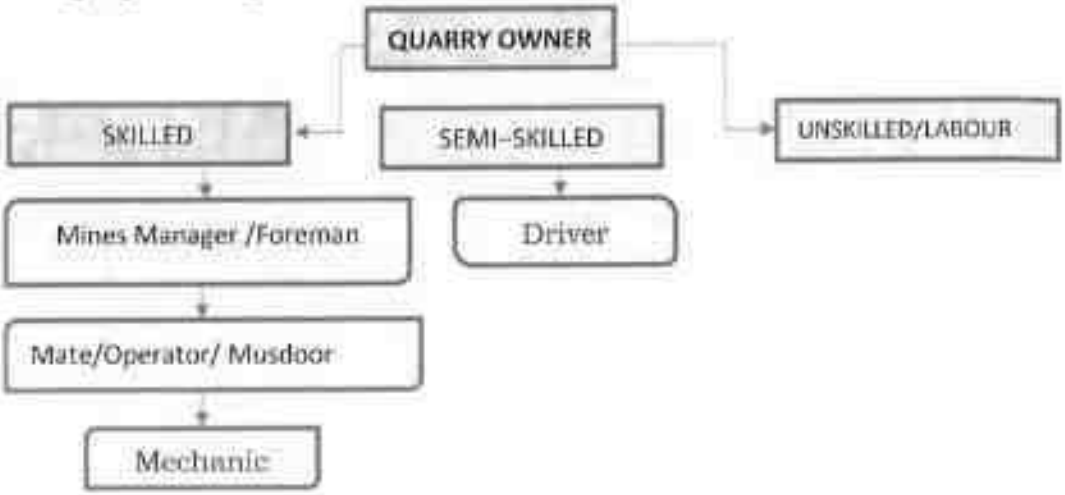
7.1	Depth of Water table	:	The ground water table is reported as 68m below ground level. In the proposed mining plan only 57m (below ground level) depth has been envisaged as workable depth for safe & economic quarrying for the entire lease period. Hence the quarrying operation may not affect the ground water.
7.2	Arrangement and Places where the mine water is finally proposed to be discharged	:	The ground water may not rise immediately in this type of mining. However, the rain water percolation and collection of water from the seepage shall be less than 300lpm and it shall be pumped about periodically by a stand by diesel powered Centrifugal pump motivated with 7.5H.P.Motor. The quality of water is potable and it is not contaminated with any hazardous things. Hence, water stored in the quarry pit will be pumped into the adjacent agricultural fields. Further the water stored in the old pit will also be used for plantation purposes

8.0	**Other Permanent Structures:**		
8.1	Habitations / Village	:	There are no habitations within a radius of 300m.
8.2	Power lines (HT/LT)	:	There is no Power line (HT/LT) passing within a radius of 50m.
8.3	Water bodies (River, Pond, Lake, Odai, Channel etc)	:	There is tank situated on south and eastern side of the area and is 190m, 310m away from the area.
8.4	Archeological / Historical Monuments	:	There are no Archeological / Historical Monuments within a radius of 300m.
8.5	Road (NH, SH, Village Road etc)	:	The National Highway (NH-179B) Tiruvannamalai – Chennai about 24.0Km on southeast side of the area. The State Highway (SH-116) Kancheepuram – Vandavasi is about 3.8Km on west side of the area.
8.6	Places of Worship	:	There are no Places of Worship within a radius of 50m.
8.7	Reserved Forest / Forest / Social Forest / Wild Life Sanctuary etc.,	:	There is no Reserved Forest / Wild Life Sanctuary etc., within a radius of 1Km.
8.8	Any Interstate Border, Protected areas under the Wild Life (Protection) Act, 1972, Critically Polluted Areas as Identified by Central Pollution Control Board and Notified Eco sensitive areas	:	There are No inter State border within a radius of 10Kms.
8.9	Any Other Structures	:	Nil

9.0 Employment Potential & Welfare Measures:

9.1 Employment Potential (Management & Supervisory personnel)

The proposed organization chart



1.	Skilled	Mines Manager	1 No.
		Foreman / Mate	2 No.
		Operator	10 No.
		Mechanic	1 No.
2.	Semi-skilled	Driver	6 No.
3.	Unskilled	Labours	15Nos
		Total =	35Nos

Allowing 10% absentee, the no. of men of roll will be around 31.

The above man power is adequate to meet out the production schedule and the machinery strength envisaged in the mining plan and to comply the statutory provisions of Mines Safety Regulations.

- **It is been ensured that, child labours under 18 years of age will not be engaged for quarrying operation.**
- **Necessary life insurance policies will be taken by the applicant to all the employees up to the end of the lease period.**

9.2		Welfare Measures		
	a.	Drinking Water	:	Packaged drinking water is available from the nearby approved water venders in Vachanur village which is about 800m on north side of the area.

	b.	Sanitary facilities	:	Semi-permanent latrines & urinals maintained at convenient places for use of labours as per the provisions of Rule (33) of the Mines Rules, 1960 separately for males and females. Washing facilities shall also be arranged as per rule (36) of the Mines Rules, 1960.
	c.	First Aid Facility	:	First aid kits are kept in Mines office room, in case of such eventualities the victim will be given first aid immediately at the site and injured person will be taken to the hospital. Hospital is available at distance of 9.5 Km (SW) in Vandavasi the competent and Statutory foreman/ permit manager will be in charge of first aid.
	d.	Labour Health	:	As per Mines Rule, Periodic medical examination related to occupational health safety will be conducted to all the workers in applicant's own cost.

e. Precautionary safety measures to the Labourers:

Safety provisions like helmet, goggles, safety shoes, Dust mask, Ear muffs etc., have to be provided as per the circulars and amendments made for Mine labours under the guidance of DGMS being a mechanized operation.

Necessary training will be conducted once in a year to all the employees with the help of qualified and experienced officers to train about the safe and systematic quarrying operation.





PART – B

10.0 Environmental Management Plan

10.1	Existing Land Use Pattern	:	1. The area is exhibits almost plain topography covered by Gravel formation. 2. Quarrying operation is proposed up to a depth of 57m below ground level for the proposed mining plan period. 3. Fluctuation of Water table in this area is in between 68m and 65m during a year. 4. This region receives the average annual rainfall of 800mm to 900mm. The surrounding area is practiced by the seasonal cultivation. The existing land use pattern is given as under.

Table No-4

Sl. No.	Land Use	Present Area (Ha)	Area in use during the quarrying period (Ha)
1.	Quarrying Pit	Nil	4.95.0
2.	Infrastructure	Nil	0.02.0
3.	Roads	Nil	0.03.0
4.	Green Belt	Nil	2.44.0
5.	Unutilized	7.44.0	Nil
	Total =	**7.44.0**	**7.44.0**

10.2	Water Regime	:	Water table in this area is noticed at a depth of 68m and presently, in the proposed mining plan only 57m (below ground level) depth has been envisaged as workable depth for safe & economic quarrying for the entire lease period. hence, it will not affect the ground water depletion of this area.
10.3	Flora and Fauna	:	Except acacia bushes, no other valuable trees are noticed in the applied area. Further, neither flora of botanical interest nor fauna of zoological interest is noticed in this area.
10.4	Climatic conditions	:	Generally subtropical climatic condition prevails throughout the year and there is no sharp variation in climate. This District receives rain both in south west and north east monsoon. The average rainfall is about 800mm to 900mm and the temperature ranges from 18°C during winter and to a maximum of 42°C during the summer.

10.5	Human Settlement	:	The nearest habitations with the population is given as under. Table No-5

S. No	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population
1.	Alathur	1.7km - NE	900
2.	Melnarma	1.5km - NW	700
3.	Paiyur	2.1Km – SE	600
4.	Thuraiyur	0.8Km-SW	400

10.6	Plan for Air, Dust Suppression	:	Air or dust expected to be generated from drilling process, hauling roads, places of excavation etc., will be suppressed by periodical wetting of land by water spraying. Wet drilling and dust extractor arrangements will be provided to drilling units so as to control raise of dust from the site of drilling. Operators, those exposed directly to such conditions will be provide such protective equipment like mask, ear plug, helmet, gloze etc., as per the Mines Act.
10.7	Plan for Noise Control	:	Quarrying of Rough Stone will be carried out by drilling and blasting by using low power explosives, and hence, noise will be very minimum. However, periodical noise level monitoring will be carried out to check the noise level in and around the quarry site. Nowhere the noise level should exceed the permissible limit of 80db during the quarry working hours.
10.8	Environmental Impact Assessment Statement Describing Impact on mining on the next Five years	:	The mining plan proposed is for a small production of Rough stone without involving deep hole drilling and heavy blasting. Such limited mining activity is not likely to cause any impact adversely on environment as far as pollution of air, water and noise is concerned, anyhow environmental impact studies will be conducted as per EIA notification issued by MOEF.

10.9	Proposal for Waste Management	:	There is no waste anticipated in this [illegible] quarry operation.
10.10	Proposal of Reclamation of Land affected during mining activities and at the end of mining.	:	In the proposed mining plan 57m (below ground level) depth has been envisaged as workable depth for safe & economic mining during the lease period. Hence, after quarry reaches ultimate pit limit (for this lease period) of 57m depth, fencing will be constructed around the quarried pits to prevent inherent entry of the public and cattle.
10.11	Program for Afforestation	:	The 7.5m, 10m and 50m safety distance along the lease boundary has been identified to be utilized for afforestation Appropriate native species of Neem/Pungan trees will be planted in the first year. Nearly 24400Sqm area is proposed to use under afforestation by planting 2928nos of Neem/Pungan trees during first year with an anticipated survival rate of 80%. The Quarry landuse, layout and afforestation plan is shown in Plate No.III.
10.12	Proposed Financial Estimate / Budget for (EMP) Environment Management		
	A. Fixed Asset Cost:		
	1. Land Cost (600000/1Ha)=	:	Rs. 44,64,000
	2. First aid room and accessories	:	Rs.1,00,000
	3. Labour Shed		Rs.1,00,000
	4. Sanitary Facility		Rs.1,00,000
	Total=		**Rs. 47,64,000/-**
	B. Operational Cost:		
	1. Machineries	:	Rs.80,00,000-
	2. Fencing cost	:	Rs. 3,00,000
	Total	:	**Rs.83,00,000/-**

	C.EMP Cost:	:	Budget Provision for the entire quarrying period. Air Quality Sampling = Rs. 40,000/- Water Quality Sampling = Rs. 40,000/- Noise Monitoring = Rs. 20,000/- Ground vibration test = Rs. 20,000/-
	Expenditure 1. Drinking water facility 2. Sanitary Arrangements 3. Safety kids 4. Water sprinkling 5. Afforestation **Total=**	: : : : :	Rs.1,50,000/- Rs. 50,000/- Rs. 50,000/- Rs. 1,50,000/- Rs. 3,00,000/- **Rs. 8,20,000/-**
	Total Project Cost (A+B+C)	:	**Rs. 1,38,84,000/-**
	CSR Cost(2% of Total Project Cost)	:	**Rs. 2,77,680/-**

11.0 Mine Closure Plan:

11.1	Steps proposed for phased restoration, reclamation of already mined out area.	:	There is no proposal for back filling, reclamation and rehabilitation. The quarried pits after the end of the life of lease will be fenced to prevent inherent entry of public and cattles.
11.2	Measures to be under taken on mine closure as per Act & Rules	:	Measures will be taken as per the Acts and Rules. The quarried pit will be fenced by using Barbed wire fencing to prevent inherent entry of public and cattle.
11.3	Mitigation measures to be undertaken for safety and restoratinn/ reclamation of the already mined out area	:	Mitigation measures: Drilling will be carried out by wet drilling mode to control the dust propagation into the air. Blasting will be carried out on limited scale. Mist Water spraying on haul road is proposed to prevent the dust propagation into the air.

12.0 Any Other Details Intend to Furnish by the Applicant:

(i) Permission will be obtained from the District Mines Office to ex[illegible] Rough Stone from the Boundary barriers and for slopes.

(ii) Care and precautionary measures will be taken for the safety of workers as per Rules and Acts.

(iii) The applicant will endeavor every attempt to quarry the Rough Stone economically without any wastage and to improve the environment and ecology.

(iv) The Mining Plan is prepared by incorporating the conditions stipulated in the precise area communication issued and relevant mining laws in force.

(v) Any violation pointed out by the inspecting authorities shall be rectified as per the guidelines of the Department.

Prepared by

C.Natarajan, M.Sc.,M.Phil.,

Qualified Person

C.NATARAJAN M.Sc.,M.Phil.,
Qualified Person

Place : Salem
Date : 30.08.2024

This Mining Plan is Approved Subject to the conditions/Stipulation indicated in the Mining Plan Approval Letter No.549/Mines/2024, Dt: 23.09.2024 office of the Assistant Director of Geology and Mining, Tiruvannamalai.

Joint Director (A/C)
O/o. Assistant Director
Geology and Mining,
Tiruvannamalai.

ANNEXURE I

ந.க.எண்.549/கனிமம்/2024

உதவி இயக்குநர் அலுவலகம்,
புவியியல் மற்றும் சுரங்கத்துறை,
திருவண்ணாமலை-4.
நாள். 28.08.2024.

அறிவிக்கை

பொருள் கனிமங்களும் குவாரிகளும் - சிறுகனிமம் - திருவண்ணாமலை மாவட்டம் - செய்யார் வட்டம் - மேல்நர்மா கிராமம் - புல எண்கள். 98/2 (0.62.0), 98/3 (0.59.5), 98/4 (0.54.5), 98/7 (0.57.0), 100/1 (0.40.5), 100/2 (0.40.0), 101/2 (0.33.0), 101/3 (0.87.5), 101/4 (0.84.5), 105/1 (0.40.5), 105/3 (0.65.0), 105/7 (0.42.0), 105/8 (0.40.5) மற்றும் 105/11 (0.37.5) ஆகியவற்றின் மொத்தப்பரப்பு 7.44.0 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க - குவாரி குத்தகை உரிமம் வழங்கக்கோரி Tvl.JCK Mines என்ற நிறுவனத்தின் பங்குதாரர் திரு.J.K.வெற்றிவேலன் என்பவர் விண்ணப்பம் செய்தது - பரிந்துரை அறிக்கை வரப்பெற்றது - சுரங்கத் திட்டம் (Mining plan) தயார் செய்து சமர்ப்பிக்க கோருவது - தொடர்பாக.

பார்வை

1. Tvl.JCK Mines என்ற நிறுவனத்தின் பங்குதாரர் திரு.J.K.வெற்றிவேலன் என்பவர் வெம்பாக்கம் வட்டம் விண்ணப்ப நாள்.21.12.2023.
2. இவ்வலுவலக கடிதந.க.எண்.549/கனிமம்/2023 நாள்.26.12.2023
3. வட்டாட்சியர், செய்யார் அவர்களின் கடிதந.க.எண்.ஆ1/1109/2024 நாள்.12.03.2024
4. சார் ஆட்சியர், செய்யார் அவர்களின் கடிதந.க.எண்.அ1/50/2024 நாள்.22.07.2024.
5. உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை திருவண்ணாமலை அவர்களின் புலத்தணிக்கை நாள். 27.08.2024
6. தொடர்புடைய ஆவணங்கள்.

❖❖❖❖❖❖

திருவண்ணாமலை மாவட்டம், செய்யார் வட்டம், மேல்நர்மா கிராமம் புல எண்கள். 98/2 (0.62.0), 98/3 (0.59.5), 98/4 (0.54.5), 98/7 (0.57.0), 100/1 (0.40.5), 100/2 (0.40.0), 101/2 (0.33.0), 101/3 (0.87.5), 101/4 (0.84.5), 105/1 (0.40.5), 105/3 (0.65.0), 105/7 (0.42.0), 105/8 (0.40.5) மற்றும் 105/11 (0.37.5) ஆகியவற்றின் மொத்தப்பரப்பு 7.44.0 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க 5 ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் வழங்கக்கோரி Tvl.JCK Mines என்ற நிறுவனத்தின் பங்குதாரர் திரு.J.K.வெற்றிவேலன் என்பவர் அளித்த பார்வை 1-ல்

காணும் விண்ணப்பம் மீது பார்வை 2-ல் காணும் இவ்வலுவலக கடிதம் மூலம் சார் ஆட்சியர், செய்யார் அவர்களின் அறிக்கை கோரப்பட்டது.

அதனைத்தொடர்ந்து பார்வை 4-ல் காணும் சார் ஆட்சியர், செய்யார் மற்றும் பார்வை 5-ல் காணும் திருவண்ணாமலை மாவட்ட புவியியல் மற்றும் சுரங்கத்துறை உதவி புவியியலாளர் ஆகியோரின் அறிக்கைகள் பரிசீலிக்கப்பட்டது.

மேற்காணும் பரிந்துரை அறிக்கைகளின்படி திருவண்ணாமலை மாவட்டம், செய்யார் வட்டம், மேல்நர்மா கிராமம் புல எண்கள். 98/2 (0.62.0), 98/3 (0.59.5), 98/4 (0.54.5), 98/7 (0.57.0), 100/1 (0.40.5), 100/2 (0.40.0), 101/2 (0.33.0), 101/3 (0.87.5), 101/4 (0.84.5), 105/1 (0.40.5), 105/3 (0.65.0), 105/7 (0.42.0), 105/8 (0.40.5) மற்றும் 105/11 (0.37.5) ஆகியவற்றின் மொத்தப்பரப்பு 7.44.0 ஹெக்டேர் பரப்பளவில் புல எண் 105/2-ல் உள்ள அரசு ஏரி புறம்போக்குக்கு 50மீட்டர் பாதுகாப்பு இடைவெளி அமைக்க புல எண்கள் 105/1, 105/3, 101/4, 101/3 ஆகிய புலங்களின் மேற்கு பகுதியில் பாதுகாப்பு இடைவெளி அமைத்து 5 ஆண்டுகளுக்கு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959, விதி 19(1), 20 மற்றும் 22-ன்படி விண்ணப்பதாரர் Tvl.JCK Mines என்ற நிறுவனத்தின் பங்குதாரர் திரு.J.K.வெற்றிவேலன், என்பவருக்கு சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் வழங்க பரிந்துரை செய்யப்பட்ட 7.44.0 ஹெக்டேர் பரப்பின் கற்குவாரி செய்ய உகந்த புலம் (Precise Area) என தீர்மானித்து கீழ்கண்ட நிபந்தனைகளுக்குட்பட்டு அறிவிப்பு செய்யப்படுகிறது.

நிபந்தனைகள்

1. ஏரி புறம்போக்கான புல எண் 105/2-ற்க்கு 50 மீட்டர் பாதுகாப்பு இடைவெளி விட ஏதுவாக புல எண்கள் 105/1, 105/3, 101/3, 101/4 ஆகியவற்றின் மேற்கு பகுதியில் பாதுகாப்பு இடைவெளி அமைத்து 50 மீட்டருக்குள் ஏரி புறம்போக்கு புல எண் 105/2 வராத வண்ணம் சுரங்கதிட்டத்தினை தயார் செய்ய வேண்டும்.

2. அருகில் உள்ள பட்டா நிலங்களுக்கு 7.5மீ மற்றும் அரசு நிலங்களுக்கு 10மீ பாதுகாப்பு இடைவெளி விடவேண்டும்

3. பொதுமக்களுக்கும் அருகிலுள்ள நிலங்களுக்கும் எவ்வித பாதிப்பும் ஏற்படுத்தக்கூடாது.

4. குவாரிப்பணி தொடங்குவதற்கு முன்பாக குவாரியை சுற்றி முள் கம்பிவேலி அமைத்து குவாரிப்பணி தொடங்க வேண்டும்.

தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதிகள் 41 மற்றும் [illegible]-ன்படி சாதாரண கற்கள் மற்றும் இதர சிறு கனிமங்களுக்கு குவாரி குத்தகை உரிமம் வழங்கும் முன்பு ஒப்புதல் பெறப்பட்ட சுரங்கத்திட்ட அறிக்கை மற்றும் சுற்றுநிலை சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மை சான்று பெறப்பட வேண்டியுள்ளது என வரையறுக்கப்பட்டுள்ளது.

எனவே, Tvl.JCK Mines என்ற நிறுவனத்தின் பங்குதாரர் திரு.J.K.வெற்றிவேலன் என்பவர் ஒப்புதல் பெறப்பட்ட சுரங்கத்திட்ட அறிக்கை மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மை சான்றினை பெற்று சமர்ப்பிக்கும் பட்சத்தில் திருவண்ணாமலை மாவட்டம், செய்யார் வட்டம், மேல்நர்மா கிராமம் புல எண்கள். 98/2 (0.62.0), 98/3 (0.59.5), 98/4 (0.54.5), 98/7 (0.57.0), 100/1 (0.40.5), 100/2 (0.40.0), 101/2 (0.33.0), 101/3 (0.87.5), 101/4 (0.84.5), 105/1 (0.40.5), 105/3 (0.65.0), 105/7 (0.42.0), 105/8 (0.40.5) மற்றும் 105/11 (0.37.5) ஆகியவற்றின் மொத்தப்பரப்பு 7.44.0 ஆகியவற்றின் ஹெக்டேரில் புல எண் 105/2-ல் உள்ள அரசு ஏரி புறம்போக்குக்கு 50மீட்டர் பாதுகாப்பு இடைவெளி அமைக்க புல எண்கள் 105/1, 105/3, 101/4, 101/3 மேற்கு பகுதியில் பாதுகாப்பு இடைவெளி அமைத்து 5 ஆண்டுகளுக்கு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி எண் 19(1) மற்றும் 20-ன் கீழ் 5 ஆண்டுகளுக்கு குத்தகை உரிமம் வழங்க உரிய நடவடிக்கை மேற்கொள்ளப்படும் என்ற விவரம் தெரிவிக்கப்படுகிறது.

மேலும், இவ்வறிப்பு கிடைக்கபெற்ற 90 நாட்களுக்குள் மேற்சொன்ன நிபந்தனைகளையும் குறிக்கும் வகையில் வரைவு சுரங்கத்திட்ட அறிக்கை தயார் செய்து இணை இயக்குநர் (கூ.பொ), புவியியல் மற்றும் சுரங்கத்துறை திருவண்ணாமலை அவர்களிடம் ஒப்புதல் பெற சமர்ப்பிக்குமாறு அறிவுறுத்தப்படுகிறது.

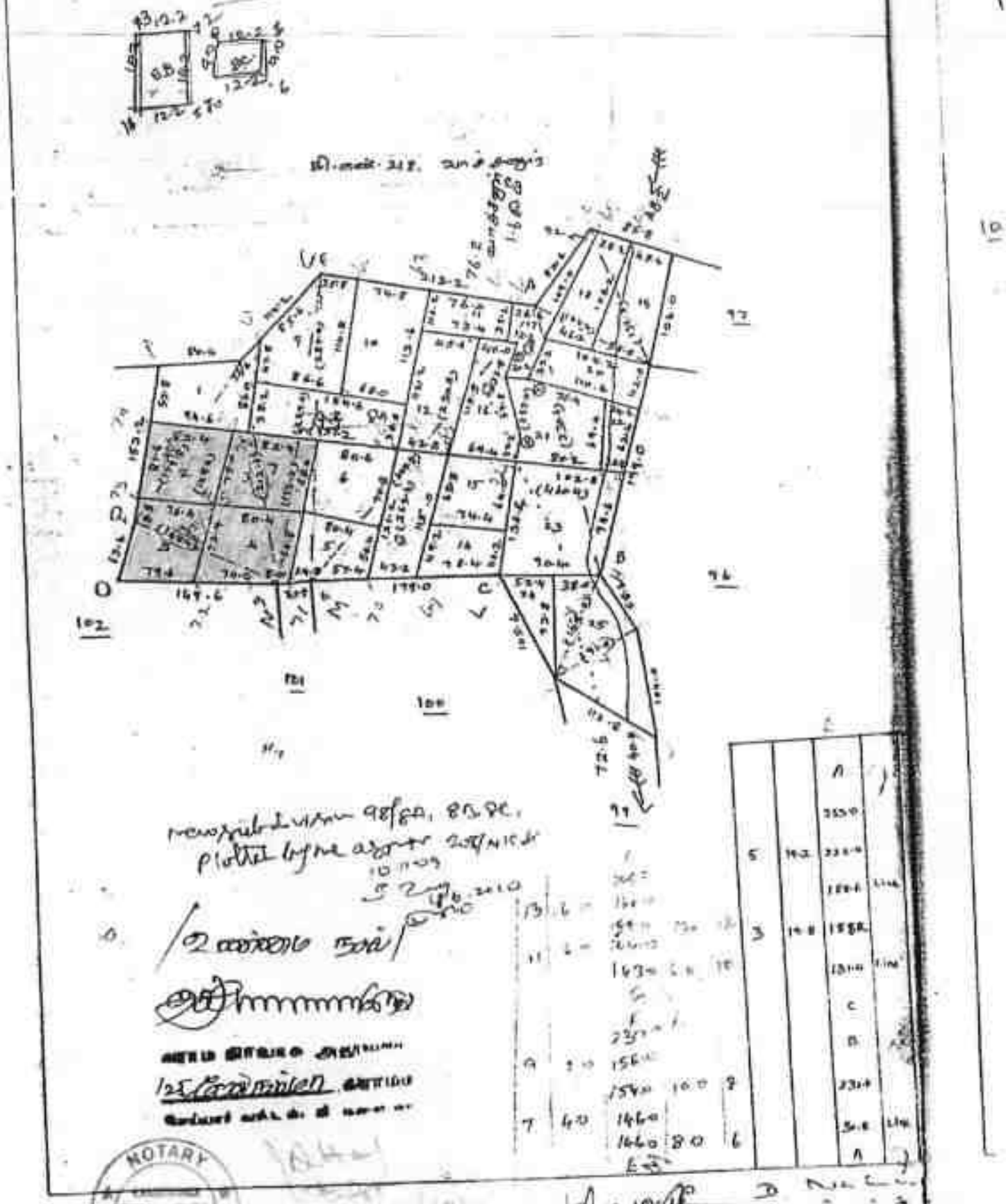
இணை இயக்குநர் (கூ.பொ),
உதவி இயக்குநர் அலுவலகம்,
புவியியல் மற்றும் சுரங்கத்துறை,
திருவண்ணாமலை.

28.8.24

பெறுநர்:

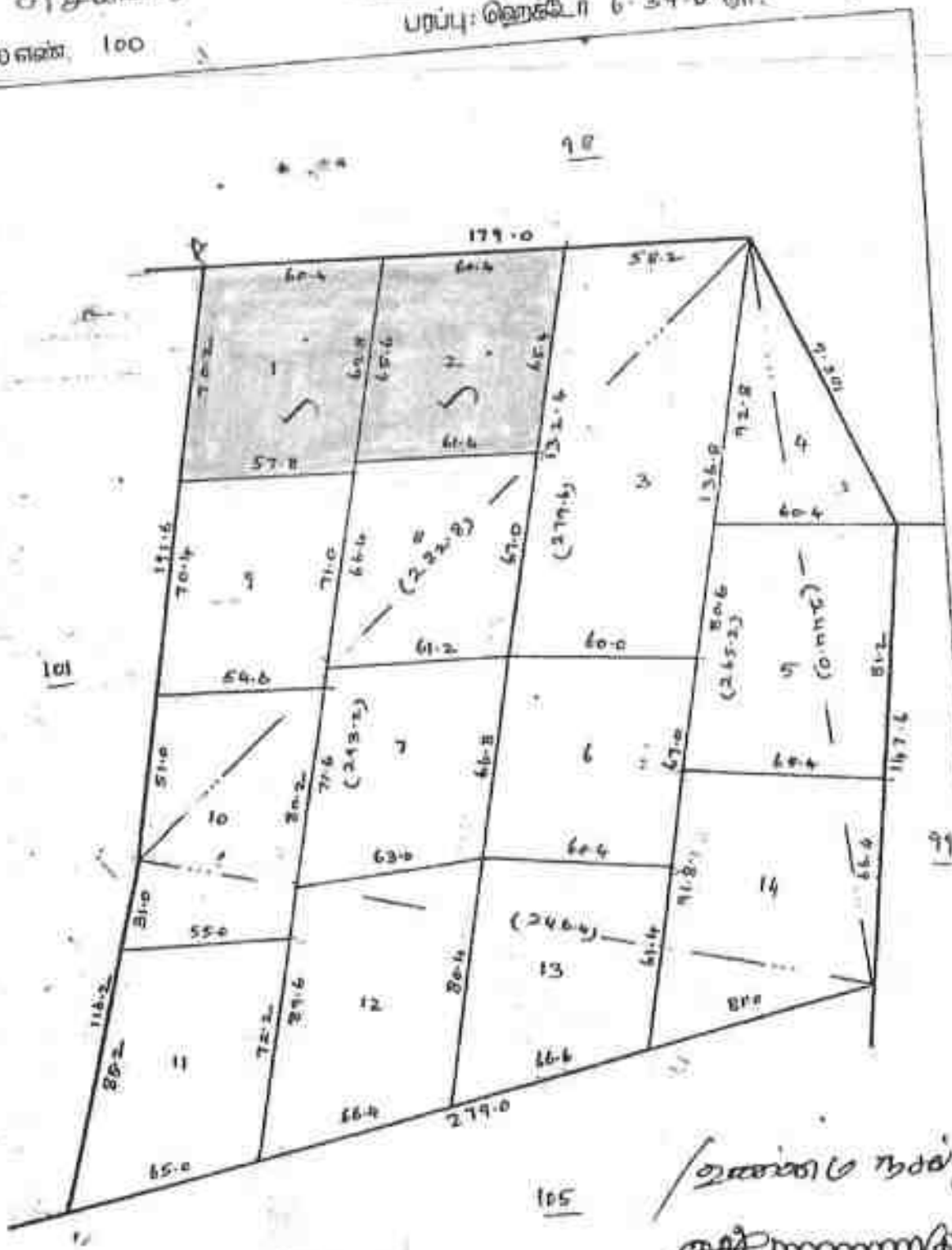
Tvl.JCK Mines,
பங்குதாரர் திரு.J.K.வெற்றிவேலன்
எண்.782 மாரியம்மன் கோவில் தெரு,
ஜம்போடை கிராமம், அழிவிடைதாங்கி அஞ்சல்,
வெம்பாக்கம் வட்டம், திருவண்ணாமலை மாவட்டம்.

ANNEXURE 11

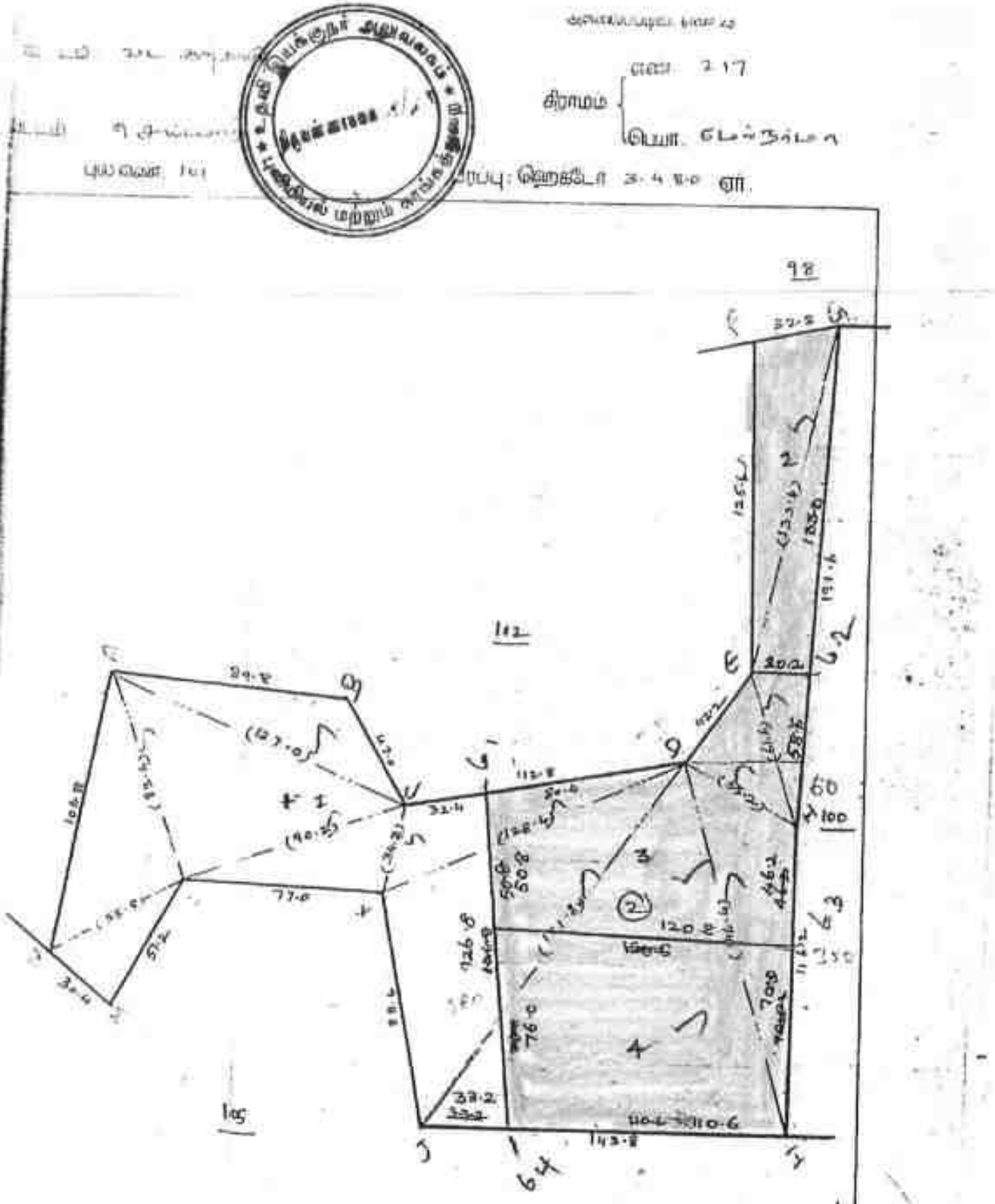


K.RAGOTHAMAN

LEASE APPLIED AREA



K. PAKKIYAMAN, M.A., B.L.,
Advocate & Notary,
LEASE APPROVED AREA



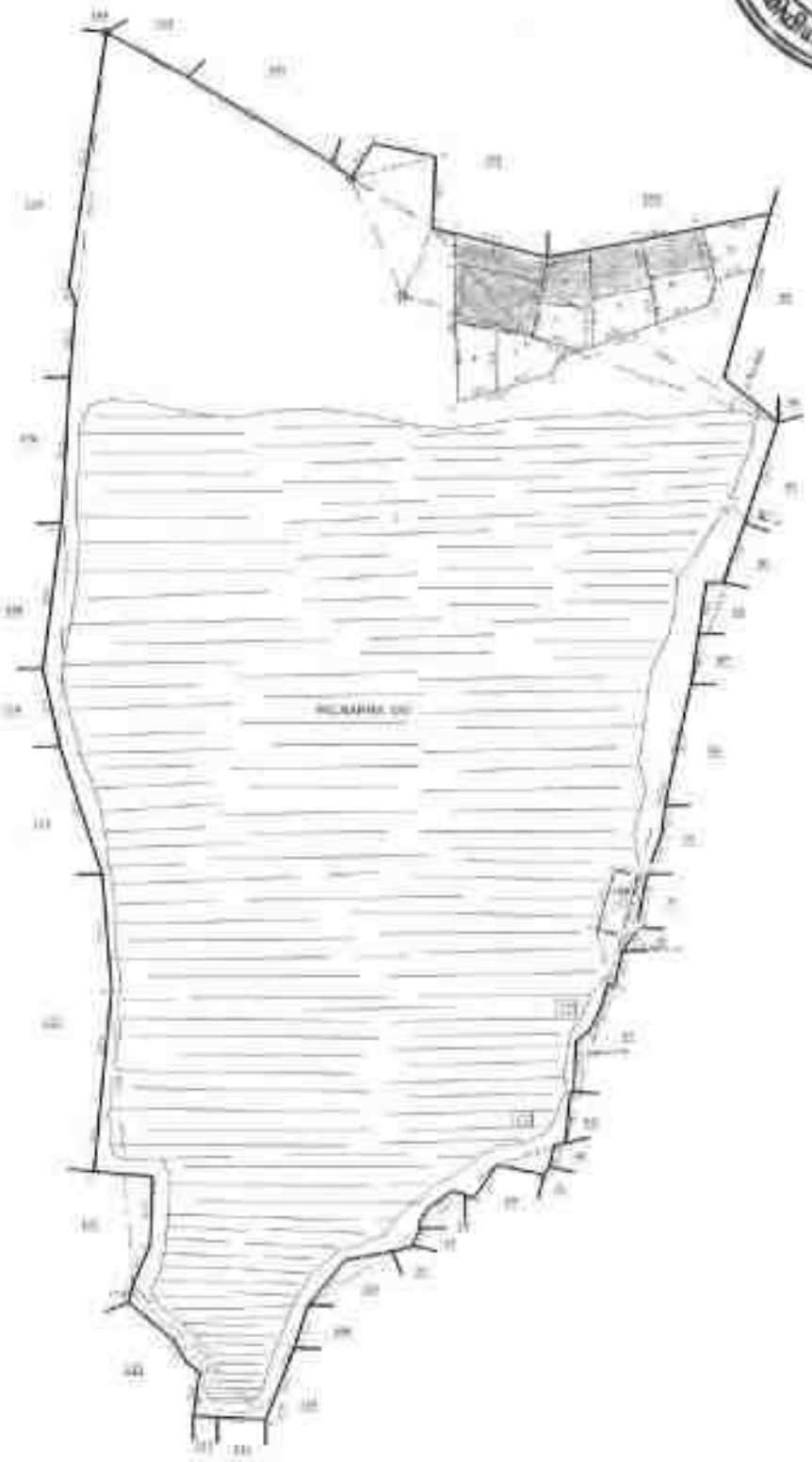
Sub-division 2934 4 changes

RAGOTHAMAN, M.A., B.L.
Advocate & Notary

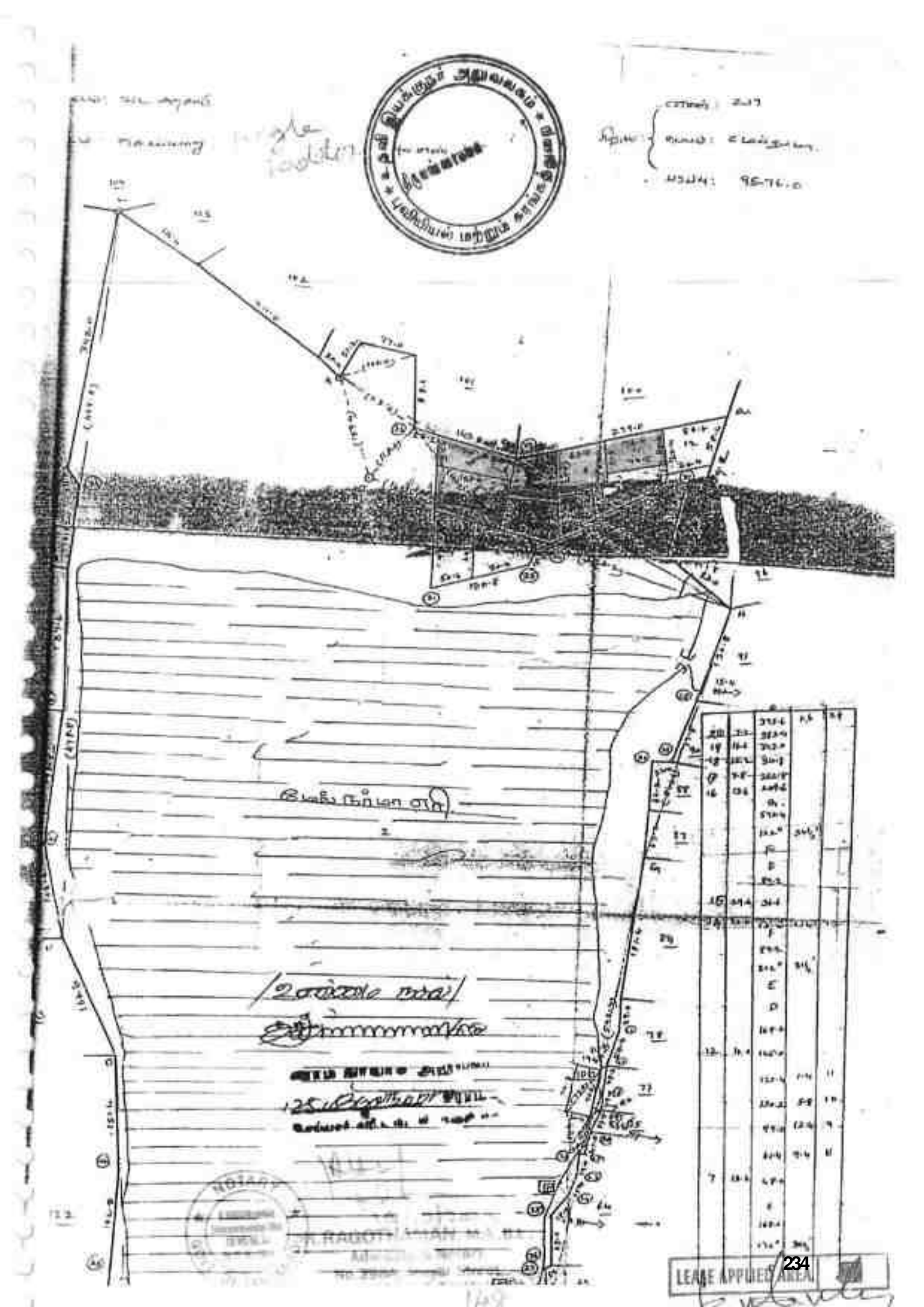
NOTARY

LEASE APPLIED AREA

232



LEASE APPLIED AREA


LEASE APPLIED AREA

ANNEXURE III



LEASE APPLIED AREA

ANNEXURE IV

9/4/24, 1:19 PM மாவட்ட ஆட்சியர் அலுவலக இணைய சேவை - நில உரிமை விபரங்கள்

தமிழ்நாடு அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருவண்ணாமலை

வட்டம் : செய்யார்

வருவாய் இராமம் : மேல்நர்மா

பட்டா எண் : 612

உரிமையாளர்கள் பெயர்

1. பூபாலன் மனைவி சாந்தி

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	
101	2	0 - 33.00	0.66	--	--	--	--	2022/0103/06/273574- -- -------- 22-03-2022
101	4	0 - 84.50	1.69	--	--	--	--	2022/0103/06/273574- -- -------- 22-03-2022
98	2	0 - 62.00	1.24	--	--	--	--	2022/0103/06/318569- -- -------- 01-12-2022
98	3	0 - 59.50	1.19	--	--	--	--	2022/0103/06/277030- -- -------- 11-04-2022
		2 - 39.00	4.78					

குறிப்பு :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மீள பதிவேடுவிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **06/04/217/00612/80769** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

2. இத் தகவல்கள் 04-09-2024 அன்று 01:21:04 PM நேரத்தில் அச்சடிக்கப்பட்டது.

3. மைக்ரோசாப் கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்.

தமிழ்நாடு அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருவண்ணாமலை

வட்டம் : செய்யார்

வருவாய் கிராமம் : மேல்நர்மா

பட்டா எண் : 623

உரிமையாளர்கள் பெயர்

1, கண்ணன் மகன் சுதாகரன்

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏ	ரூ - பை	ஹெக் - ஏ	ரூ - பை	ஹெக் - ஏ	ரூ - பை	
98	4	0 - 54.50	1.09	--	--	--	--	2022/0103/06/316172 -- -------- 25-11-2022
98	7	0 - 57.00	1.14	--	--	--	--	2022/0103/06/280852 -- -------- 02-05-2022
		1 - 11.50	2.23					

குறிப்பு :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்களின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் 06/04/117/00623/80771 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

2. இத் தகவல்கள் 04-09-2024 அன்று 01:24:59 PM நேரத்தில் அச்சடிக்கப்பட்டது.

3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



தமிழ்நாடு அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருவண்ணாமலை

வட்டம் : செய்யார்

வருவாய் கிராமம் : மேல்நர்மா

பட்டா எண் : 515

உரிமையாளர்கள் பெயர்

1.	[illegible]	மகன்	சிவலிங்கம்	
2.	[illegible]	மகன்	கோபாலன்	
3.	[illegible]	மகன்	பூபாலன்	
4.	[illegible]	மகன்	வெற்றிவேலன்	
5.	[illegible]	மகன்	சுதாகரன்	

புல எண்	உட்பிரிவு	பஞ்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
100	1	0 - 40.50	1.56	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
100	10	0 - 44.00	1.70	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018
100	11	0 - 44.00	1.70	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018
100	12	0 - 50.50	1.95	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018
100	13	0 - 40.50	1.56	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018
100	2	0 - 40.00	1.54	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
100	3	0 - 81.50	3.12	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
100	4	0 - 30.50	1.17	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
100	5	0 - 52.50	2.03	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
100	6	0 - 40.00	1.54	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
100	7	0 - 41.00	1.58	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018
100	8	0 - 40.00	1.54	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
100	9	0 - 40.00	1.54	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018
105	1	0 - 40.50	0.81	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018
105	11	0 - 37.50	0.75	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018
105	6	0 - 40.50	0.81	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018

105	7	0 - 42.00	0.84	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018
105	8	0 - 40.50	0.81	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018
96	28	0 - 22.00	0.44	--	--	--	--	2023/0105/06/420570- -2023/06/04/0000605D -------- 25-07-2023
96	5	0 - 65.50	1.32	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
98	14	0 - 35.00	0.70	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
98	23	0 - 93.00	1.86	--	--	--	--	2019/0103/06/108281- -- -------- 13-01-2019
98	24	0 - 24.00	0.48	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
		10 - 25.50	31.35					

குறிப்பு :

1. பெறப்பட்ட மனு, இதரவரு தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **06/04/217/00515/70791** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. மேற்கண்ட சான்றிதழ் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து 04-09-2024 அன்று 01:27:47 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. ஸ்மார்ட்போன் கொண்டுள்ள 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

தமிழ்நாடு அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருவண்ணாமலை

வட்டம் : செய்யார்

வருவாய் கிராமம் : மேல்நர்மா

பட்டா எண் : 641

உரிமையாளர்கள் பெயர்

1. சதாசிவன் மனைவி சௌமியா

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏ	ரூ - பை	ஹெக் - ஏ	ரூ - பை	ஹெக் - ஏ	ரூ - பை	
101	3	0 - 87.50	1.75	--	--	--	--	2022/0103/06/309923 --------- 12-10-2022
		0 - 87.50	1.75					

குறிப்பு :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **06/04/217/00641/80751** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 04-09-2024 அன்று 01:33:54 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் பயனர் 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

தமிழ்நாடு அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருவண்ணாமலை

வட்டம் : செய்யார்

வருவாய் கிராமம் : மேல்நர்மா

பட்டா எண் : 557

உரிமையாளர்கள் பெயர்

1. சேஷாசலம் மனைவி பார்வதி

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏ	ரூ - பை	ஹெக் - ஏ	ரூ - பை	ஹெக் - ஏ	ரூ - பை	
105	3	0 - 65.00	1.30	--	--	--	--	2020/0103/06/191548 -- --------- 10-10-2020
105	4	0 - 40.50	0.81	--	--	--	--	2020/0103/06/191548 -- --------- 10-10-2020
		1 - 5.50	2.11					

குறிப்பு :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டன. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **06/04/217/00557/70717** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 04-09-2024 அன்று 01:35:37 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. மைக்ரோசாப்ட் கேமராவின் 2D barcode படிப்பான் மூலம் படத்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

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ANNEXURE V

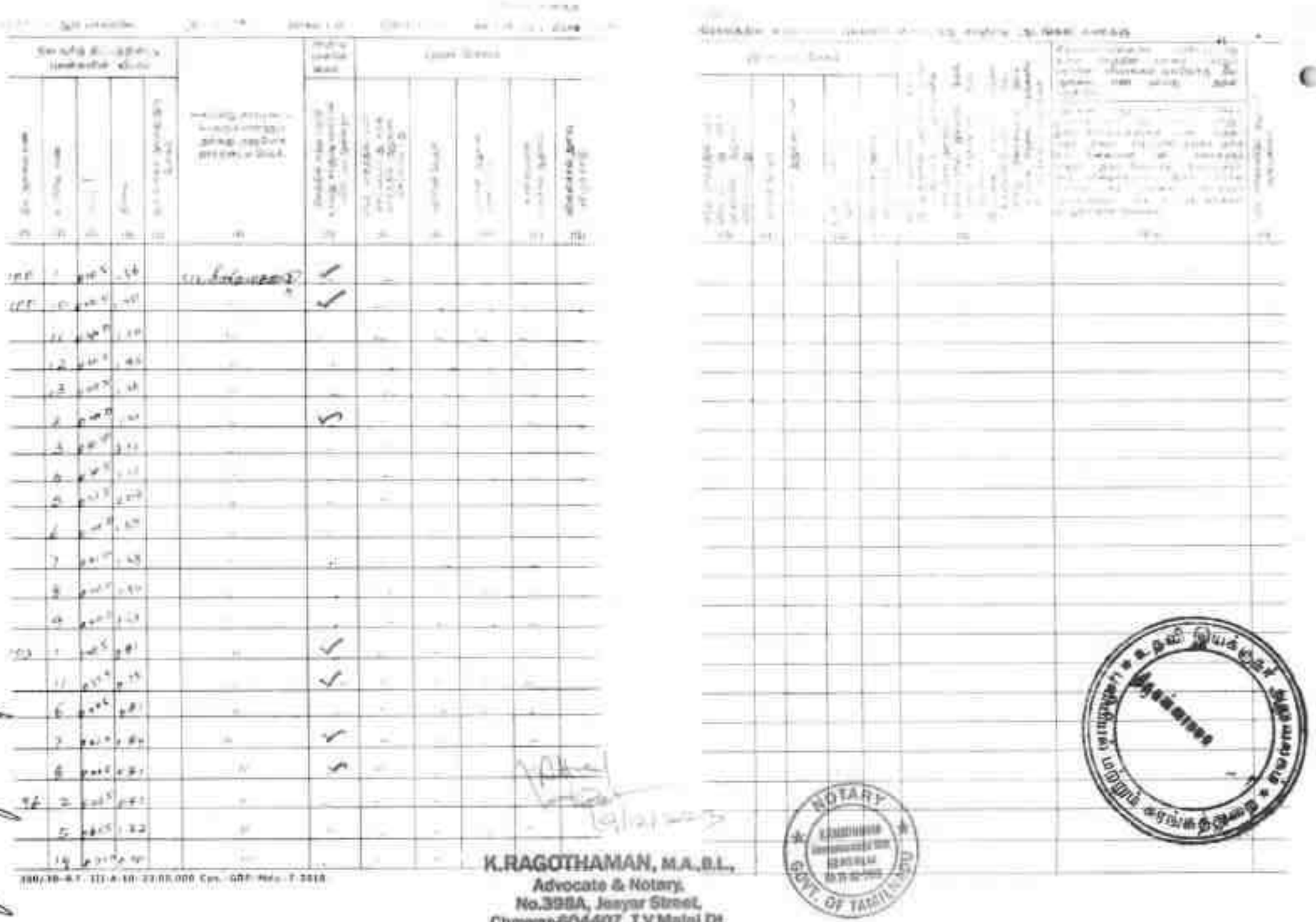
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243

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No.398A, Jaeyar Street,
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Mobile: 9443963609

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ANNEXURE VI

District Tiruvannamalai Taluk CHEYYAR Village PEMNAR

	1	96-1		புன்செய்	0	4	6	2	0	0	31.50	0	53 60-தூணாண்டி
	2	96-2		புன்செய்	0	4	6	2	0	0	43.50	0	87 20-வன்னியன்
	3	96-3		புன்செய்	0	4	6	2	0	0	50.50	1	01 53-தேவி
	4	96-4		புன்செய்	0	4	6	2	0	0	53.00	1	06 89-வன்னியர் மற்றும் 1 நபர்(கள்)
	5	96-5		புன்செய்	0	4	6	2	0	0	65.50	1	32 191-முல்லை நாடான
	6	96-6		புன்செய்	0	4	6	2	0	0	55.50	1	11 34-ஏழுமலை
	7	96-7		புன்செய்	0	4	6	2	0	0	73.00	1	47 57-வன்னியர்
	8	96-8		புன்செய்	0	4	6	2	0	0	68.50	1	37 126-அங்காளம்மன்
	9	96-9		புன்செய்	0	4	6	2	0	0	68.50	1	37 19-வடிவு
	10	96-10		புன்செய்	0	4	6	2	0	0	68.50	1	37 19-வடிவு
	11	96-11		புன்செய்	0	4	6	2	0	1	2.50	2	05 47-பன்னீர்செல்வம் மற்றும் 1 நபர்(கள்)
	12	96-12		புன்செய்	0	4	6	2	0	0	58.50	1	17 83-Gowja மற்றும் 1 நபர்(கள்)
	13	96-13		புன்செய்	0	4	6	2	0	0	60.50	1	22 72-Govt.Of...ment
				Total For Survey Number- 96				7	38.5	10	83		
		97		புன்செய்	0	4	6	2	0	0	76.50	1	54 69-Guthuvel மற்றும் 2 நபர்(கள்)
	1	98-1		புன்செய்	0	4	6	2	0	0	56.00	1	01 34-முருகன்
	2	98-2		புன்செய்	0	4	6	2	0	0	62.00	1	24 141-பாலாஜி மற்றும் 4 நபர்(கள்)
	3	98-3		புன்செய்	0	4	6	2	0	0	59.50	1	19 180-பாலாஜி மற்றும் 4 நபர்(கள்)
	4	98-4		புன்செய்	0	4	6	2	0	0	54.50	1	09 233-கோதண்டம்
	5	98-5		புன்செய்	0	4	6	2	0	0	47.00	0	94 187-குப்பன்
	6	98-6		புன்செய்	0	4	6	2	0	0	56.50	1	13 110-தேவராஜ்
	7	98-7		புன்செய்	0	4	6	2	0	0	57.00	1	14 233-கோதண்டம்
	8A	98-8		புன்செய்	0	4	6	2	0	0	55.50	1	10 96-தேவராஜ்
	8B	98-8		புன்செய்	0	4	6	2	0	0	2.00	0	10 247-சின்னப்பா
		98-9		புன்செய்	0	4	6	2	0	0	1.00	0	10 143-மணிவண்ணன்
		98-9		புன்செய்	0	4	6	2	0	0	62.00	1	04 115-Gurusami
	10	98-10		புன்செய்	0	4	6	2	0	0	61.00	1	63 70-தேவி மற்றும் 4 நபர்(கள்)
	11	98-11		புன்செய்	0	4	6	2	0	0	25.50	0	52 141-முத்து
	12	98-12		புன்செய்	0	4	6	2	0	0	50.50	1	01 223-Gurunathan மற்றும் 1 நபர்(கள்)
	13	98-13		புன்செய்	0	4	6	2	0	0	45.00	0	98 227-Gurunathan
	14	98-14		புன்செய்	0	4	6	2	0	0	25.00	0	10 191-முல்லை நாடான
	15	98-15		புன்செய்	0	4	6						94 90-Gurunathan மற்றும் 3 நபர்(கள்)
	16	98-16		புன்செய்	0	4	6						23 90-Gurunathan மற்றும் 2 நபர்(கள்)
	17	98-17		புன்செய்	0	4	6	2	0	0	54.50	1	03 53-வடிவு
	17A	98-17		புன்செய்	0	4	6	2	0	0	1.00	0	03 215-நல்லாண்டி
	18	98-18		புன்செய்	0	4	6	2	0	0	59.00	1	18 41-முருகன்
	19	98-19		புன்செய்	0	4	6	2	0	0	56.00	1	17 35-ஏழுமலை
	20	98-20	P	பயிரிடாத நிலம்	0	0	0	0	0	0	41.50	0	09 0
	21	98-21		புன்செய்	0	4	6	2	0	0	60.00	1	21 1-Agamudi
	22	98-22		புன்செய்	0	4	6	2	0	0	18.50	0	37 141-முருகன்
	23	98-23		புன்செய்	0	4	6	2	0	0	63.00	1	46 91-சுந்தர்
		98-24		புன்செய்	0	4	6	2	0	0	24.00	0	09 191-முல்லை நாடான்
		98-25	P	பயிரிடாத நிலம்	0	0	0	0	0	0	0.00	0	00 0
				Total For Survey Number- 98				13	42.5	14	14		

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K.RAGOTHAMAN, M.A., B.L.
Advocate & Notary,
No.396A, Jeyar Street,
Cheyyar-604407, T.V.Malai Dt.
Mobile: 9443963509

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District Tiruvannamalai Taluk CHEYYAR Village

98	1	98-1		P	புஞ்சை		0	4	5	2	0	0	52.50	1	05	32 Cuddalore	
99	2	99-2	P	N	புறம்போக்கு		0	0	0	0	0	0	75.00	0	00	0	
99	1	99-1	P	N	புறம்போக்கு		0	0	0	0	0	1	75.00	0	00	0	தனி
99	2	99-2		T	புஞ்சை		0	4	5	2	0	0	46.50	0	83	179 எண்ணெய் வித்து 2 நன்செய்	சிக்கல்
						Total For Survey Number- 99				1	49.5			1	88		
100	1	100-1		T	புஞ்சை			7 - 3	4	3	85	0	40.50	1	56	75 கம்பம்	
100	2	100-2		T	புஞ்சை			7 - 3	4	3	85	0	41.00	1	54	70 கம்பம்	
100	3	100-3		T	புஞ்சை			7 - 3	4	3	85	0	41.50	1	54	191 நூக்கலை நடவு	
100	4	100-4		T	புஞ்சை			7 - 3	4	3	85	0	42.00	1	55	191 நூக்கலை நடவு	
100	5	100-5		T	புஞ்சை			7 - 3	4	3	85	0	42.50	1	55	191 நூக்கலை நடவு	
100	6	100-6		T	புஞ்சை			7 - 3	4	3	85	0	43.00	1	56	191 நூக்கலை நடவு	
100	7	100-7		T	புஞ்சை			7 - 3	4	3	85	0	43.50	1	56	191 நூக்கலை நடவு	
100	8	100-8		T	புஞ்சை			7 - 3	4	3	85	0	44.00	1	57	191 நூக்கலை நடவு	
100	9	100-9		T	புஞ்சை			7 - 3	4	3	85	0	44.50	1	58	191 நூக்கலை நடவு	
100	10	100-10		T	புஞ்சை			7 - 3	4	3	85	0	45.00	1	59	191 நூக்கலை நடவு	
100	11	100-11		T	புஞ்சை			7 - 3	4	3	85	0	45.50	1	59	191 நூக்கலை நடவு	
100	12	100-12		T	புஞ்சை			7 - 3	4	3	85	0	46.00	1	60	191 நூக்கலை நடவு	
100	13	100-13		T	புஞ்சை			7 - 3	4	3	85	0	46.50	1	61	191 நூக்கலை நடவு	
100	14	100-14		T	புஞ்சை			7 - 3	4	3	85	0	47.00	1	61	191 நூக்கலை நடவு	
						Total For Survey Number- 100				4	80.5	24	64				
101	1	101-1	P	N	புறம்போக்கு			0 - 0	0	0	0	1	43.00	0	00	0	கொல்லைமேடு
101	2	101-2		T	புஞ்சை	A		0 - 4	5	2	0	0	32.00	0	65	206 தென்னை	
101	3	101-3		T	புஞ்சை	A		0 - 4	5	2	0	0	47.50	1	75	207 கடலைக்காய்	
101	4	101-4		T	புஞ்சை	A		0 - 4	5	2	0	0	84.50	1	80	206 தென்னை	
						Total For Survey Number- 101				3	48.8	4	38				
102		102		N	புறம்போக்கு			0 - 0	0	0	0	10	51.00	0	00	0	கொல்லைமேடு
102	1	102-1		T	புஞ்சை		2	0 - 4	5	2	0	0	48.00	1	92	234 தானாது	
102	2	102-2		T	புஞ்சை			0 - 4	5	2	0	0	43.50	0	81	211 கல்லாடம்	
102	3	102-3		T	புஞ்சை		2	0 - 4	5	2	0	0	80.50	2	47	225 சிவப்பு	
						Total For Survey Number- 102				4	49.8	5	15				
104		104		N	புறம்போக்கு			0 - 0	0	0	0	1	22.50	0	00	0	
105	1	105-1		T	புஞ்சை			0 - 4	5	2	0	0	47.50	0	81	210 பெருமை	தனி
105	2	105-2	P	N	புறம்போக்கு			0 - 0	0	0	0	11	0.50	0	00	0	
105	3	105-3		T	புஞ்சை			0 - 4	5	2	0	0	65.00	1	30	210 பெருமை	தனி
	4	105-4		T	புஞ்சை			0 - 4	5	2	0	0	40.50	0	81	210 பெருமை	
	5	105-5		T	புஞ்சை			0 - 4	5	2	0	0	44.50	0	89	31 பெரி	
	6	105-6		T	புஞ்சை			0 - 4	5	2	0	0	46.50	0	91	191 நூக்கலை நடவு	
	7	105-7		T	புஞ்சை			0 - 4	5	2	0	0	42.50	0	84	191 நூக்கலை நடவு	
	8	105-8		T	புஞ்சை			0 - 4	5	2	0	0	40.50	0	81	191 நூக்கலை நடவு	
	9	105-9		T	புஞ்சை			0 - 4	5	2	0	0	47.50	0	95	206 தென்னை	
	10	105-10		T	புஞ்சை			0 - 2	5	2	0	0	35.50	0	71	210 பெருமை	
	11	105-11		T	புஞ்சை			0 - 4	5	2	0	0	37.50	0	75	191 நூக்கலை நடவு	
	12	105		T	புஞ்சை			0 - 4	5	2	0	0	40.50	0	81	179 எண்ணெய் வித்து 2 நன்செய்	
		106		T	நஞ்சை	A		4 - 5	15	10	79	0	18.03	1	97	171 Paddy Groups	
		107		N	புறம்போக்கு			0 - 0	0	0	0	0	49.50	0	00	0	பாதையள்
		108		N	புறம்போக்கு			0 - 0	0	0	0	0	51.50	0	00	0	பாதையள்
	1A	109-1		T	புஞ்சை			7 - 3	4	3	85	0	44.14	1	70.71	4 கம்பம்	
				T	புஞ்சை			1 - 3	4	3	85	0	7.50	0	11	4 கம்பம்	
				T	புஞ்சை											13.485	

2000ம் ஆண்டு

125 ரூபாய் முத்திரை

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NOTARY GOVT. OF TAMILNADU

K.RAGOTHAMAN, M.A.,B.L.,
Advocate & Notary,
No.398A, Anna Salai,
Cheyyar-604407, T.V.Malai Dt.

ANNEXURE VII



தமிழ்நாடு தமிழ்நாடு TAMILNADU

AC 759367

K. ARUL, B.Sc.,
Stamp Vendor
Vandavasi-604 408, T.V.Malai. Dt.
L. No. 19/2008

பொது அதிகார ஆவணம் (ஏ) ஜெனரல் பவர் ஆப் அட்டார்னி

2024-ஆம் வருஷம் ஆகஸ்டு மாதம் 28ஆ இருபத்தி எட்டாம் தேதி திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், அழிவிடைதாங்கி மதுரா, ஜம்போடை கிராமம், மாரியம்மன் கோவில் தெரு, நெ.782 வீட்டில் வசிக்கும் திரு.J.C.**கண்ணன்** அவர்களின் குமாரர் 45 வயதுள்ள திரு.K.**வெற்றிவேலன்** (Aadhar.No.9200 9020 9694) (Cell No.9786228681) அவர்களுக்கு,

திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், அழிவிடைதாங்கி மதுரா, ஜம்போடை கிராமம், மாரியம்மன் கோவில் தெரு, நெ.782 வீட்டில் வசிக்கும் திரு.J.C.**கண்ணன்** அவர்களின் குமாரர்கள் 52 வயதுள்ள திரு.K.**சீனிவாசன்** (Aadhar.C.No.5183 7527 2718) (Cell No.9786228696)-1 50 வயதுள்ள திரு.K.**பூபாலன்** (Aadhar.C.No.2447 1902 7206) (Cell No.9786228697)-2 47 வயதுள்ள திரு.K.**கோபாலன்** (Aadhar.C.No.2495 0194 8421) (Cell No.9786228686)-3 42 வயதுள்ள திரு.K.**சுதாகரன்** (Aadhar.C.No.3518 4379 6955) (Cell No.9786228636)-4 மேற்படி 1-வது நபரான திரு.K.**சீனிவாசன்** அவர்களின் மனைவி 45 வயதுள்ள திருமதி.S.**பார்வதி** (Aadhar.C.No.6452 3434 4710) (Cell No.9786228696)-5

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1 வது நபர்

भारतीय गैर न्यायिक

एक सौ रुपये Rs. 100

रु. 100 ONE HUNDRED RUPEES

भारत INDIA

INDIA NON JUDICIAL

தமிழ்நாடு தமிழ்நாடு TAMILNADU

DS 717729

Stamp Vendor
Vandavasi-604 408. T.V.Malai. Dt.
L. No. 19/2008

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மேற்படி 2-வது நபரான திரு.K.பூபாலன் அவர்களின் மனைவி 42 வயதுள்ள திருமதி.B.சாந்தி (Aadhar.C.No.8849 2455 6813) (Cell No.9786228648)-6 மேற்படி 4-வது நபரான திரு.K.சுதாகரன் அவர்களின் மனைவி 31 வயதுள்ள திருமதி.G.சௌமியா (Aadhar.C.No.2414 7783 2319) (Cell No.9786228633)-7 ஆகிய நாங்கள் சம்மதித்து எழுதிக்கொடுத்த ஜெனரல்பவர்பத்திரம் யாதெனில், கீழ்கண்ட சொத்து விவரத்தில் குறிப்பிட்டுள்ள சொத்துக்கள் நாங்கள் சுயமாய் கிரையம் வாங்கி ஆண்டு அனுபவித்து வரும் சொத்துக்கள் ஆகும்.

அதாவது எங்களில் 1 முதல் 4 வரை நபர்களும் மற்றும் நீங்களும் சேர்ந்து கூடந்த 20-09-2018-ம் தேதியில் காஞ்சிபுரம் மாவட்டம், திருப்பேரும்புத்தூர் டவுன், காந்தி ரோடு, நெ.77/317 வீட்டில் வசித்து வந்த அய்யாசாமி நாடார் அவர்களின் குமாரர் முக்கையா நாடார் என்பவரிடமிருந்து கிரையம் வாங்கி அந்த ஆவணம் வந்தவாசி சார்பதிவாளர் அலுவலகத்தில் 1 புத்தகம் 2018-ம் ஆண்டின் 2963 எண்ணாக பதிவான கிரையப்பத்திரப்படி கிரையம் வாங்கி எங்களில் 1 முதல் 4 வரை நபர்கள் மீதும் மற்றும் உங்கள் மீதும் மேல்நர்மா கிராமத்தில் 515 நெ கூட்டுப்பட்டாவாய் தாக்கலாகி ஆண்டு அனுபவித்து வரும் சொத்தினையும்,

1 ஆகஸ்ட் 2024 4118
ஆவணம் 27
2 வது தாள்

भारतीय गैर न्यायिक

एक सौ रुपये Rs. 100

रु. 100 ONE HUNDRED RUPEES

भारत INDIA

INDIA NON JUDICIAL

தமிழ்நாடு तमिलनाडु TAMILNADU

DS 717730

நாள்: 28 8 2024

K [illegible]

[illegible], B.Sc.,
Stamp Vendor
Vandavasi-604 408, T.V.Malai. Dt.
L. No. 19/2008

-3-

எங்களில் 1 முதல் 4 வரை நபர்களும் மற்றும் நீங்களும் சேர்ந்து கடந்த 24-06-2019-ம் தேதியில் திருவண்ணாமலை மாவட்டம், செய்யாறு வட்டம், மேல்நர்மா கிராமத்தில் வசிக்கும், தேவன் அவர்களின் மனைவி **கண்ணகி** என்பவரிடமிருந்து கிரையம் வாங்கி அந்த ஆவணம் வந்தவாசி சார்பதிவாளர் அலுவலகத்தில் 1 புத்தகம் 2019-ம் ஆண்டின் 2062 எண்ணாக பதிவான கிரையப்பத்திரப்படி கிரையம் வாங்கி எங்களில் 1 முதல் 4 வரை நபர்கள் மீதும் மற்றும் உங்கள் மீதும் மேல்நர்மா கிராமத்தில் 515 ஏ கூட்டுப்பட்டாவாய் தாக்களாகி ஆண்டு அனுபவித்து வரும் சொத்தினையும்,

மற்றும் எங்களில் 4-வது நபரான சுதாகரன் அவர்கள் கடந்த 02-05-2022-ம் தேதியில் திருவண்ணாமலை மாவட்டம், வந்தவாசி வட்டம், கீழ்சாத்தமங்கலம் கிராமம், இந்திரா நகர், வள்ளபட்டரை தெரு, ஏ.311 வீட்டில் வசித்து வந்து ஜோசப் அவர்களின் மனைவி **கினாராமேரி** என்பவரிடமிருந்து கிரையம் வாங்கி அந்த ஆவணம் வந்தவாசி சார்பதிவாளர் அலுவலகத்தில் 1 புத்தகம் 2022-ம் ஆண்டின் 1870 எண்ணாக பதிவான கிரையப்பத்திரப்படி கிரையம் வாங்கி எங்களில் 4-வது நபர்மீது 623 ஏ தனிப்பட்டாவாய் ஆண்டு அனுபவித்து வரும் சொத்தினையும்,

1 ஆகஸ்ட் 2024 மாலை 4.18

ஆவணம் 27

3

भारतीय गैर न्यायिक

एक सौ रुपये

Rs. 100

ONE HUNDRED RUPEES

रु. 100

भारत INDIA

INDIA NON JUDICIAL

தமிழ்நாடு தமிழ்நாடு TAMILNADU

DS 717731

K. ARUL, B.Sc.,
Stamp Vendor
Vandavasi-604 408, T.V.Malai. Dt
L. No. 19/2008

4-

மற்றும் எங்களில் 4-வது நபரான சுதாகரன் அவர்கள் கடந்த 02-05-2022-ம் தேதியில் திருவண்ணாமலை மாவட்டம், வந்தவாசி வட்டம், கீழ்சாத்தமங்கலம் கிராமம், இந்திரா நகர், வள்ளுவர் தெரு, தெ.311 வீட்டில் வசித்து வந்து ஜோசப் அவர்களின் மனைவி **கிளாராமேரி** என்பவரிடமிருந்து கிரையம் வாங்கி அந்த ஆவணம் வந்தவாசி சார்பதிவாளர் அலுவலகத்தில் 1 புத்தகம் 2022-ம் ஆண்டின் 1871 எண்ணாக பதிவான கிரையப்பத்திரப்படி கிரையம் வாங்கி எங்களில் 4-வது நபர்மீது 623 தெ தனிப்பட்டாவாய் ஆண்டு அனுபவித்து வரும் சொத்தினையும்.

மற்றும் எங்களில் 5-வது நபரான பார்வதி அவர்கள் கடந்த 20-08-2020-ம் தேதியில் திருவண்ணாமலை மாவட்டம், செய்யாறு வட்டம், மேல்நர்மா கிராமம், லட்சுமிபுரம் கிராமத்தில் வசித்து வந்த பெருமாள் அவர்களின் குமாரர் **ராமமூர்த்தி** என்பவரிடமிருந்து கிரையம் வாங்கி அந்த ஆவணம் வந்தவாசி சார்பதிவாளர் அலுவலகத்தில் 1 புத்தகம் 2020-ம் ஆண்டின் 2091 எண்ணாக பதிவான கிரையப்பத்திரப்படி கிரையம் வாங்கி எங்களில் 5-வது நபர்மீது 557 தெ தனிப்பட்டாவாசி ஆண்டு அனுபவித்து வரும் சொத்தினையும்

2024 4118

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4

भारतीय गैर न्यायिक

एक सौ रुपये Rs. 100

रु. 100 ONE HUNDRED RUPEES

भारत INDIA

INDIA NON JUDICIAL

தமிழ்நாடு தமிழ்நாடு TAMILNADU

DS 717732

K. [illegible], B.Sc.,
Stamp Vendor
Vanavasi-604 408, T.V.Malai. Dt
L. No. 19/2008

மற்றும் எங்களில் 6-வது நபரான சாந்தி அவர்கள் கடந்த 14-12-2021-ம் தேதியில் திருவண்ணாமலை மாவட்டம், செய்யாறு வட்டம், மேல்நர்மா கிராமத்தில் வசித்து வந்த முருகேச நாயக்கர் அவர்களின் குமாரர்கள் **பொன்னுசாமி-1 ஆறுமுகம்-2** ஆகிய இவர்களிடமிருந்து கிரையம் வாங்கி அந்த ஆவணம் வந்தவாசி சார்பதிவாளர் அலுவலகத்தில் 1 புத்தகம் 2021-ம் ஆண்டின் 4929 எண்ணாக பதிவான கிரையப்பத்திரப்படி கிரையம் வாங்கி எங்களில் 6-வது நபர்மீது 612 நெ தனிப்பட்டாவாகி ஆண்டு அனுபவித்து வரும் சொத்தினையும்

மற்றும் எங்களில் 6-வது நபரான சாந்தி அவர்களுக்கு கடந்த 22-03-2022-ம் தேதியில் திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், திருப்பணமூர் கிராமம், வெங்கட்ராயன் பேட்டை, பிள்ளையார் கோவில் தெரு, நெ.412 வீட்டில் வசித்து வரும் அவருடைய தந்தை **மணி** அவர்கள் ஒரு தானசெட்டில்மெண்டு ஆவணம் எழுதிக்கொடுத்து அந்த ஆவணம் வந்தவாசி சார்பதிவாளர் அலுவலகத்தில் 1 புத்தகம் 2022-ம் ஆண்டின் 1195 எண்ணாக பதிவான தானசெட்டில்மெண்டு பத்திரப்படி கிடைத்து எங்களில் 6-வது நபர்மீது 612 நெ தனிப்பட்டாவாகி ஆண்டு அனுபவித்து வரும் சொத்தினையும்

B. Santhi

மற்றும் எங்களில் 6-வது நபரான சாந்தி அவர்கள் கடந்த 02-12-2020-ம் தேதியில் **பாப்பாத்தியம்மாள்** அவர்களிடமிருந்து கிரையம் வாங்கி அந்த ஆவணம் வந்தவாசி சார்பதிவாளர் அலுவலகத்தில் 1 புத்தகம் 2020-ம் ஆண்டின் 3450 எண்ணாக பதிவான கிரையப்பத்திரப்படி கிரையம் வாங்கி எங்களில் 6-வது நபர்மீது 612 நெ தனிப்பட்டாவாகி ஆண்டு அனுபவித்து வரும் சொத்தினையும்

மற்றும் எங்களில் 6-வது நபரான சாந்தி அவர்கள் கடந்த 07-12-2021-ம் தேதியில் **ஏகாம்பரம்** அவர்களிடமிருந்து கிரையம் வாங்கி அந்த ஆவணம் வந்தவாசி சார்பதிவாளர் அலுவலகத்தில் 1 புத்தகம் 2021-ம் ஆண்டின் 4821 எண்ணாக பதிவான கிரையப்பத்திரப்படி கிரையம் வாங்கி எங்களில் 6-வது நபர்மீது 612 நெ தனிப்பட்டாவாகி ஆண்டு அனுபவித்து வரும் சொத்தினையும்

மற்றும் எங்களில் 6-வது நபரான சாந்தி அவர்கள் கடந்த 22-10-2020-ம் தேதியில் **சுப்பிரமணி** அவர்களிடமிருந்து கிரையம் வாங்கி அந்த ஆவணம் வந்தவாசி சார்பதிவாளர் அலுவலகத்தில் 1 புத்தகம் 2020-ம் ஆண்டின் 3248 எண்ணாக பதிவான கிரையப்பத்திரப்படி கிரையம் வாங்கி எங்களில் 6-வது நபர்மீது 612 நெ தனிப்பட்டாவாகி ஆண்டு அனுபவித்து வரும் சொத்தினையும்

மற்றும் எங்களில் 7-வது நபரான சௌமியா அவர்கள் கடந்த 12-10-2022-ம் தேதியில் திருவண்ணாமலை மாவட்டம், செய்யாறு வட்டம், மேல்நர்மா கிராமத்தில் வசித்து வந்த சடையாண்டி அவர்களின் மனைவி **தேவகி-1** மேற்படி சடையாண்டி அவர்களின் குமாரர் **வெங்கடேசன்-2** மேற்படி சடையாண்டி அவர்களின் குமாரத்திகள் **மைதிலி-3 ராணி-4** ஆகிய இவர்களிடமிருந்து கிரையம் வாங்கி அந்த ஆவணம் வந்தவாசி சார்பதிவாளர் அலுவலகத்தில் 1 புத்தகம் 2022-ம் ஆண்டின் 4594 எண்ணாக பதிவான கிரையப்பத்திரப்படி கிரையம் வாங்கி எங்களில் 7-வது நபர்மீது 641 நெ தனிப்பட்டாவாகி ஆண்டு அனுபவித்து வரும் சொத்தினையும் மற்றும் எங்களால் பராமரிக்கவும், பாதுகாக்கவும் முடியாத காரணத்தினாலும் எங்களுக்கு ஒரு நல்ல முகவர் தேவைப்படவே தங்களை பொது அதிகார முகவராக நியமித்து கீழ்க்கண்ட அதிகாரங்களை தங்களுக்கு அளிக்கின்றோம்.

மேற்படி எங்களுக்கு சொந்தமானதும் நாங்கள் சர்வசுதந்திரமாகவும் ஆண்டு அனுபவித்து வந்தும் எங்கள் அனைவரின் சுவாதீனத்தில் இருந்து வரும் சொத்துக்களில் மேற்படி அனைத்து படிவங்களிலும் எங்களுக்கு பதிலாக தாங்களே கையொப்பம் இடவும், இதர பாரங்களில் எங்களுடைய சார்பாக கையொப்பம் இட்டு நடைமுறைபடுத்தவும், தொடர்ந்து செயல்படவும், நாங்கள் இதன் மூலம் தங்களுக்கு அதிகாரம் அளிக்கின்றோம். மேற்படி சொத்துக்களில் வழக்குகள் ஏற்படின் தக்க நீதிமன்றத்தில் நீங்களே எங்கள் சார்பாக வழக்குகள் தொடரவும் வக்காளத்து நாமாக்கள் மற்றும் இதர பாரங்களில் எங்கள் சார்பாக கையொப்பம் இட்டு வழக்கினை தொடர்ந்து செயல்படவும் வாபஸ் பெறவும் ராஜி செய்து கொள்ளவும் நாங்கள் இதன் மூலம் தங்களுக்கு அதிகாரம் அளிக்கின்றோம்.

நீங்கள் இந்த சொத்துக்களை முழுமையாக விற்பனை செய்யவும், அடமானம் செய்யவும், குத்தகைக்கு விடவும் அதற்கான அனைத்து பத்திரங்களையும் எழுதிக்கொடுத்து கையொப்பம் இடவும் இந்த சொத்து சம்மந்தமான பரிவர்த்தனை பத்திரங்கள், பிழைதிருத்தல் பத்திரங்கள், தானப்பத்திரங்கள், போன்றவை எழுதிக் கொடுக்கவும், எழுதிப்பெறவும், தமிழ்நாடு புவியியல் மற்றும் சுரங்கத்துறை அனுமதி பெற்று சிறு கனிமம், சாதாரண கற்கள், கிராவில் மண் எடுத்துக்கொள்ளவும் மேற்கண்ட துறைக்கு அனுமதி பெறவும், மேற்கண்ட துறைக்கு கூட்டு ஒப்பந்தம் செய்துக் கொடுக்கவும் இதில் மின் இணைப்பு பெறவும், மாநில சுற்று சூழல் தாக்கம் மதிப்பீட்டு ஆணையத்தில் தடையில்லா சான்று பெறவும் அதற்கான படிவங்களில் தாங்களே கையெழுத்திடவும்,

மேற்படி இந்த சொத்தின் மீதான அனைத்து வரி வகையராக்களையும் எங்களுக்கு பதிலாக நீங்களே எங்களது பெயரில் செலுத்தவும். மேற்படி இச்சொத்து சம்மந்தமாக நீங்கள் மேற்கொள்ளும் அனைத்து சட்ட விரோதமற்ற சட்டப்பூர்வமான நடவடிக்கைகளையும் நாங்களே நேரில் இருந்து செய்ததாக ஒப்புக்கொள்கின்றோம்.

இந்த சொத்துக்கள் சம்மந்தமாக தகுந்த சமயத்தில் தகுந்த கணக்கும் குறிப்பும் வைத்து நாங்கள் கோரும் போது எங்கள் வசம் ஒப்படைக்க வேண்டும். இந்த பொது அதிகார ஆவணத்திற்காக நாங்கள் தங்களிடமிருந்து எந்த விதமான பிரதிபலனும் பெறவில்லை. இந்தப்படிக்கு நாங்கள் சம்மதித்து எழுதிக்கொடுத்த பொது அதிகார ஆவணம்.

சொத்து விபரம்

திருவண்ணாமலை மாவட்டம், செய்யார் ரி.டி. வந்தவாசி சப்-டிவிஷன் ஆரணி தாலுகா வட்டம், **மேல்நர்மா கிராம** சர்க்கார்

புன்சை சர்வே எண்.**100/1** பூரா 0.40.5 ஏர்ஸ் இதற்கு 1.00 ஏக்கர்.
புன்சை சர்வே எண்.**100/2** பூரா 0.40.0 ஏர்ஸ் இதற்கு 0.99 செண்டு.
புன்சை சர்வே எண்.**105/11** பூரா 0.37.5 ஏர்ஸ் இதற்கு 0.93 செண்டு.
புன்சை சர்வே எண்.**105/8** பூரா 0.40.5 ஏர்ஸ் இதற்கு 1.00 ஏக்கர்.
புன்சை சர்வே எண்.**105/7** பூரா 0.42.0 ஏர்ஸ் இதற்கு 1.04 செண்டு.
புன்சை சர்வே எண்.**105/1** பூரா 0.40.5 ஏர்ஸ் இதற்கு 1.00 ஏக்கர்.
புன்சை சர்வே எண்.**98/7** பூரா 0.57.0 ஏர்ஸ் இதற்கு 1.41 செண்டு.
புன்சை சர்வே எண்.**98/4** பூரா 0.54.5 ஏர்ஸ் இதற்கு 1.35 செண்டு.
புன்சை சர்வே எண்.**105/3** பூரா 0.65.0 ஏர்ஸ் இதற்கு 1.60 செண்டு.
புன்சை சர்வே எண்.**101/2** பூரா 0.33.0 ஏர்ஸ் இதற்கு 0.82 செண்டு.
புன்சை சர்வே எண்.**101/4** பூரா 0.84.5 ஏர்ஸ் இதற்கு 2.09 செண்டு
புன்சை சர்வே எண்.**98/2** பூரா 0.62.0 ஏர்ஸ் இதற்கு 1.53 செண்டு.
புன்சை சர்வே எண்.**98/3** பூரா 0.59.5 ஏர்ஸ் இதற்கு 1.47 செண்டு.
புன்சை சர்வே எண்.**101/3** பூரா 0.87.5 ஏர்ஸ் இதற்கு 2.16 செண்டு நிலம் உள்பட இந்த பொது அதிகார ஆவணத்தில் அடங்கும்.

மேற்படி சொத்து அனுக்காவூர் பஞ்சாயத்து யூனியன் எல்லைக்கு மேல்நர்மா கிராம பஞ்சாயத்திற்கு சம்மந்தப்பட்டது.

மேற்படி சொத்து மதிப்பு.65,21,400/-

எழுதிவாங்குப்பவர் கையெழுத்து

எழுதிகொடுப்பவர்கையெழுத்து

சாட்சிகள்

1.
குமார் தந்தை இளந்தீரையன்
தெ.118 பிராமணர் தெரு, ஒழக்கரை கிராமம்
உத்திரமேரூர் வட்டம்
ஆதார் எண். 7803 8007 0572

2.
பிரதாப் தந்தை மணி
தெ.779, மாரியம்மன் கோவில் தெரு,
தும்போடை, கிராமம்
ஆதார் எண்.3238 2727 6515

சான்று செய்தவர்:



வி.பூபாலன்,
ஆவண எழுத்தர்
தெ.31 ஒட்டந் தெரு வந்தவாசி-604408
Cell.9443967903, Writerboobalan@gmail.com
ஆவண எழுத்தர் உரிமம் எண். B 704/cyr/91

1 2024 418
2-7
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1968 ஆம் வருஷத்திய சென்னை முத்தினர மதிப்பு குறைப்பு திருத்தச் சட்டம் 3(1)

ஸ்டேட்மெண்ட் **மார்கெட் மதிப்பு அறிக்கை** - மேல்நாவல்

வ. என்	சர்வே எண்	விஸ்தீரணம் செண்டு	விஸ்தீரணம் ஏர்ஸ்	வழிகாட்டிப்படி 1 செ. மதிப்பு	சொத்தின் தன்மை	எழுதி கொடுப்பவரின் தீர்மானப்படி காலை விலை
1.	100/1	1.00		2100	புன்சை	ரூ. 2,10,000.00
2.	100/2	0.99		2100	புன்சை	ரூ. 2,07,900.00
3.	105/11	0.93		2100	புன்சை	ரூ. 1,95,300.00
4.	105/8	1.00		2100	புன்சை	ரூ. 2,10,000.00
5.	105/7	1.04		2100	புன்சை	ரூ. 2,18,400.00
6.	105/1	1.00		2100	புன்சை	ரூ. 2,10,000.00
7.	98/7	1.41		2100	புன்சை	ரூ. 2,96,100.00
8.	98/4	1.35			புன்சை	ரூ. 29,43,000.00
9.	105/3	1.60		2100	புன்சை	ரூ. 3,36,000.00
10.	101/2	0.82		2100	புன்சை	ரூ. 1,72,200.00
11.	101/4	2.09		2100	புன்சை	ரூ. 4,38,900.00
12.	98/2	1.53		2100	புன்சை	ரூ. 3,21,300.00
13.	98/3	1.47		2100	புன்சை	ரூ. 3,08,700.00
14.	101/3	2.16		2100	புன்சை	ரூ. 4,53,600.00

ஆக மொத்த மதிப்பு ரூ. 65,21,400.00

எழுதி கொடுப்பவர் கையெழுத்து

B. Sathi

சொத்தானது நீர்நிலை பகுதியில் அமையப் பெறவில்லை என்பதற்கான சான்று/உறுதிமொழி (Declaration) நீதிபேராணைகள் 22163/2018 -ல் வழங்கப்பட்ட தீர்ப்புரையைகாண்க.

இந்த ஆவணத்தில் கண்ட சொத்தானது நீர்நிலைகள், நீர்வழிப்பாதைகள், நீர்பிடிப்பு பகுதியில் கட்டுப்படவில்லை என சான்றளிக்கிறோம். மேலும் இதனில் தங்களுக்கு தவறான தகவல் அல்லது சான்று அளிக்கப்பட்டதாக பின்னாளில் கண்டுபிடிக்கப்பட்டால் அதனால் நான்/நாங்கள் சட்ட பூர்வ நடவடிக்கைகளுக்கு உட்படுத்தப்படுவோம் என்பதையும் அறிவேன்/அறிவோம்.

தமிழ்நாடு அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருவண்ணாமலை

வட்டம் : செய்யார்

வருவாய் கிராமம் : மேல்நர்மா

பட்டா எண் : 515

உரிமையாளர்கள் பெயர்

1.	கண்ணன்	மகன்	சின்னையன்	
2.	கண்ணன்	மகன்	கோபாலன்	
3.	கண்ணன்	மகன்	பூபாலன்	
4.	கண்ணன்	மகன்	வெற்றிவேலன்	
5.	கண்ணன்	மகன்	சதாசிவன்	

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	
100	1	0 - 40.50	1.56	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
100	10	0 - 44.00	1.70	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018
100	11	0 - 44.00	1.70	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018
100	12	0 - 50.50	1.95	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018
100	13	0 - 40.50	1.56	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018
100	2	0 - 40.00	1.54	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
100	3	0 - 81.50	3.12	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
100	4	0 - 30.50	1.17	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
100	5	0 - 52.50	2.03	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
100	6	0 - 40.00	1.54	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
100	7	0 - 41.00	1.58	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018
100	8	0 - 40.00	1.54	1 --	2024	--	4118	2022/0103/06/316172- -- -------- 25-11-2022
100	9	0 - 40.00	1.54	--	27	--	--	2018/0103/06/095907- -- -------- 06-10-2018
105	1	0 - 40.50	0.81	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018

105	11	0 - 37.50	0.75	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018
105	6	0 - 40.50	0.81	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018
105	7	0 - 42.00	0.84	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018
105	8	0 - 40.50	0.81	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018
96	28	0 - 22.00	0.44	--	--	--	--	2023/0105/06/420570- -2023/06/04/00006050 -------- 25-07-2023
96	5	0 - 65.50	1.32	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
98	14	0 - 35.00	0.70	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
98	23	0 - 93.00	1.86	--	--	--	--	2019/0103/06/108281- -- -------- 13-01-2019
98	24	0 - 24.00	0.48	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
		10 - 25.50	31.35					

குறிப்பு :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **06/04/217/00515/70791** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இந்த தகவல்கள் 20-08-2024 அன்று 11:01:15 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

2024 ... 418
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தமிழ்நாடு அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருவண்ணாமலை

வட்டம் : செய்யார்

வருவாய் கிராமம் : மேல்நர்மா

பட்டா எண் : 623

உரிமையாளர்கள் பெயர்

1. வள்ளான் மகன் சதாகரன்

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	
98	4	0 - 54.50	1.09	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
98	7	0 - 57.00	1.14	--	--	--	--	2022/0103/06/280852- -- -------- 02-05-2022
		1 - 11.50	2.23					

குறிப்பு :

1. மேற்கண்ட தகவல் / சான்றிதழ் நில விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **06/04/217/00623/80771** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இந்த தகவல்கள் 20-08-2024 அன்று 11:12:22 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைபேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

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நமிழ்நாடு அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருவண்ணாமலை

வட்டம் : செய்யார்

வருவாய் கிராமம் : மேல்நர்மா

பட்டா எண் : 557

உரிமையாளர்கள் பெயர்

1. சிவிவாசன் மனைவி பார்வதி

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	
105	3	0 - 65.00	1.30	--	--	--	--	2020/0103/06/191548- -- -------- 10-10-2020
105	4	0 - 40.50	0.81	--	--	--	--	2020/0103/06/191548- -- -------- 10-10-2020
		1 - 5.50	2.11					

குறிப்பு :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மீது பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **06/04/217/00557/70717** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 20-08-2024 அன்று 11:06:55 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

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தமிழ்நாடு அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருவண்ணாமலை

வட்டம் : செய்யார்

வருவாய் ரொமம் : மேல்நர்மா

பட்டா எண் : 612

உரிமையாளர்கள் பெயர்

1. பூபாலன் மனைவி சாந்தி

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	
101	2	0 - 33.00	0.66	--	--	--	--	2022/0103/06/273574-- -------- 22-03-2022
101	4	0 - 84.50	1.69	--	--	--	--	2022/0103/06/273574-- -------- 22-03-2022
98	2	0 - 62.00	1.24	--	--	--	--	2022/0103/06/318569-- -------- 01-12-2022
98	3	0 - 59.50	1.19	--	--	--	--	2022/0103/06/277030-- -------- 11-04-2022
		2 - 39.00	4.78					

குறிப்பு :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **06/04/217/00512/80769** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 20-08-2024 அன்று 11:05:25 AM நேரத்தில் அச்சிடுகப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

1 ... 2024 ... 418

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16 ... தாசில்தார்

R. Sathi

தமிழ்நாடு அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருவண்ணாமலை

வட்டம் : செய்யார்

வருவாய் கிராமம் : மேல்நர்மா

பட்டா எண் : 641

உரிமையாளர்கள் பெயர்

1. கருணாகரன் மனைவி சௌமியா

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏ	ரூ - பை	ஹெக் - ஏ	ரூ - பை	ஹெக் - ஏ	ரூ - பை	
101	3	0 - 67.50	1.75	--	--	--	--	2022/0103/06/309923- -- ------- 12-10-2022
		0 - 67.50	1.75					

குறிப்பு :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **06/04/217/00641/80751** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 20-08-2024 அன்று 11:08:33 AM தேதியில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்


GPS Ma
Vachanur, Tamil Nadu, India
Unnamed Road, Vachanur, Tamil Nadu 604408, India
Lat 12.58157°
Long 79.662187°
28/08/24 02:36 PM GMT +05:30


Government of India
9200 9020 9694
VID : 9195 3855 2637 8797
Unique Identification Authority of India
9200 9020 9694
VID : 9195 3855 2637 8797













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சாதாரண மனிதனின் அதிகாரம்



6955



இந்திய அரசாங்கம்
Government of India

6462 3434 4710

சாதாரண மனிதனின் அதிகாரம்



Unique Identification Authority of India

6462 3434 4710



இந்திய அரசாங்கம்
Government of India

8849 2455 6813

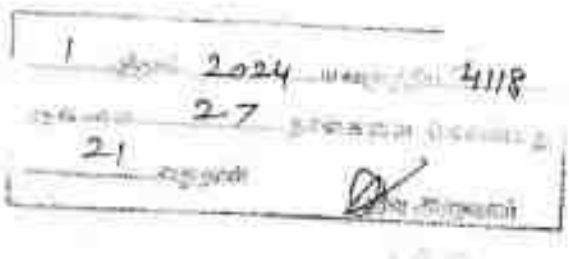
சாதாரண மனிதனின் அதிகாரம்



Unique Identification Authority of India

8849 2455 6813





1 2024 4118
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21



இந்திய அரசாங்கம்
Government of India

2414 7783 2319

எனது ஆதார், எனது அடையாளம்

Unique Identification Authority of India

Address: W/O Sundaresan R, 292, Munuswmy Koil street, Road Street, Jandiyur, Ashoodathanur, Tiruvannamalai, Arcotathangi, Tamil Nadu, 604302

2414 7783 2319

1 2024

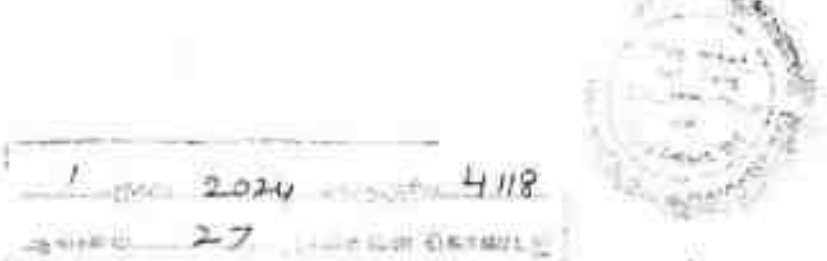
27

22

124


Government of India
7603 8007 0572
7603 8007 0572


भारत सरकार
Prathap
जन्म तारीख / DOB : 01/06/1990
पुरुष / MALE
3238 2727 6515
Address
S/O Mani, 779, MARIYAMMAN STREET, JAMPODAI,
Abiddhangi, Tiruvannamalai,
Tamil Nadu, 604402



R/வந்தவாசி/புத்தகம்-1/4118/2024

1899ம் ஆண்டு இந்திய முத்திரைச் சட்டம் 42வது பிரிவின் கீழான

2024ம் ஆண்டு வரிசை எண் 3123

அ 162 மாரியம்மன் கோவில் தெரு அழிவிடைதாங்கி மதுரா ஜம்போடை கிராமம் அழிவிடைதாங்கி வேலூர்க்கம் திருவண்ணாமலை தமிழ்நாடு இந்தியா 604604ல் வசிக்கும் திரு சீனிவாசன் என்பவரிடமிருந்து ₹ 77630/- ரூபாய் எழுபத்தேழாயிரத்து அறுநூறு மட்டும் இந்த ஆவணத்திற்காக இந்திய முத்திரைச் சட்டம் 41வது பிரிவின் படி குறைவாயிருந்த முத்திரைக் கட்டணம் வசூலிக்கப்பட்டது என நான் இதன் மூலம் சான்றளிக்கிறேன

சார்பதிவாளர் வந்தவாசி
நாள்: 28.06.2024

சார்பதிவாளர் மற்றும் இந்திய முத்திரைச் சட்டம் பிரிவு 41(1) படி அதிகாரி

2024 ஆம் ஆண்டு ஆகஸ்ட் மாதம் 27ம் தேதி பிற்பகல் 04.26 மணியளவில் வந்தவாசி சார்பதிவாளர் அலுவலகத்தில் தாக்கல் செய்து கட்டணம் ₹ 51910/- செலுத்தியவர்

இடது பெருவிரல்







கூடுதல் விவரங்கள் ஆவண வாசகத்தில் உள்ளபடி

எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர் இடது பெருவிரல்







சமமுகத்துடன் கூடிய ஆதார் அங்கீகாரம் என்ற வழி இந்த நபரின் அடையாளம் மின்னணு முறையில் ஆதார் ஆவணத்துடன் சரிபார்க்கப்பட்டது. ஒப்பிட்டு எண்
UKC:97805700f30c4fc34d94e17aab574fb2fa9b53a4
Details from UIDAI : Srinivasan Kannan S/O: Kannan, 15-08-1972, xxxxxxxx2718/-



1 ஆகஸ்ட் 2024 அன்று 4118
ஆவணம் 27 தாக்கல் செய்யப்பட்டது
24 ஆதார்

R/வந்தவாசி/புத்தகம்-1/4118/2017

எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர்
இடது பெருவிரல்





சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்
என்ற வழி இந்த நபரின் அடையாளம்
விரல் ரேகை மூலம் ஆதார்
ஆணையத்துடன் சரிபார்க்கப்பட்டது
ஒப்பிட்டு எண்:
UKC:2453975150b1ea59cb4209847565238063d7dd
(Details from UIDAI : Boobalan S/O: Kannan, 25-05-1974, xxxxxxxx7206)



எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர்
இடது பெருவிரல்





சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்
என்ற வழி இந்த நபரின் அடையாளம்
விரல் ரேகை மூலம் ஆதார்
ஆணையத்துடன் சரிபார்க்கப்பட்டது
ஒப்பிட்டு எண்:
UKC:2945129574f10d9332498a9815aaa4459660f6af
(Details from UIDAI : Gopalan S/O: Kannan, 05-09-1977, xxxxxxxx8421)



எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர்
இடது பெருவிரல்





சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்
என்ற வழி இந்த நபரின் அடையாளம்
விரல் ரேகை மூலம் ஆதார்
ஆணையத்துடன் சரிபார்க்கப்பட்டது
ஒப்பிட்டு எண்:
UKC:455b43e3ca283ddcc2741373d7838d3f4c6f3b9
(Details from UIDAI : Sudhakaran .K S/O: Kannan, 03-05-1982, xxxxxxxx4955)



எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர்
இடது பெருவிரல்





சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்
என்ற வழி இந்த நபரின் அடையாளம்
விரல் ரேகை மூலம் ஆதார்
ஆணையத்துடன் சரிபார்க்கப்பட்டது
ஒப்பிட்டு எண்:
UKC:8296504ac913ea73e54a2c82570bd0abf08c5



R/வந்தவாசி/புத்தகம்-1/4118/2024

	(Details from UIDAI : Parvathi Srinivasan Srinivasan, 17-05-1979, xxxxxxxx4710)	
எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர் இடது பெருவிரல்  	B. Santhi சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம் என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது ஒப்பீட்டு எண் UKC:07303171842 1aa6b244f6820200dd4524 7c4ca (Details from UIDAI : Santhi B C/O Boobalan, 10-05-1983, xxxxxxxx6813)	
எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர் இடது பெருவிரல்  	G. Soumiya சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம் என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன சரிபார்க்கப்பட்டது ஒப்பீட்டு எண UKC:427838fd6f12e51784458f2fc1f0ad6b6941323 (Details from UIDAI : G Soumiya W/O Sudhakaran K, 05-06-1993, xxxxxxxx2318)	
எழுதி வாங்கியதாக ஒப்புக் கொண்டவர் இடது பெருவிரல்  	K. Vetrivelan சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம் என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது ஒப்பீட்டு எண் UKC:58978040bfd8a0ea484c44f2835e274f04a21f (Details from UIDAI : K VETRIVELAN Kannan, 02-06-1979, xxxxxxxx5894)	

1 2024 4118

27

26 ஆம் நாள்

R/வந்தவாசி/புத்தகம்-1/4118/2024

2024 ஆம் ஆண்டு ஆகஸ்ட் மாதம் 26 நாள்

சார்பதிவாளர்
வந்தவாசி

R/வந்தவாசி/புத்தகம்-1/4118/2024 எண்ணாகப் பதிவு செய்யப்பட்டது

நாள்: 26/08/2024
வந்தவாசி

சார்பதிவாளர்
வந்தவாசி

இந்த பொது அதிகார ஆவண அடிப்படையில் பதிவு செய்யப்படும் எந்தவொரு ஆவணத்திற்கும் முதல்வர் உயிருடன் உள்ளார் என்பதற்கான சான்று தாக்கல் செய்யவும் வேண்டும்

1 2024 4118

27 ஆவணம் பெறப்பட்டது

27 வது நாள்

பதிவு அலுவலர்

ANNEXURE VIII

GOVERNMENT OF TAMIL NADU

CERTIFICATE OF FIRM REGISTRATION

FORM-C

SEE RULE 9(a)

The Registrar of firms, Cheyyar hereby acknowledges the Receipt of the statement prescribed by Section 58(1) of the Indian Partnership Act, 1932 the statement has been filed and the name of the firm

" JCK MINES "

No.96/5,Melnarma Village, Melma Post, Cheyyar Taluk, Tiruvannamalai District 604 408 has been entered in the Register Of Firms As No.113 Of 2018

REGISTRAR OF FIRMS
CHEYYAR

20/9/18

CHEYYAR
Dated 20th day of September 2018.

K.RAGOTHAMAN, M.A.,B.L.,
Advocate & Notary,
Cheyyar-604407. T.V.Malai Dt.
Mobile: 9443963509

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Government of India

Form GST REG-06

[See Rule 10(1)]

Registration Certificate

Registration Number : 33AAOFJ5875G1ZZ

1.	**Legal Name**	JCK MINES			
2.	**Trade Name, if any**	JCK MINES			
3.	**Constitution of Business**	Partnership			
4.	**Address of Principal Place of Business**	S.NO.96/5, MELNARMA VILLAGE, VACHANUR SALAI, MELMA POST, CHEYYAR TALUKA, Tiruvannamalai, Tamil Nadu, 604408			
5.	**Date of Liability**				
6.	**Period of Validity**	From	06/11/2019	To	Not Applicable
7.	**Type of Registration**	Regular			
8.	**Particulars of Approving Authority**	Centre			

Signature

Name	VENKATESH MUNUSWAMY
Designation	Superintendent
Jurisdictional Office	VANDAVASI
9. Date of issue of Certificate	06/11/2019

Note: The registration certificate is required to be prominently displayed at all places of business in the State.

This is a system generated digitally signed Registration Certificate issued based on the approval of application granted on 06/11/2019 by the jurisdictional authority.

19/12/2023

K.RAGOTHAMAN, M.A.,B.L.,
Advocate & Notary,
No.398A, Jeeyar Street,
Cheyyar-604407, T.V.Malai Dt.
Mobile: 9443963509

NOTARY

Annexure A

GSTIN	33AAOF35875G1ZZ
Legal Name	JCK MINES
Trade Name, if any	JCK MINES

Details of Additional Places of Business

Total Number of Additional Places of Business in the State 0

9/12/2023

K.RAGOTHAMAN, M.A.,B.L.,
Advocate & Notary,
No.398A, Jeeyar Street,
Cheyyar-604407, T.V.Malai Dt.
Mobile: 9443963509

NOTARY
GOVT OF TAMILNADU

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Annexure II

GSTIN	33AAOFJ5475G1ZZ
Legal Name	JCK MINES
Trade Name, if any	JCK MINES

Details of Managing / Authorized Partners

1		Name	KANNAN SRINIVASAN
		Designation/Status	PARTNER
		Resident of State	Tamil Nadu
2		Name	BOOBALAN
		Designation/Status	PARTNER
		Resident of State	Tamil Nadu
3		Name	KANNAN GOPALAN
		Designation/Status	PARTNER
		Resident of State	Tamil Nadu
4		Name	KANNAN VETRIVELAN
		Designation/Status	PARTNER
		Resident of State	Tamil Nadu
5		Name	KANNAN SUDHAKARAN
		Designation/Status	PARTNER
		Resident of State	Tamil Nadu

19/12/2023

K.RAGOTHAMAN, M.A.,B.L.,
Advocate & Notary,
No.398A, Jeeyar Street,
Cheyyar-604407, T.V.Malai Dt.
Mobile: 9443963509

ANNEXURE IX



13.9.18 Bala Murugan
Rs.100 - ICK Mines

-1-

PARTNERSHIP DEED

"I C K MINES"

This Deed of Partnership made this 14th day of Sep 2018 at **MELNARMA VILLAGE CHEYYAR TALUKA Among:**

1) **Mr.K.SRINIVASAN (Aadhar :5183 7527 2718)** S/O.KANNAN aged about 46 years now residing at **No:782,Mariyamman Koil Street,Jambodai Village,Azhividaithangi Post,Vembakkam taluka,Tiruvannamali Dist-604402.** *Here in after called party of the First part*

2) **Mr.K.BOOBALAN (Aadhar:2447 1902 7206)** S/O.KANNAN aged about 44 years now residing at **No:782,Mariyamman Koil Street,Jambodai Village,Azhividaithangi Post,Vembakkam Taluka,Tiruvannamalai Dist -604402** *Here in after called party of the Second part*



தமிழ்நாடு நமிலநாடு TAMILNADU 36827

AH 203027

3) **Mr.K.GOPALAN (Aadhar:2495 0194 8421)** S/O.KANNAN, aged about 41 years now residing at No.782,Mariyamman Koil Street,Jambodai Village,Azhividaithangi Post,Vembakkam Taluka,Tiruvannamalai Dist -604402 *Here in after called party of the Third part.*

4) **Mr.K.VETRIVELAN (Aadhar:9200 9020 9694)** S/O.KANNAN, aged about 38 years now residing at No.782,Mariyamman Koil Street,Jambodai Village,Azhividaithangi Post,Vembakkam Taluka,Tiruvannamalai Dist -604402 *Here in after called party of the Fourth part.*

5) **Mr.K.SUDHAKARAN (Aadhar:3518 4379 6955)** S/O.KANNAN, aged about 36 years now residing at No.782,Mariyamman Koil Street,Jambodai Village,Azhividaithangi Post,Vembakkam Taluka,Tiruvannamalai Dist -604402 *Here in after called party of the Fifth part.*



தமிழ்நாடு தமிழ்நாடு TAMILNADU 36728

AH 203028

Whereas the above parties are decided to do partnership business under the name style of "J CK MINES " to the terms and conditions mutually agreed upon.

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



தமிழ்நாடு தமிழ்நாடு TAMILNADU 36830

AH 203030

Rs 50/- ரூபாய் மட்டும்
13-9-05 J.C.K. Mines

- 4 -

NOW THIS DEED WITNESSETH THAT:

The name of the partnership business shall be " J C K MINES " and/or such other name/s as may be mutually decided by the parties hereto.

1) The place of business shall be at ***S.NO.96/5,MELNARMA VILLAGE MELMA POST,CHEYYAR TALUKA,TIRUVANNAMALAI DIST - 604408*** or such other place/s as may be mutually decided the parties hereto

2) The business of the partnership shall be carried on ***Manufacturing of Bluemetals (Stone Crushing) & M.Sand*** or Such other business/s as may be mutually decided by the parties hereto.



தமிழ்நாடு தமிலநாடு TAMILNADU 36929

AH 203029

B.L. [illegible]
[illegible]
[illegible] IDR
40 12639/91/7 Dt. 30-3-1991

- 5 -

3) That the initial capital contribution of the firm shall be **Rs.4,00,000/-** (**Rupees Four lakhs** only) each by each parties .Total contribution is **Rs.20,00,000/-**(**Rupees Twenty Lakhs** only)

4) Whenever additional funds are required for proper and efficient conduct of the business, the parties hereto may contribute additional capital or it shall be raised by way of borrowings either from the parties hereto or from outsiders. In either case interest shall be paid on such borrowings at prevailing market rate/s and it shall be treated as expenditure of the partnership business.

5) Interest shall be paid to partners capital a/cs at a simple rate of 12%. Interest shall be calculated and credited to partners' capital/current account at the end of the year. In case of loss no interest shall be paid to partners. If profit is not sufficient interest shall be restricted to the amount of profit available.

6) i) All the Parties are the working partners of the firm. They shall actively engage themselves in conducting the affairs of the business of the firm.

ii) The working partner shall be paid remuneration for the services rendered by them. The remuneration to working partners are eligible to **Rs.4000/ p.m** per partner .It should be restricted to U/s.40(b) of the Income Tax Act 1961.

iii) "Book profit" shall mean Net Profit as per the Profit & Loss Account of the firm computed in accordance with the provisions of the Income-tax Act after payment of interest to partners but before salary payable to partners under this clause.

iv)Remuneration payable to each working partner shall be credited to his capital/ current account at the year end.

v) In case of loss it is mutually agreed that the working partners are not entitled to any remuneration for the services rendered by them.

7) Proper Books of accounts shall be maintained in respect of the transactions of the partnership business. All books, vouchers, files and other documents relating to the partnership business shall be kept in the place of business of the firm; all partners shall have power to inspect the books, etc., at all reasonable time and shall have power to take copies, notes or extracts from them.

Every year the books of account shall be closed on 31st march and the net profit/loss salary shall be divided by equally

Bank accounts shall be opened in the name of the firm and operated by Parties of the ***First Part Mr.K.SRINIVASAN AND Second part Mr.K.BOORALAN*** in one / more bank/s as may be mutually decided by all the partners. power to operate bank accounts shall include power to operate all OD, OCC and any other loan a/cs of the firm.

8) It shall be the duty of the all partners to carry on the partnership business to the greatest common advantage of both the partners and both shall be true and faithful to each other.

9) The partnership shall be a **"PARTNERSHIP AT WILL"**

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

11) Any dispute or difference which may arise among the partners of their representatives with regard to the construction, meaning, effect of this deed or any part thereof, or respecting the accounts, profits or losses of the business or the rights and liabilities or the discussion or winding up to the business or any matter relating to the firm shall be referred to arbitration.

12) Any of the above terms and conditions shall be deleted, varied, altered or added to by the common consent of both the parties hereto

13) This deed partnership shall be effective from 14 - 09 - 2018

14) 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:-

WITNESSES:

1. *1.(I.K.SRINIVASAN)*

2.(K.BOOPALAN)

3.(K.GOBALAN)

4.(K.VETRIVELAN)

5.(K.SUDHAKARAN)

This Partnership Deed was prepared by

M.SIVAKUMAR, B.Com., C.A.
Income Tax Practitioner,
Reg.No: 4/2002-2003
No.21, Kasikara Street,
Cheyyar-604407. T.V.M. Dt.

ANNEXURE X

आधार

AADHAAR

இந்திய அரசாங்கம்
Government of India

இந்திய தனித்துவ அடையாள ஆணையம்
Unique Identification Authority of India

பதிவு எண்/ Enrolment No.: 2193/12842/11244

To
க வெற்றிவேலன்
K VETRIVELAN
Kannan
782
Mariyamman Kovil Street
Jampodai
Alivedtangi
Tiruvannamalai Tamil Nadu - 604402
9786226681



உங்கள் ஆதார் எண் / Your Aadhaar No. :
9200 9020 9694
VID : 9195 3855 9637 8797

எனது ஆதார், எனது அடையாளம்

தகவல் / INFORMATION

- ஆதார் என்பது அடையாளச் சான்று ஆவணமாகுமே தவிர குடியுரிமைக்கான சான்று அல்ல
- ஆதார் தனித்துவமானது மற்றும் பாதுகாப்பானது
- பாதுகாப்பான QR குறியீடு/ஆஃப்லைன் XML / ஆன்லைன் அங்கீகாரத்தைப் பயன்படுத்தி அடையாளத்தைச் சரிபார்க்கவும்
- ஆதார் கடிதம், பிவிசி கார்டுகள், இ ஆதார் மற்றும் எம் ஆதார் போன்ற அனைத்து வடிவங்களும் சமமாக செல்லுபடியாகும். 12 இலக்க ஆதார் எண்ணுக்கு பதிலாக மெய்நிகர் ஆதார் அடையாளத்தை (VID) பயன்படுத்தலாம்
- 10 ஆண்டுகளுக்கு ஒரு முறையாவது ஆதாரை புதுப்பிக்கவும்
- பல்வேறு அரசு மற்றும் அரசு சாரா பலன்கள் / சேவைகளைப் பெற ஆதார் உங்களுக்கு உதவுகிறது
- உங்கள் மொபைல் எண் மற்றும் மின்னஞ்சல் ஐடியை ஆதாரில் புதுப்பிக்கவும்
- ஆதார் சேவைகளைப் பெற உங்கள் ஸ்மார்ட் போன்களில் mAadhaar செயலியை பதிவிறக்கவும்
- பாதுகாப்பை உறுதிப்படுத்த ஆதார் / பயோமெட்ரிக்ஸ் லாக் / அன்லாக் அம்சத்தைப் பயன்படுத்தவும்
- ஆதார் கோரும் நிறுவனங்கள் உரிய ஒப்புதலைப் பெற வேண்டும்
- Aadhaar is a proof of identity, not of citizenship.
- Aadhaar is unique and secure.
- Verify identity using secure QR code/offline XML/online Authentication.
- All forms of Aadhaar like Aadhaar letter, PVC Cards, eAadhaar and mAadhaar are equally valid. Virtual Aadhaar Identity (VID) can also be used in place of 12 digit Aadhaar number.
- Update Aadhaar at least once in 10 years.
- Aadhaar helps you avail various Government and Non- Government benefits/services.
- Keep your mobile number and email id updated in Aadhaar.
- Download mAadhaar app on smart phones to avail Aadhaar Services.
- Use the feature of lock/unlock Aadhaar/biometrics to ensure security.
- Entities seeking Aadhaar are obligated to seek due consent.

[redacted]



க வெற்றிவேலன்
K VETRIVELAN
பிறந்த நாள்/DOB: 02/06/1979
ஆண்/ MALE

9200 9020 9694
VID : 9195 3855 9637 8797

எனது ஆதார், எனது அடையாளம்

[redacted]

Unique Identification Authority of India

முகவரி:
கண்ணன், 782, மரியம்மன் கோவில் தெரு,
ஜம்போடை, அரிவிடை தாங்கல்,
திருவண்ணாமலை,
தமிழ் நாடு - 604402

Address:
Kannan, 782, Mariyamman Kovil Street,
Jampodai, Alivadtangi, Tiruvannamalai,
Tamil Nadu - 604402



9200 9020 9694
VID : 9195 3855 9637 8797

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

ANNEXURE XI

CHETTINAD CEMENT CORPORATION LTD.,

(Regd. Office: RANI SEETHAI HALL BUILDING, V FLOORS, ANNA SALAI, MADRAS-600006.)
WORKS OFFICE: PULIYUR.

TELS: PHONE 21144 / 22244 / 21745 KARUR
GRAM "CEMENT" Puliyur C.F.
Telex: 0456-215.
STD Code: 04324

All Correspondences to
Kumararaja Muthiah Nagar,
PULIYUR CEMENT FACTORY POST 639114
(Karur Taluk Trichy Dt.)

T.RAJU.,B.E.,
MINES MANAGER & DY.GENERAL MANAGER.

22nd September,1987.

CERTIFICATE.

This is to certify that Mr.C.Natarajan has been working as a Geologist from 14-12-1979 to till date. He has been incharge of supervision of day to day functions in respect of Exploration, Preparation of Geological Plans & Sections, Preparation of Mines Plans, Quality control and other allied mining activities in the following Pits of our Seethalnagar Limestone Mines in Anna District.

Name of the Pit.		Average Raising/day.
1. Alambadi Pit.	-	1,700 T.
2. Mallapuram Pit.	-	900 T.
3. Karikkali Pit.	-	150 T.
Total.	-	2,750 T.

He has got nearly Eight years of total experience in our Mines in the above supervisory capacity.

for CHETTINAD CEMENT CORPORATION LTD.,

(T.RAJU).
Mines Manager & Dy. General Manager.

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ANNAMALAI UNIVERSITY

Faculty of Science

The Senate of the Annamalai University hereby makes known that E. Selvarajan has been admitted to the Degree of Master of Science (By Examination) in Zoology, he having been certified by duly appointed Examiners at the examination held in April 1976 to be qualified to receive the same and that he was placed in the First Class.

Given under the seal of the University.

Annamalainagar
5th December 1976.

K. Chandrasekha
Vice-Chancellor

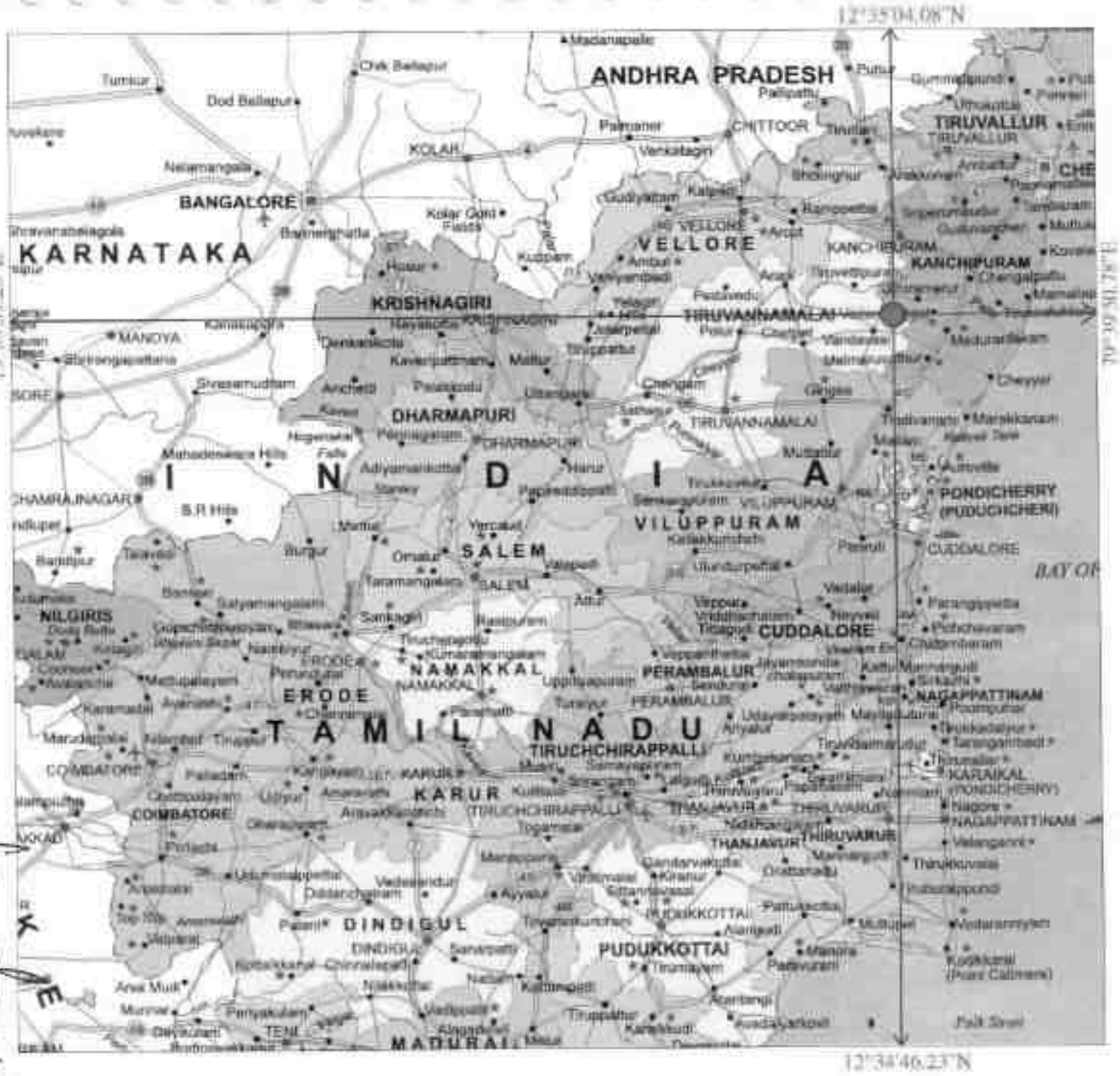


PLATE NO-I

DATE OF SURVEY : 29.08.2024

APPLICANT:

M/S.K.MOHIDEEN BROTHERS GRANITES,
TIRUKKOVILUR VETTIYAR STREET (PVT), PONDICHERRY,
No.78/2 MARIAMMAN KOVIL STREET,
JAMEERDAI VILLAGE,
AZHIVIDAITHANGAL POST,
VEMBAKKAM TALUK,
TIRUVANNAMALAI DISTRICT.

QUARRY LEASE APPLIED AREA:

S.F.NOs : 95/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7, 105/8 & 105/11

EXTENT : 7.44.0Hc.

VILLAGE : MELNARMA,

TALUK : CHEYYAR,

DISTRICT : TIRUVANNAMALAI.

INDEX

QUARRY LEASE APPLIED AREA :

TOPO SHEET NO: 57 P / 10

LATITUDE : 12°34'46.23"N to 12°35'04.08"N

LONGITUDE : 79°39'39.29"E to 79°39'50.78"E

LOCATION PLAN

NOT TO SCALE

PREPARED BY :

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

C.NATARAJAN, M.Sc.,M.Phil.,
QUALIFIED PERSON

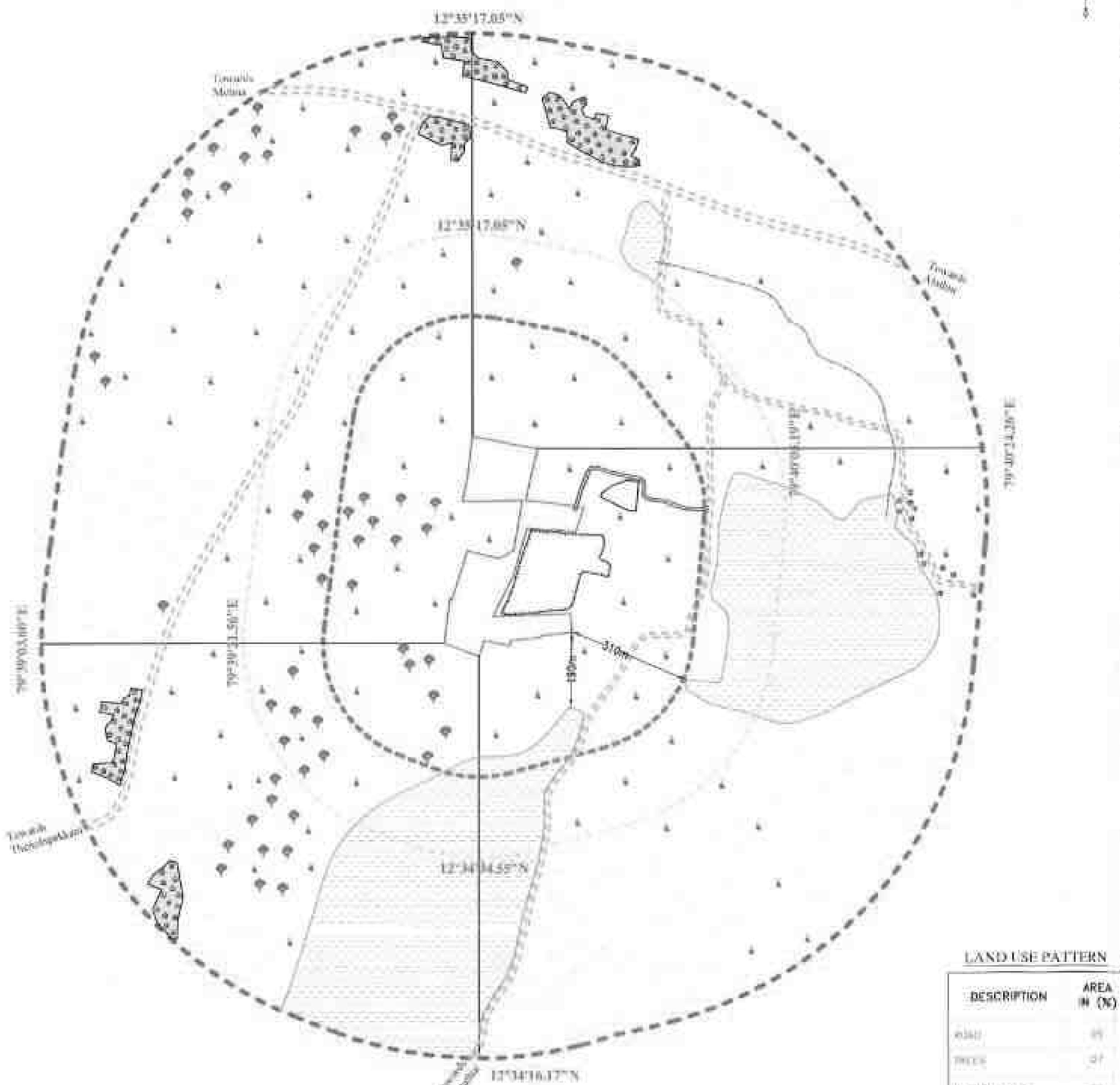


PLATE NO-IA

DATE OF SURVEY : 29.08.2024

APPLICANT:

BLOCK MINES
THIRU.J.K.VETTRIVELAN (PARTNER),
No.7/82 MARIAMMAN KOVIL STREET,
JAMBODAI VILLAGE,
AZHIVIDAITHANGI POST,
VEMBAKKAM TALUK,
TIRUVANNAMALAI DISTRICT

QUARRY LEASE APPLIED AREA:

S.F.NOs : 98/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7, 105/8 & 105/11

EXTENT : 7.44.0Ha.

VILLAGE : MELNARMA

TALUK : CHEYYAR

DISTRICT : TIRUVANNAMALAI

INDEX

TOPO SHEET NO: 57 P / 10

LATITUDE : 12°34'36.23"N to 12°35'04.08"N

LONGITUDE : 79°39'39.29"E to 79°39'50.78"E

Q.LEASE APPLIED BOUNDARY

300M RADIUS

500M RADIUS

1KM RADIUS

APPROACH ROAD

VILLAGE ROAD

BARREN LAND

TREES

SEASONAL AGRICULTURE

HABITATIONS

QUARRY PIT

TANK

ODAI

CRUSHER PLANT

LAND USE PATTERN

DESCRIPTION	AREA IN (%)
ROAD	05
TREES	07
BARREN LAND	22
AGRICULTURE LAND	34
HABITATIONS	[illegible]
WATER BODIES	25

ENVIRONMENTAL PLAN

SCALE 1: 10,000

PREPARED BY :

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C.NATARAJAN M.Sc.,M.Phil.,
QUALIFIED PERSON



PLATE NO-IB
DATE OF SURVEY : 29.08.2024

APPLICANT:
T/s.ICK MINES,
THIRU.K.VETTRIVELAN (PARTNER),
No.702 MARIAMMAN KOVIL STREET,
JAMBODAI VILLAGE,
AZHIVIDAITHANGI POST,
VEMBAKKAM TALUK,
TIRUVANNAMALAI DISTRICT

QUARRY LEASE APPLIED AREA:

S.F.NOs : 98/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7, 105/8 & 105/11
EXTENT : 7.44.0Ha.
VILLAGE : MELNARMA.
TALUK : CHEYYAR.
DISTRICT : TIRUVANNAMALAI

INDEX

TOPO SHEET NO: 57 P / 10
LATITUDE : 12°34'16.23"N to 12°35'04.08"N
LONGITUDE : 79°39'39.29"E to 79°39'50.78"E

Q. LEASE APPLIED BOUNDARY
300M RADIUS
500M RADIUS
1KM RADIUS
APPROACH ROAD
VILLAGE ROAD

SATELLITE IMAGERY MAP
SCALE 1 : 10,000

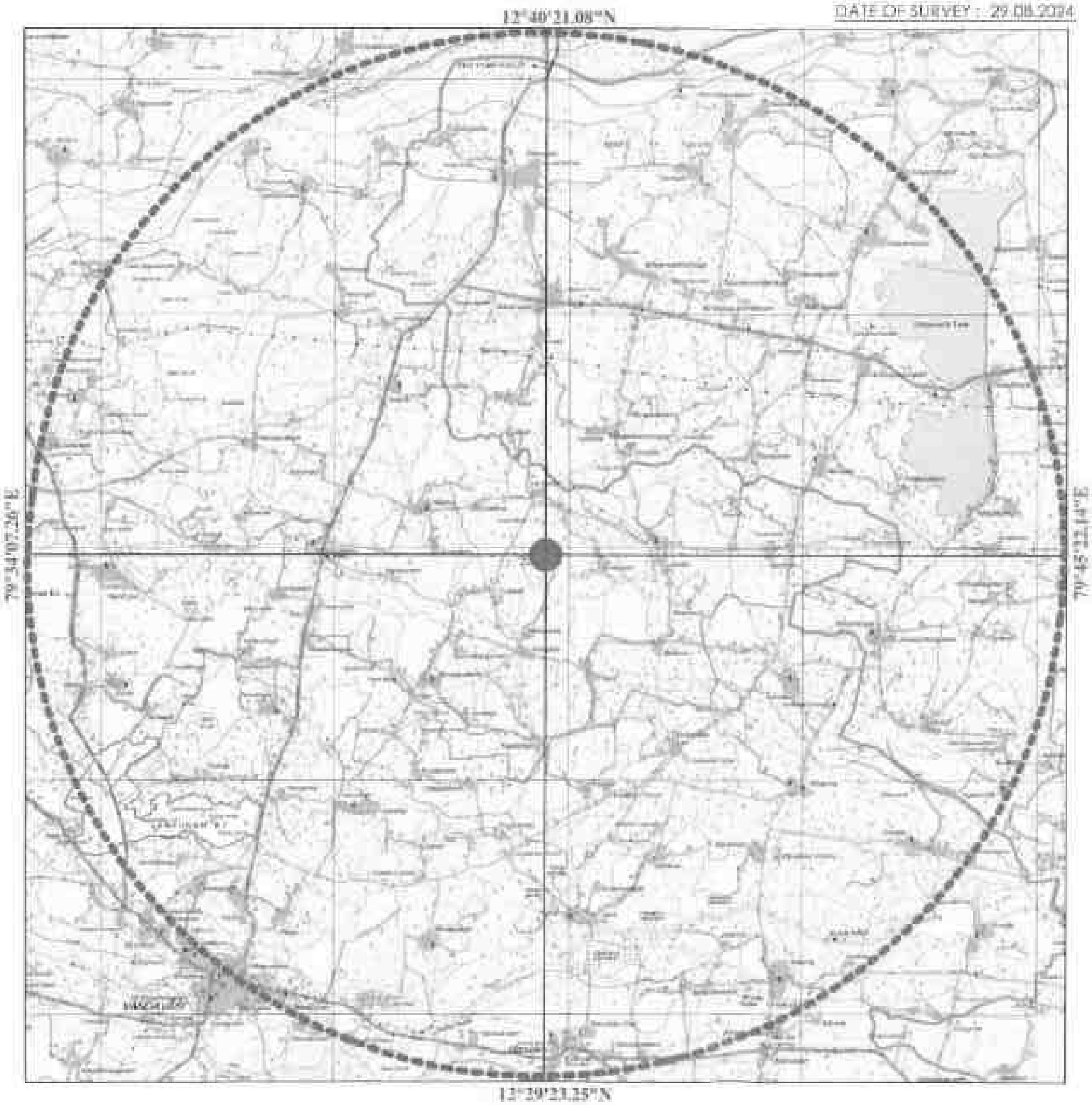
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C.NATARAJAN M.Sc.M.Phil.,
QUALIFIED PERSON

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PLATE NO-IC

DATE OF SURVEY : 29.08.2024



APPLICANT:

TALUK MINES
THIRU J.K.VETTRIVELAN (PARTNER)
No.7/82 MARIAMMAN KOVIL STREET,
JAMBODAI VILLAGE,
AZHIVIDAITHANGI POST,
VEMBAKKAM TALUK,
TIRUVANNAMALAI DISTRICT.

QUARRY LEASE APPLIED AREA:

S.F.NOs : 98/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7, 105/8 & 105/11

EXTENT : 7.44.0Ha.

VILLAGE : MELNARMA,

TALUK : CHEYYAR,

DISTRICT : TIRUVANNAMALAI.

INDEX

TOPO SHEET NO: 57 P / 10

LATITUDE : 12°34'46.23"N to 12°35'04.08"N

LONGITUDE : 79°39'39.29"E to 79°39'50.78"E

QUARRY LEASE APPLIED AREA

10KM RADIUS

TOPO SKETCH OF QUARRY LEASE APPLIED AREA FOR 10Km RADIUS

SCALE— 1:100000

PREPARED BY :

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C.NATARAJAN,M.Sc.,M.Phil.,
QUALIFIED PERSON

294

208

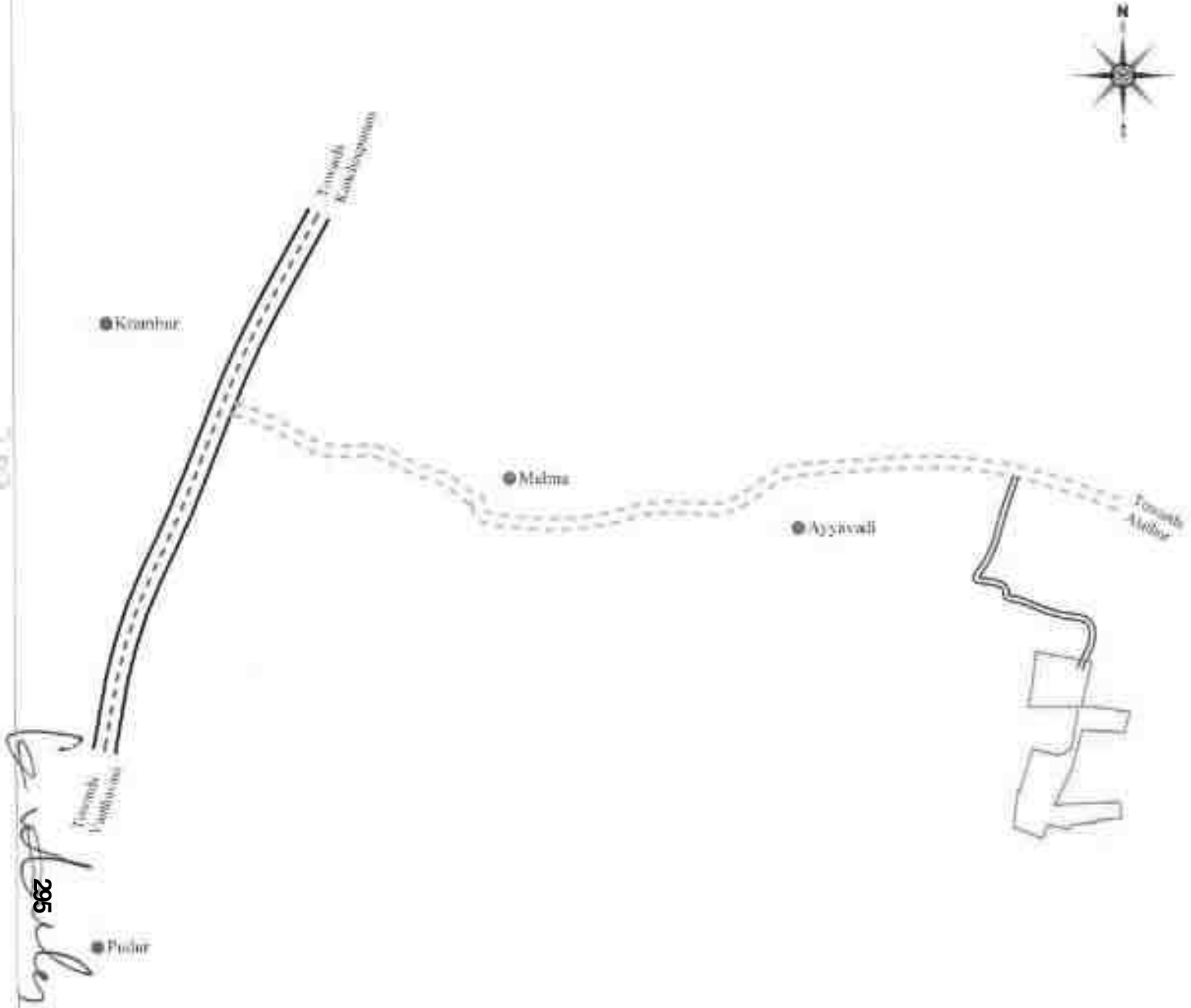


PLATE NO-ID

DATE OF SURVEY : 29/03/2022

APPLICANT:

To,
M/S.J.K.MINES,
REPRESENTED BY J.K.VETTRIVEL ASST.MGR(RD),
No.782,MARIAMMAN KOIL 5TH STREET,
JAMMOTHI VILLAGE,
AZHIVIDAITHANGI POST,
VEMBAKKAM TALUK,
TIRUVANNAMALAI DISTRICT.

QUARRY LEASE APPLIED AREA:

S.F.NOs : 98/2, 98/3, 98/4, 99/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7 ,105/8 & 105/11
EXTENT : 7.44.0Hec.
VILLAGE : MELNARMA.
TALUK : CHEYYAR.
DISTRICT : TIRUVANNAMALAI.

INDEX

Q.L. APPLIED AREA	
APPROACH ROAD	
VILLAGE ROAD	
STATE HIGHWAY	
HABITATIONS	

KEY PLAN

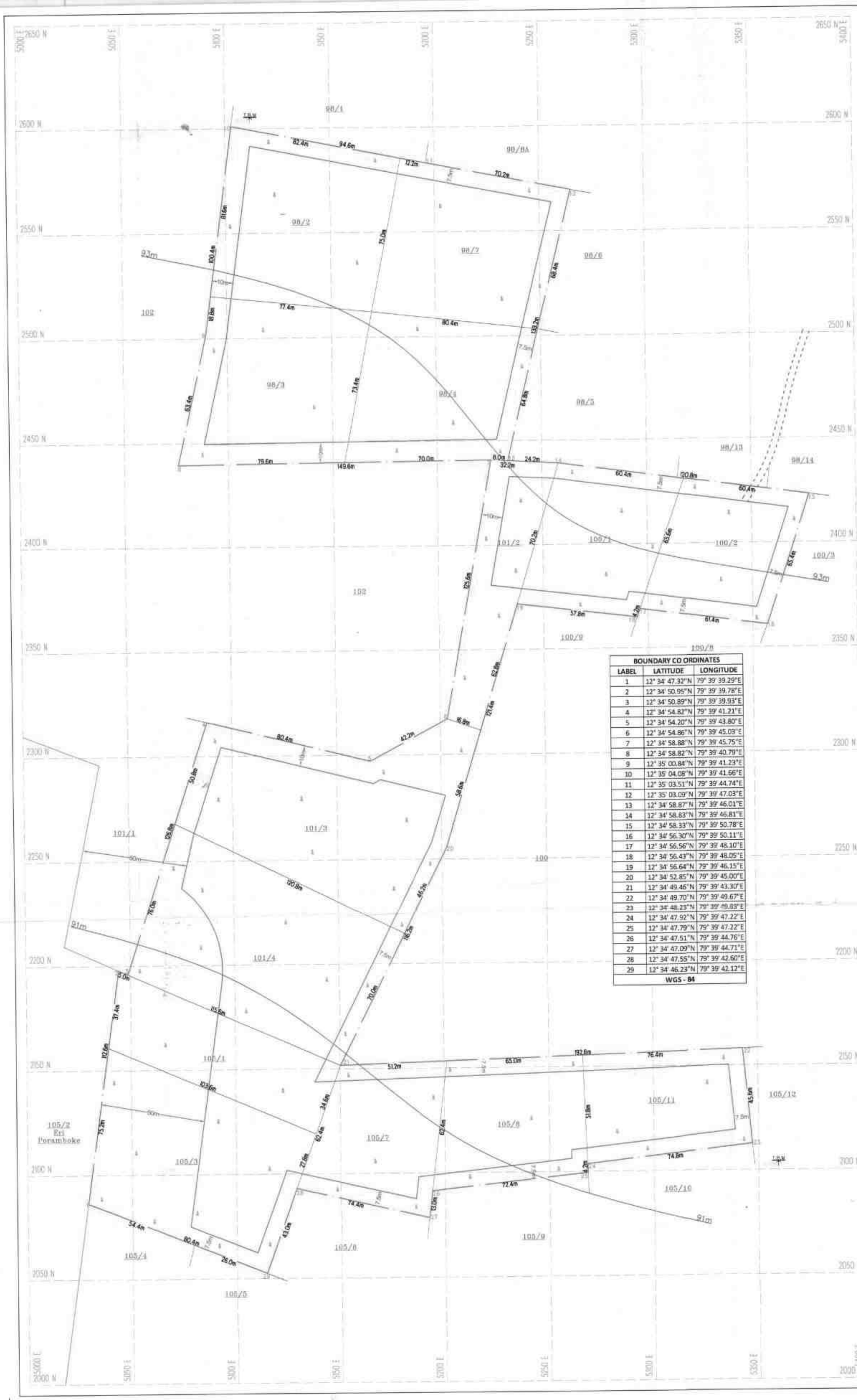
Not To Scale

PREPARED BY:

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C.NATARAJAN,M.Sc.,M.Phil.,
QUALIFIED PERSON

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BOUNDARY CO ORDINATES		
LABEL	LATITUDE	LONGITUDE
1	12° 34' 47.32"N	79° 39' 39.29"E
2	12° 34' 50.95"N	79° 39' 39.78"E
3	12° 34' 50.89"N	79° 39' 39.93"E
4	12° 34' 54.82"N	79° 39' 41.21"E
5	12° 34' 54.20"N	79° 39' 43.80"E
6	12° 34' 54.86"N	79° 39' 45.03"E
7	12° 34' 58.88"N	79° 39' 45.75"E
8	12° 34' 58.82"N	79° 39' 40.79"E
9	12° 35' 00.84"N	79° 39' 41.23"E
10	12° 35' 04.08"N	79° 39' 41.66"E
11	12° 35' 03.51"N	79° 39' 44.74"E
12	12° 35' 03.09"N	79° 39' 47.03"E
13	12° 34' 58.87"N	79° 39' 46.01"E
14	12° 34' 58.83"N	79° 39' 46.81"E
15	12° 34' 58.33"N	79° 39' 50.78"E
16	12° 34' 56.30"N	79° 39' 50.11"E
17	12° 34' 56.56"N	79° 39' 48.10"E
18	12° 34' 56.43"N	79° 39' 48.05"E
19	12° 34' 56.64"N	79° 39' 46.15"E
20	12° 34' 52.85"N	79° 39' 45.00"E
21	12° 34' 49.46"N	79° 39' 43.30"E
22	12° 34' 49.70"N	79° 39' 49.67"E
23	12° 34' 48.23"N	79° 39' 49.83"E
24	12° 34' 47.92"N	79° 39' 47.22"E
25	12° 34' 47.79"N	79° 39' 47.22"E
26	12° 34' 47.51"N	79° 39' 44.76"E
27	12° 34' 47.09"N	79° 39' 44.71"E
28	12° 34' 47.55"N	79° 39' 42.60"E
29	12° 34' 46.23"N	79° 39' 42.12"E
WGS - 84		

PLATE NO-II

DATE OF SURVEY : 29.08.2024

APPLICANT:

TVJCK MINES,
THIRU.J.K.VETTRIVELAN (PARTNER),
No.782,MARIAMMAN KOVIL STREET,
JAMBODAI VILLAGE,
AZHIVIDAITHANGI POST,
VEMBAKKAM TALUK,
TIRUVANNAMALAI DISTRICT.

QUARRY LEASE APPLIED AREA:

S.F.NOs : 98/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7 ,105/8 &105/11
EXTENT : 7.44.0Hs.
VILLAGE : MELNARMA.
TALUK : CHEYYAR,
DISTRICT : TIRUVANNAMALAI.

INDEX

- Q.LEASE APPLIED BOUNDARY
- 7.5m,10m&50m SAFETY DISTANCE
- TEMPORARY BENCH MARK (TBM)
- APPROACH ROAD
- CONTOUR
- SCRUB
- 105/2 ERI PORAMBOKE

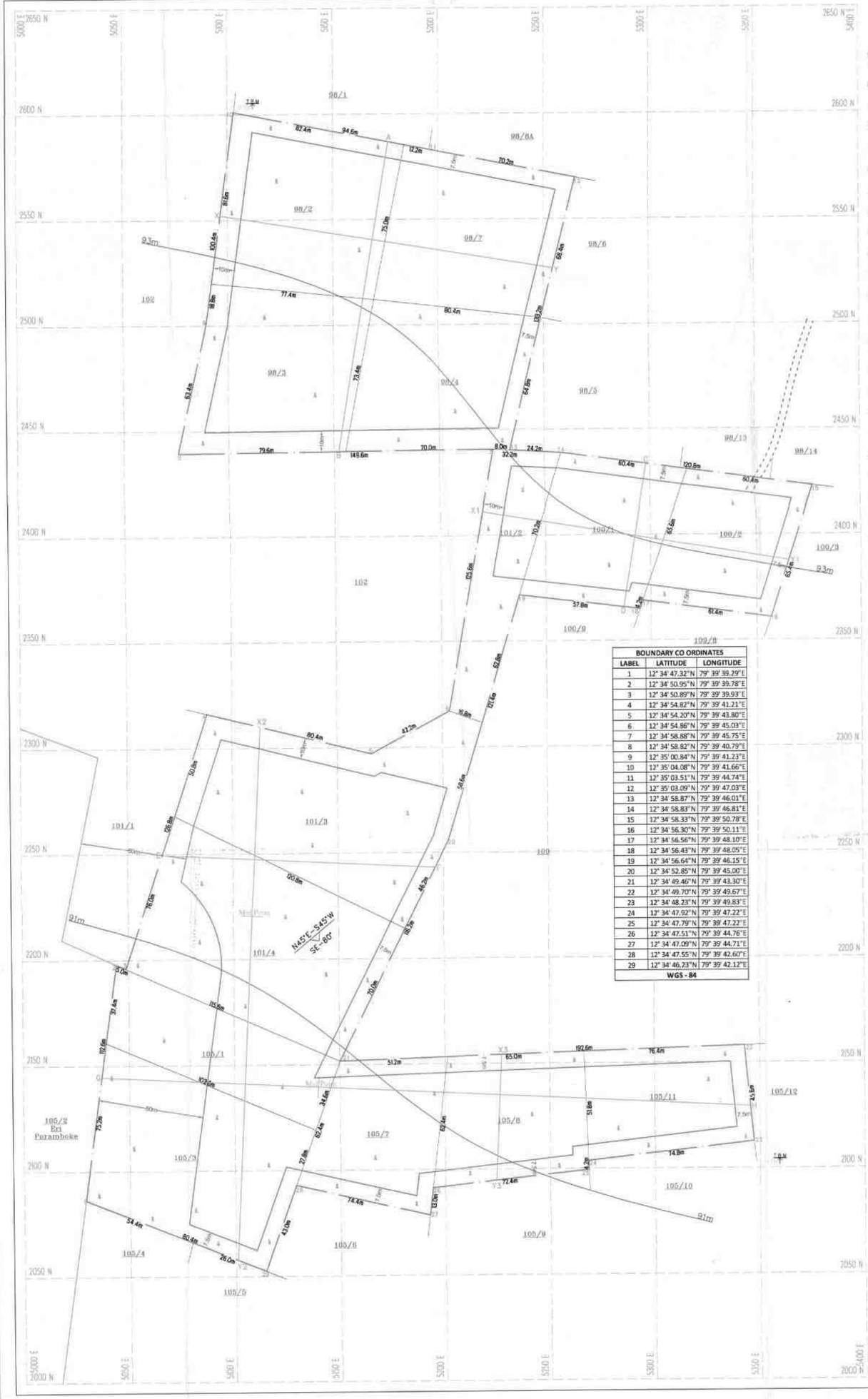
QUARRY LEASE & SURFACE PLAN

SCALE 1 : 1000

PREPARED BY :

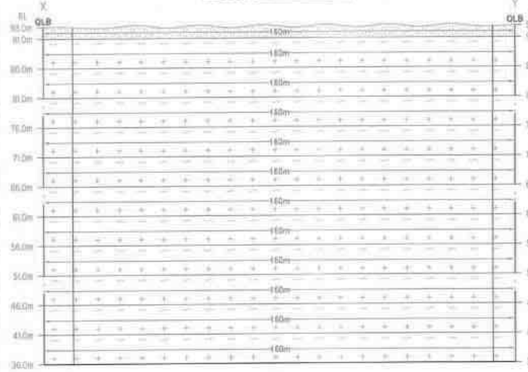
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

C.NATARAJAN M.Sc.,M.Phil.,
QUALIFIED PERSON

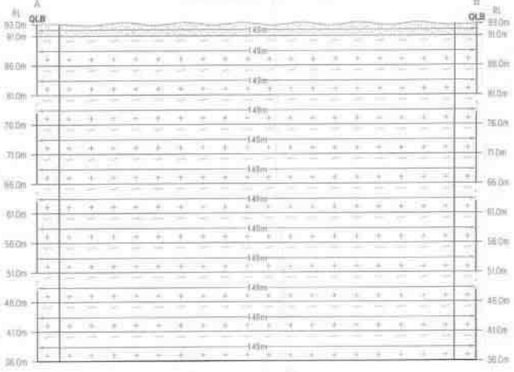


BOUNDARY CO ORDINATES		
LABEL	LATITUDE	LONGITUDE
1	12° 34' 47.32"N	79° 39' 39.29"E
2	12° 34' 50.95"N	79° 39' 39.78"E
3	12° 34' 50.89"N	79° 39' 39.93"E
4	12° 34' 54.82"N	79° 39' 41.21"E
5	12° 34' 54.20"N	79° 39' 43.80"E
6	12° 34' 54.86"N	79° 39' 45.03"E
7	12° 34' 58.68"N	79° 39' 45.75"E
8	12° 34' 58.82"N	79° 39' 40.79"E
9	12° 35' 00.84"N	79° 39' 41.23"E
10	12° 35' 04.08"N	79° 39' 41.66"E
11	12° 35' 03.51"N	79° 39' 44.74"E
12	12° 35' 03.09"N	79° 39' 47.03"E
13	12° 34' 58.87"N	79° 39' 46.01"E
14	12° 34' 58.83"N	79° 39' 46.81"E
15	12° 34' 58.33"N	79° 39' 50.78"E
16	12° 34' 56.30"N	79° 39' 50.11"E
17	12° 34' 56.56"N	79° 39' 48.10"E
18	12° 34' 56.43"N	79° 39' 48.05"E
19	12° 34' 56.64"N	79° 39' 46.15"E
20	12° 34' 52.85"N	79° 39' 45.00"E
21	12° 34' 49.46"N	79° 39' 43.30"E
22	12° 34' 49.70"N	79° 39' 49.67"E
23	12° 34' 48.23"N	79° 39' 49.83"E
24	12° 34' 47.92"N	79° 39' 47.22"E
25	12° 34' 47.79"N	79° 39' 47.22"E
26	12° 34' 47.51"N	79° 39' 44.76"E
27	12° 34' 47.09"N	79° 39' 44.71"E
28	12° 34' 47.55"N	79° 39' 42.60"E
29	12° 34' 46.23"N	79° 39' 42.12"E
WGS - 84		

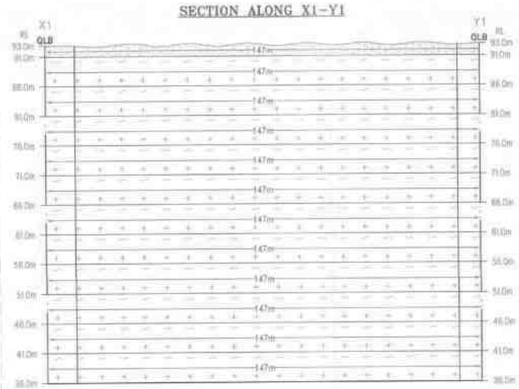
SECTION ALONG X-Y



SECTION ALONG A-B



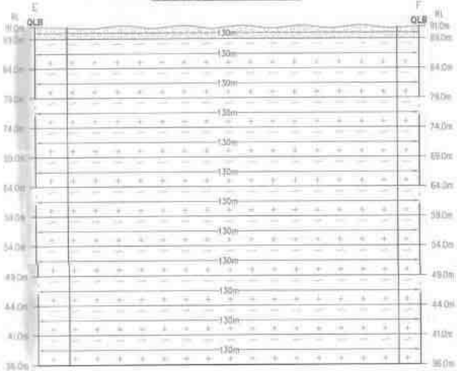
SECTION ALONG X1-Y1



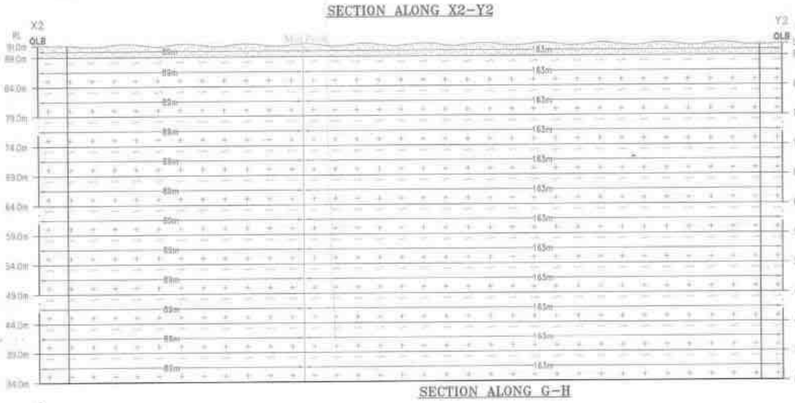
SECTION ALONG C-D



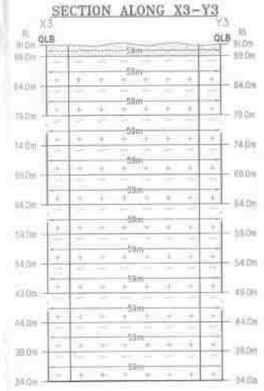
SECTION ALONG E-F



SECTION ALONG X2-Y2



SECTION ALONG X3-Y3



SECTION ALONG G-H

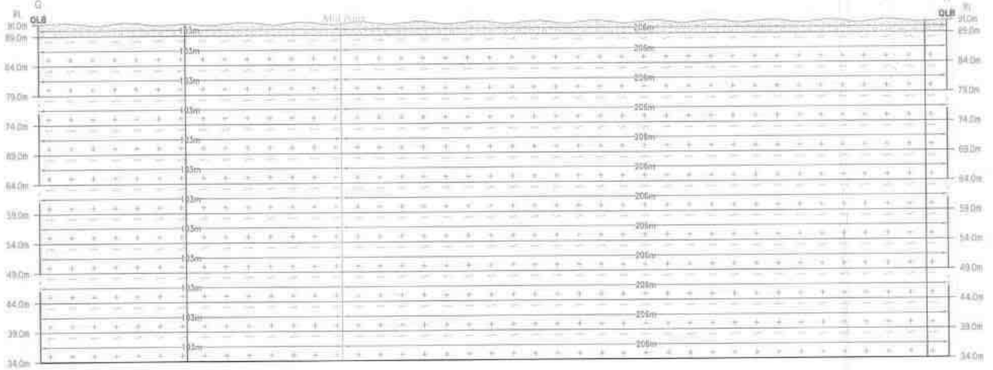


PLATE NO-III
DATE OF SURVEY : 29.08.2024

APPLICANT:
TVJOK MINES,
THIRU.J.K.VETTRIVELAN (PARTNER),
No.782 MARIAMMAN KOVIL STREET,
JAMBODAI VILLAGE,
AZHIVIDAITHANGI POST,
VEMBAKKAM TALUK,
TIRUVANNAMALAI DISTRICT.

QUARRY LEASE APPLIED AREA:
S.F.NOs : 98/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7, 105/8 & 105/11
EXTENT : 7.44.0Ha.
VILLAGE : MELNARMA,
TALUK : CHEYYAR,
DISTRICT : TIRUVANNAMALAI.

INDEX

- Q.LEASE APPLIED BOUNDARY
- 7.5m,10m&50m SAFETY DISTANCE
- TEMPORARY BENCH MARK (TBM)
- APPROACH ROAD
- CONTOUR
- SCRUB
- 105/2 ERI PORAMBOKE
- GRAVEL
- ROUGH STONE
- STRIKE & DIP

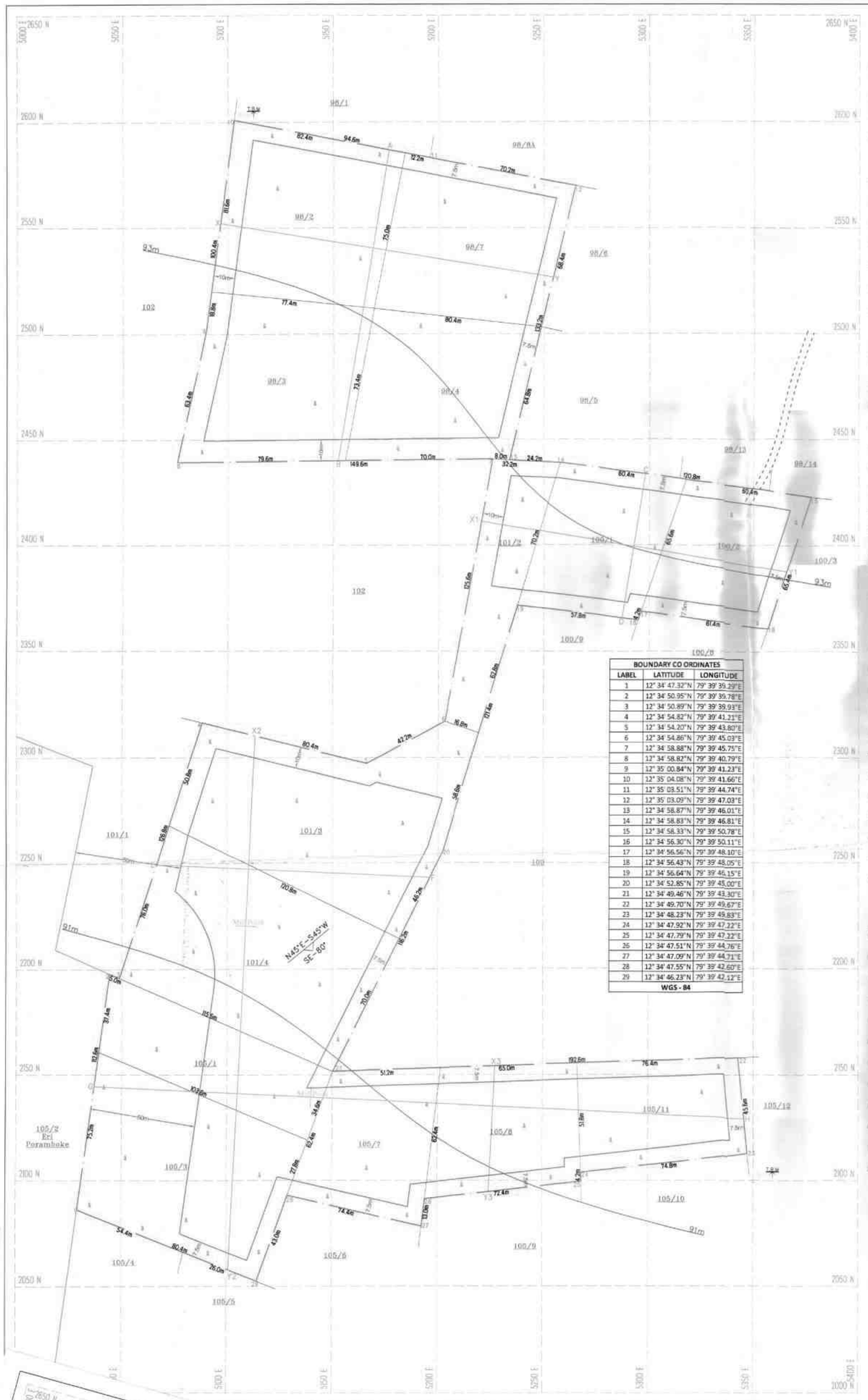
TOPOGRAPHY, GEOLOGICAL PLAN & SECTIONS

SCALE 1 : 1000
SECTIONS HOR 1:1000, VER 1:500

PREPARED BY:

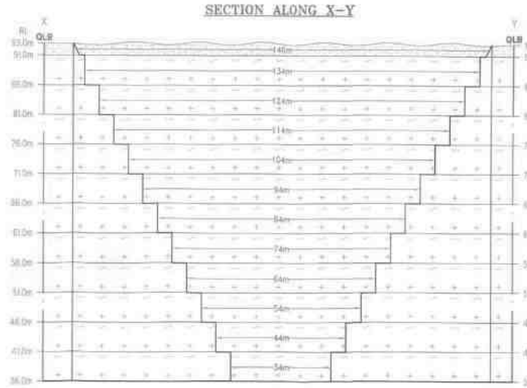
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C.NATARAJAN M.Sc.,M.Phil.,
QUALIFIED PERSON

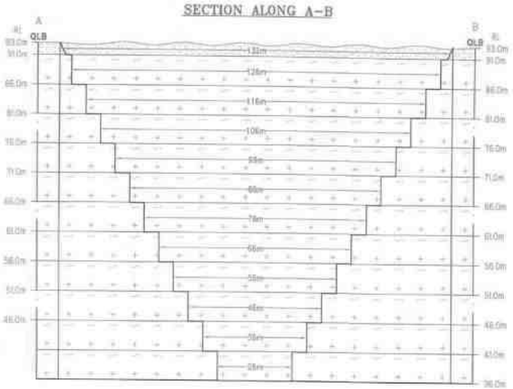


BOUNDARY CO ORDINATES		
LABEL	LATITUDE	LONGITUDE
1	12° 34' 47.32"N	79° 39' 39.29"E
2	12° 34' 50.95"N	79° 39' 39.78"E
3	12° 34' 50.89"N	79° 39' 39.93"E
4	12° 34' 54.82"N	79° 39' 41.21"E
5	12° 34' 54.20"N	79° 39' 43.80"E
6	12° 34' 54.86"N	79° 39' 45.03"E
7	12° 34' 58.88"N	79° 39' 45.75"E
8	12° 34' 58.82"N	79° 39' 40.79"E
9	12° 35' 00.84"N	79° 39' 41.23"E
10	12° 35' 04.08"N	79° 39' 41.66"E
11	12° 35' 03.51"N	79° 39' 44.74"E
12	12° 35' 03.09"N	79° 39' 47.03"E
13	12° 34' 58.87"N	79° 39' 46.01"E
14	12° 34' 58.83"N	79° 39' 46.81"E
15	12° 34' 58.33"N	79° 39' 50.78"E
16	12° 34' 56.30"N	79° 39' 50.11"E
17	12° 34' 56.56"N	79° 39' 48.10"E
18	12° 34' 56.43"N	79° 39' 48.05"E
19	12° 34' 56.64"N	79° 39' 46.15"E
20	12° 34' 52.85"N	79° 39' 45.00"E
21	12° 34' 49.46"N	79° 39' 43.30"E
22	12° 34' 49.70"N	79° 39' 49.67"E
23	12° 34' 48.23"N	79° 39' 49.83"E
24	12° 34' 47.92"N	79° 39' 47.22"E
25	12° 34' 47.79"N	79° 39' 47.22"E
26	12° 34' 47.51"N	79° 39' 44.76"E
27	12° 34' 47.09"N	79° 39' 44.71"E
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29	12° 34' 46.23"N	79° 39' 42.12"E
WGS - 84		

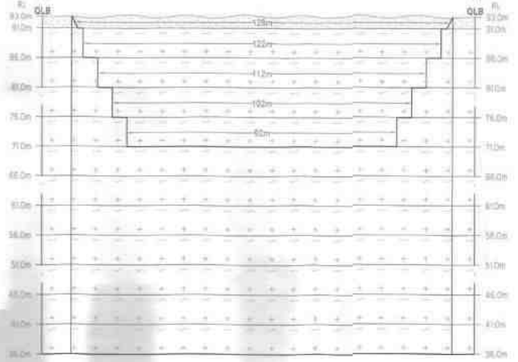
SECTION ALONG X-Y



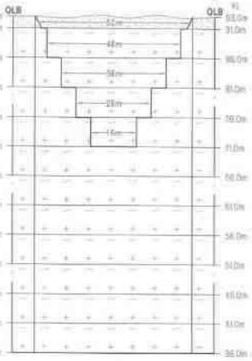
SECTION ALONG A-B



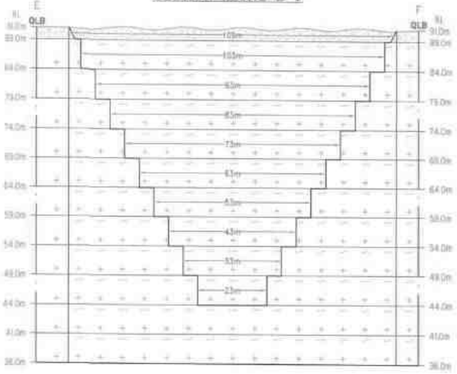
SECTION ALONG X1-Y1



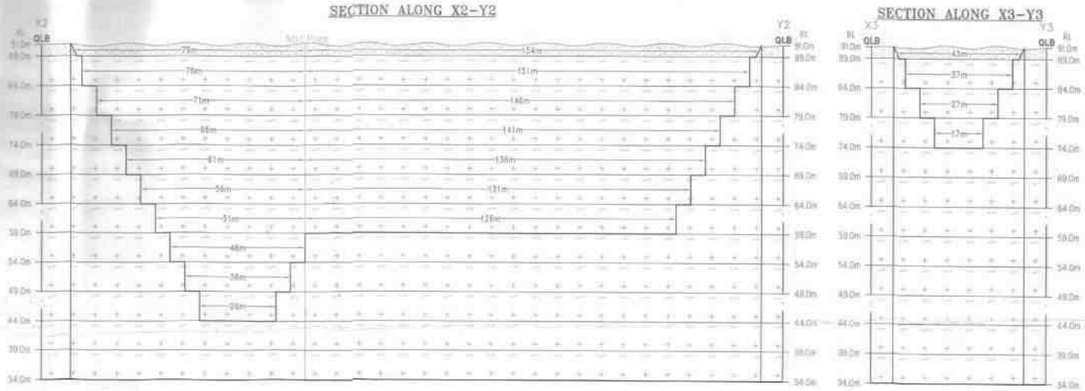
SECTION ALONG C-D



SECTION ALONG E-F



SECTION ALONG X2-Y2



SECTION ALONG X3-Y3

SECTION ALONG G-H

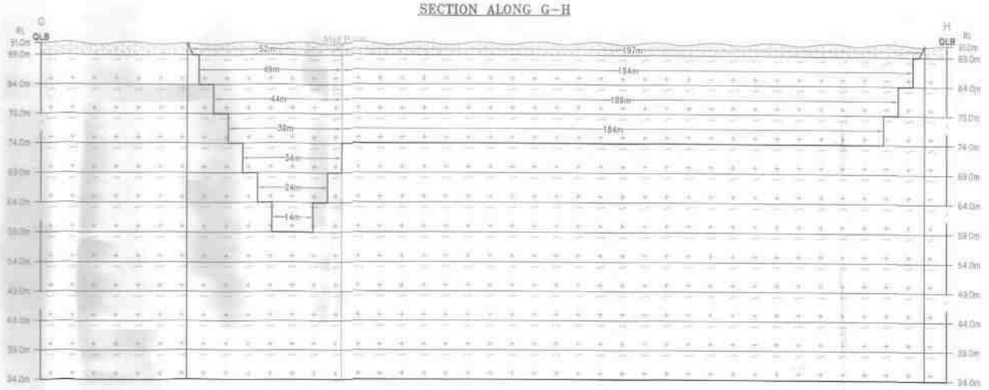


PLATE NO-IV

DATE OF SURVEY : 29.08.2024

APPLICANT:

TMJCK MINES,
THIRU.J.K.VETTRIVELAN (PARTNER),
No.782 MARIAMMAN KOVIL STREET,
JAMMODAI VILLAGE,
AZHIVIDAITHANGI POST,
VEMBAKKAM TALUK,
TIRUVANNAMALAI DISTRICT.

QUARRY LEASE APPLIED AREA:

S.F.NOs : 98/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7, 105/8 & 105/11
EXTENT : 7.44.0Hs.
VILLAGE : MELNARMA.
TALUK : CHEYYAR.
DISTRICT : TIRUVANNAMALAI.

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- CONTOUR
- SCRUB
- 105/2 ERI PORAMBOKE
- GRAVEL
- ROUGH STONE
- STRIKE & DIP

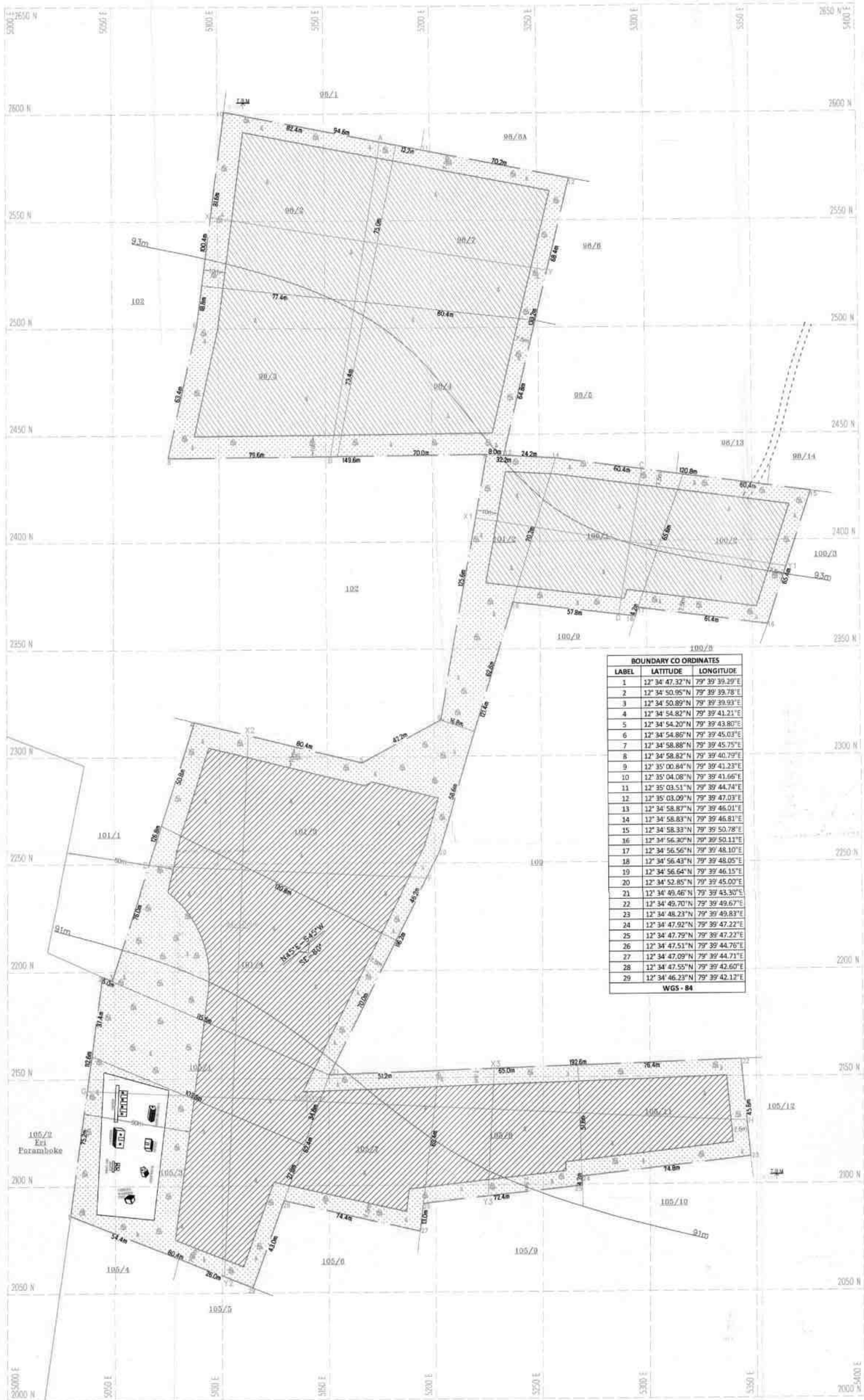
MINTEABLE PLAN & SECTIONS

SCALE 1 : 1000
SECTIONS HOR 1:1000, VER 1:500

PREPARED BY:

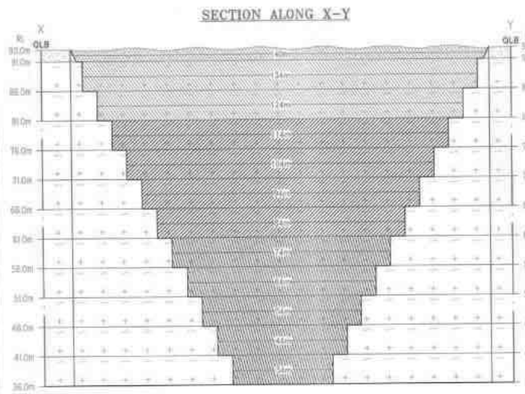
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

CANTAMANAN GOPINATH
QUALIFIED PERSON

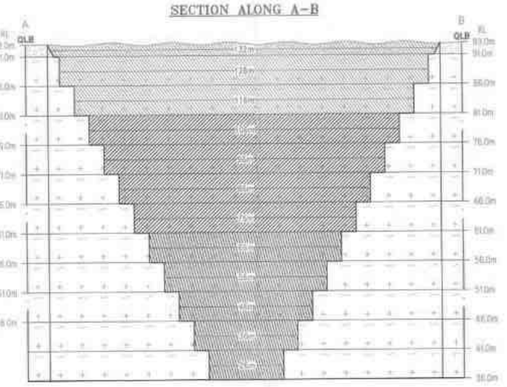


BOUNDARY CO ORDINATES		
LABEL	LATITUDE	LONGITUDE
1	12° 34' 47.32"N	79° 39' 39.29"E
2	12° 34' 50.95"N	79° 39' 39.78"E
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6	12° 34' 54.86"N	79° 39' 45.03"E
7	12° 34' 58.88"N	79° 39' 45.75"E
8	12° 34' 58.82"N	79° 39' 40.79"E
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17	12° 34' 56.56"N	79° 39' 48.10"E
18	12° 34' 56.43"N	79° 39' 48.05"E
19	12° 34' 56.64"N	79° 39' 46.15"E
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WGS - 84		

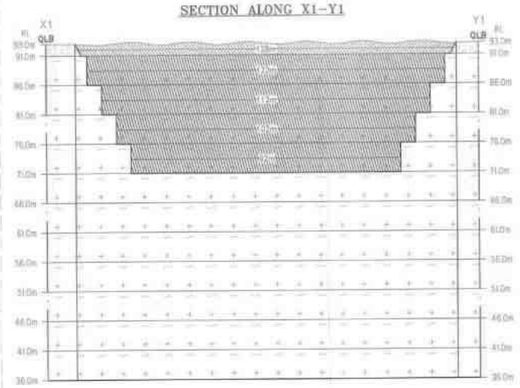
SECTION ALONG X-Y



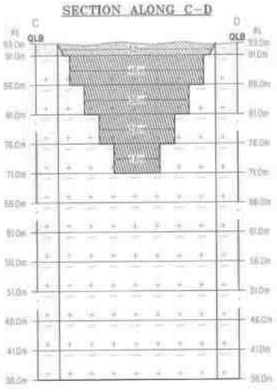
SECTION ALONG A-B



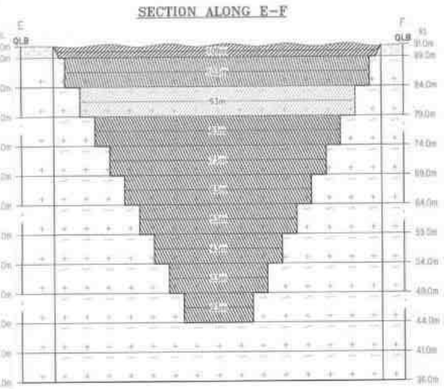
SECTION ALONG X1-Y1



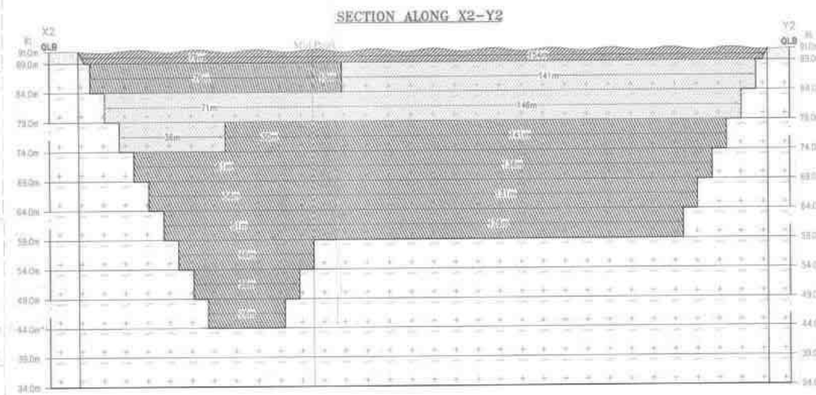
SECTION ALONG C-D



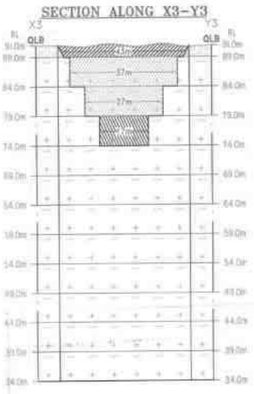
SECTION ALONG E-F



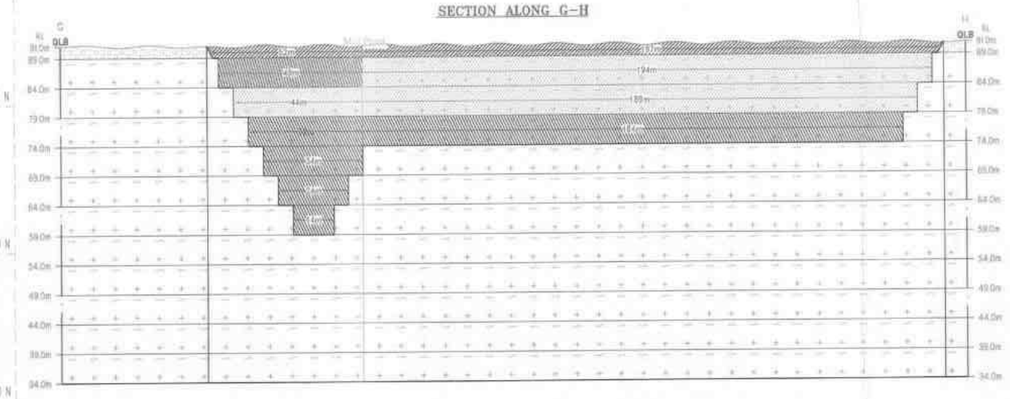
SECTION ALONG X2-Y2



SECTION ALONG X3-Y3



SECTION ALONG G-H



PRESENT & POST LAND USE PATTERN

DESCRIPTION	PRESENT AREA (Ha)	AREA AT THE END OF THIS QUARRYING PERIOD (Ha)
AREA UNDER QUARRYING	Nil	4.95.0
INFRASTRUCTURE	Nil	0.02.0
ROADS	Nil	0.03.0
GREEN BELT	Nil	2.44.0
UN-UTILIZED AREA	7.44.0	Nil
GRAND TOTAL	7.44.0	7.44.0

1st yr Proposed area to be Quarried

2nd yr Proposed area to be Quarried

3rd yr Proposed area to be Quarried

4th yr Proposed area to be Quarried

5th yr Proposed area to be Quarried

Proposed area to be Planted

PLATE NO-V

DATE OF SURVEY : 29.08.2024

APPLICANT:

TVJCK MINES,
THIRU.J.K.VETTRIVELAN (PARTNER),
No.782 MARIAMMAN KOVIL STREET,
JAMBODAI VILLAGE,
AZHIVIDAITHANGI POST,
VEMBAKKAM TALUK,
TIRUVANNAMALAI DISTRICT.

QUARRY LEASE APPLIED AREA:

S.F.NOs : 98/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7 ,105/8 &105/11
EXTENT : 7.44.0Ha.
VILLAGE : MELNARMA,
TALUK : CHEYYAR,
DISTRICT : TIRUVANNAMALAI.

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- GRAVEL
- ROUGH STONE
- STRIKE & DIP

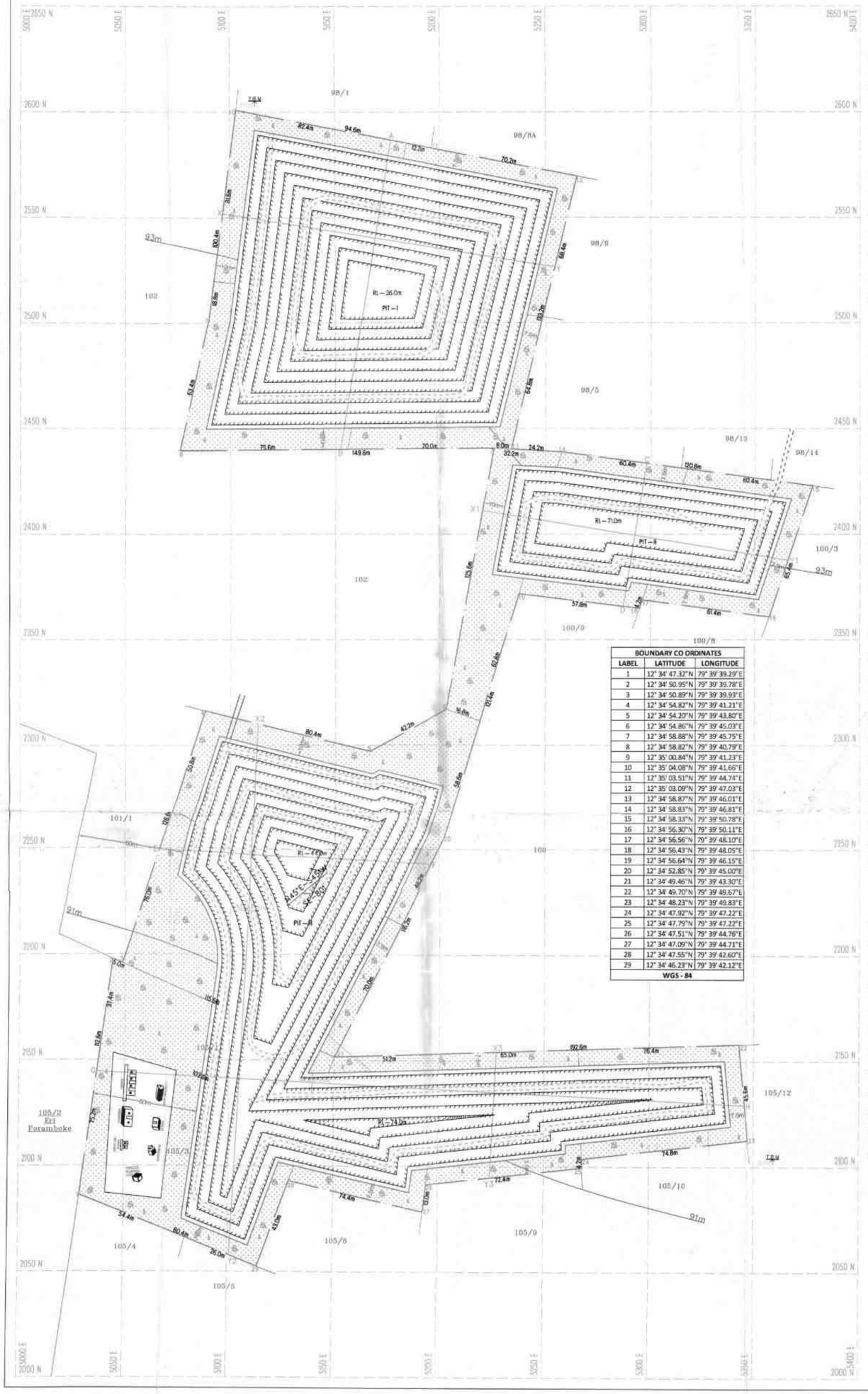
YEARWISE DEVELOPMENT & PRODUCTION PLAN & SECTIONS

SCALE 1 : 1000
SECTIONS HOR 1:1000, VER 1:500

PREPARED BY:

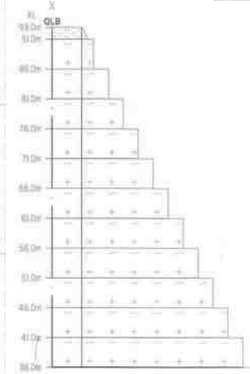
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C.NATARAJAN,M.Sc.,M.Phil.,
QUALIFIED PERSON

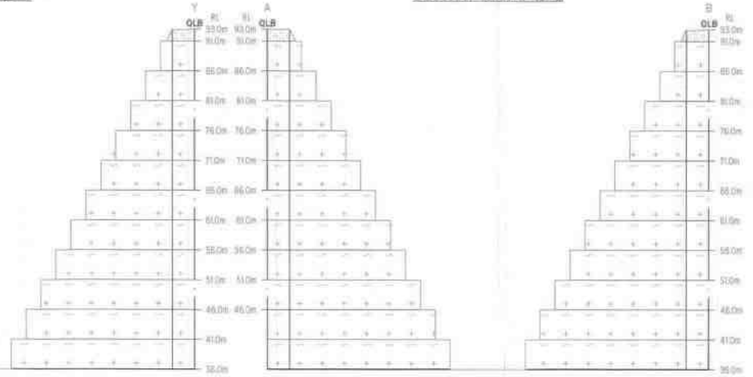


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WGS - 84		

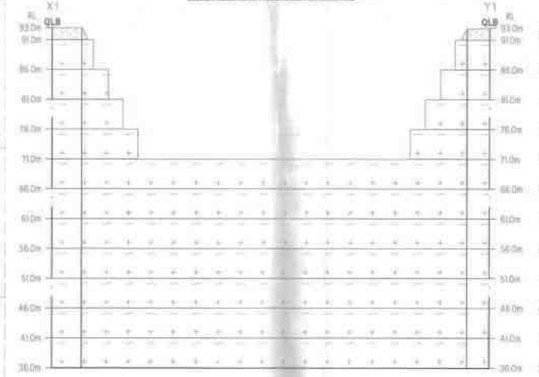
SECTION ALONG X-Y



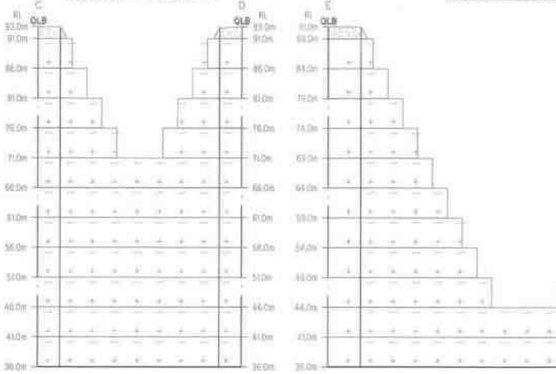
SECTION ALONG A-B



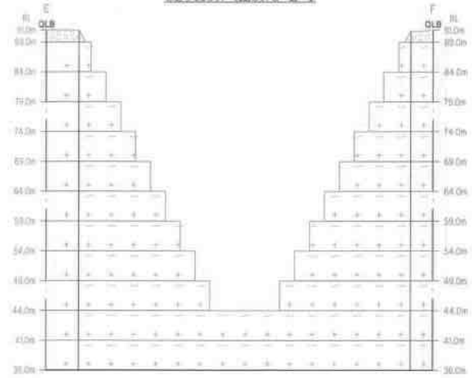
SECTION ALONG X1-Y1



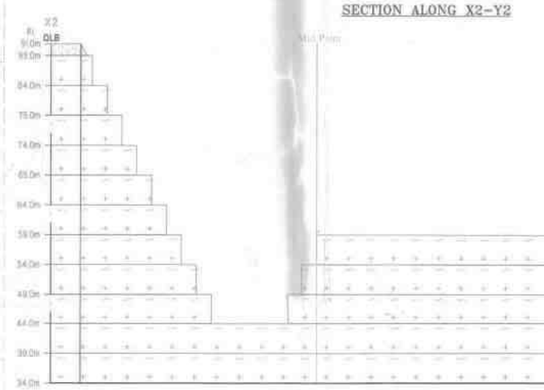
SECTION ALONG C-D



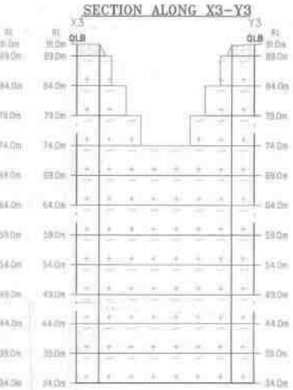
SECTION ALONG E-F



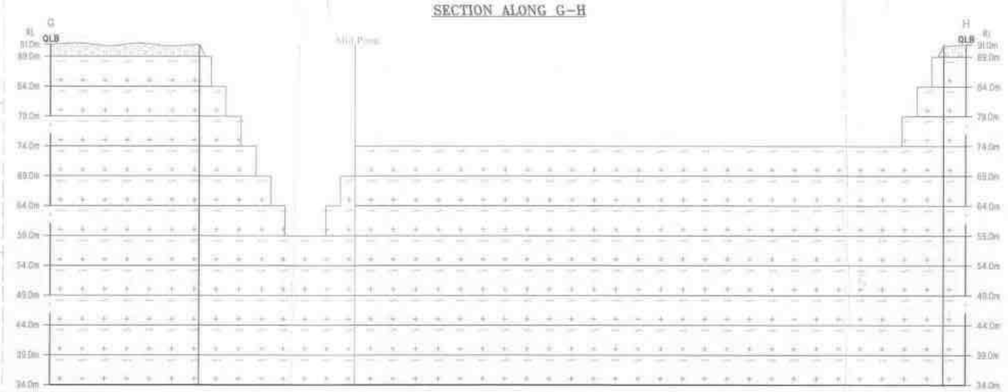
SECTION ALONG X2-Y2



SECTION ALONG X3-Y3



SECTION ALONG G-H



Proposed area to be Planted

ULTIMATE PIT DIMENSION
PIT-I-L140m(Max)X130m(Avg)XD57m(Max)
PIT-II-L128m(Max)X52m(Avg)XD22m(Max)
PIT-III-L249m(Max)X99m(Avg)XD47m(Max)

PLATE NO-VI
DATE OF SURVEY : 29.08.2024

APPLICANT:

M/S.K.M.S.
THIRU.J.K.VETTRIVELAN (PARTNER),
No.782 MARIAMMAN KOVIL STREET,
JAMBODAI VILLAGE,
AZHIYUDAITHANGI POST,
VEMBAKKAM TALUK,
TIRUVANNAMALAI DISTRICT.

QUARRY LEASE APPLIED AREA:

S.F.NOs : 98/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7 ,105/8 &105/11
EXTENT : 7.44.0Ha.
VILLAGE : MELMARMA,
TALUK : CHEYYAR,
DISTRICT : TIRUVANNAMALAI.

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- SCRUB
- 105/2 ERI PORAMBOKE
- GRAVEL
- ROUGH STONE
- STRIKE & DIP
- PROPOSED QUARRY PIT

CONCEPTUAL PLAN & SECTIONS

SCALE 1 : 1000
SECTIONS HOR 1:1000, VER 1:500

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

C.NATARAJAN,M.Sc.,M.Phil
QUALIFIED PERSON

ANNEXURE-4

From

Thiru.A.Arumuganainar, M.Sc.,
Joint Director (A/c),
O/o. Assistant Director,
Geology and Mining,
Tiruvannamalai - 4.

To

Tvl.JCK Mines,
Partner Thiru.J.K.Vettrivelan,
No.782 Mariamman Kovil Street,
Jambodai Village, Azhividaithangi Post,
Tiruvannamalai District.

Rc.No.549/Kanimam/2024, dated: 23.09.2024.

Sir,

Sub: Quarries and Minerals – Minor Mineral - Rough stone and Gravel - Tiruvannamalai District – Cheyyar Taluk – Melnarma village Patta Land in SF.Nos.98/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7, 105/8 and 105/11 over an extent of 7.44.0 Hectare – Application preferred by **Tvl.JCK Mines - Precise area communicated – Submission of three copies of draft Mining Plan for approval** - Approval accorded - regarding.

Ref: 1. Application from Tvl.JCK Mines, Partner Thiru. J.K.Vettrivelan, No.782 Mariamman Kovil Street, Jambodai Village, Azhividaithangi Post, Tiruvannamalai District dated 21.12.2023.

2. Precise Area Communication Notice Rc.No.549/ Kanimam/2024, dated 28.08.2024.

3. Mining Plan submitted by Tvl.JCK Mines, Partner Thiru. J.K.Vettrivelan, Chengalpattu District dated. 12.09.2024

******

Tvl.JCK Mines, Partner Thiru. J.K.Vettrivelan has preferred an application for the grant of Rough Stone and Gravel quarry lease over an extent of 7.44.0 Hectare of Patta land in SF.Nos. 98/2 (0.62.0), 98/3 (0.59.5), 98/4 (0.54.5), 98/7 (0.57.0), 100/1 (0.40.5), 100/2 (0.40.0), 101/2 (0.33.0), 101/3 (0.87.5), 101/4 (0.84.5), 105/1 (0.40.5), 105/3 (0.65.0), 105/7 (0.42.0), 105/8 (0.40.5) and 105/11 (0.37.5) of Melnarma Village, Cheyyar Taluk, Tiruvannamalai District for a period of 5 years vide the reference 1st cited and the precise area has been communicated to the applicant vide the reference 2nd cited with a direction to submit the approved mining plan and Environmental Clearance.

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2. As directed, the applicant has submitted three copies of mining plan for approval vide 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 in Cu.m	Mineable Reserves in Cu.m
57m below ground level	Rough Stone : 40,89,195 Gravel : 1,48,698	Rough Stone : 8,68,060 Gravel : 1,00,452

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:

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

ii. This approval of the mining plan does not in any way convey the approval of the Government in terms or any other provisions of the Mines and Minerals (Development and Regulation) Act, 1957, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Explosives Act, 1884 (Central Act IV of 1884) Minor Mineral Concession and Development Rules, 2010 and the Rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.

iii. The mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.

iv. The validity of the mining plan is co-terminus with the lease period.

v. Quarrying shall be done in accordance with the approved Mining Plan.

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.

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vii. A safety distance of 7.5m and 10m should be provided to the adjoining patta and Poramboke lands respectively.

viii. A safety distance of 50m should be provided to the permanent structures (Water bodies, Highways, Electrical lines and Railway tracks).

ix. The applicant should not cause any hindrance to adjacent lands and public while quarrying operation.

x. Barbed wire fencing should be erected all along the boundary of the lease granted area before quarrying operation.

xi. The applicant should use jackhammer and mild explosive during blasting in quarry.

xii. Quarrying operation should be done proper scientific method only.

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

i) Existing Quarries

Sl. No.	Name of the Owner	Village & S.F. Nos.	Extent in Hect.	Lease Period	Remarks
1	Tvl.JCK Mines No.782, Mariyamman Koil Street, Jambodai Village, Azhividaithangal Post, Vembakkam Taluk.	Melnarma 100/3, 100/5, 100/6, 100/7, 100/8, 100/9, 100/10, 100/11, 100/12 & 100/13	4.47.0	15-07-2020 to 14-07-2025	Existing quarry

ii) Abandoned quarries

Sl. No.	Name of the Owner	Village & S.F. Nos.	Extent in Hect.	Lease Period	Remarks
...Nil...					

iii)Present Proposed Quarries

Sl. No	Name of the Owner	Village & S.F. Nos.	Extent in Hect.
1	Tvl.JCK Mines, Partner Thiru.J.K.Vettrivelan, No.782 Mariamman Kovil Street, Jambodai Village, Azhividaithangi Post, Tiruvannamalai District.	Melnarma 98/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7, 105/8 and 105/11	7.44.0

Encl: 2 Copies of Approved Mining Plan.

Joint Director (Addl. Ch.),
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 Commissioner of Geology and Mining, Chennai-32.
3. The District Collector, Tiruvannamalai.

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ANNEXURE-5

திருவண்ணாமலை மாவட்டம். செய்யார் வட்டம். 125 மேல்நல்ல கிராமம் புல்லாய் சுன்னை எண்கள் 98/2 - 0.62.00. 98/3 - 0.59.50. 98/4 - 0.54.00. 98/7 - 0.57.00. 100/1 - 0.40.50. 100/2 - 0.40.00. 100/2 - 0.33.00. 101/3 - 0.87.50. 101/4 - 0.84.50. 105/1 - 0.40.50. 105/3 - 0.65.00. 105/7 - 0.42.00. 105/8 - 0.40.50. 105/11 - 0.37.50 ஆகிய 9ல் எண்கள் மொத்த 7.44.0 ஹெக்டர் நிலத்தை சாதாரண முறையில் கிராமம் கொண்டு செல்வதற்காக மேற்கு மேல் மண்டல் பங்களாதார் 5.x. மாற்றி மேலான நிலை கண்ணன் திட்ட மாவட்டம். ஆனால் மேல்முறையீடு வட்டம். அடிவினைதான் அன்பு. இம்மாவட்ட கிராமம். 782 மாநாடுகள் கோவில் தெருவில் வசிக்கும் மேற்படி நபர் உரிமம் கோரி விண்ணப்பித்துள்ள கடிதத்தை பற்றி மனம் 600 பேர் சார்ந்த முறையில் எல்லை வரையறுப்பு பகுதிகளை. அங்கீகரிப்பட்ட கீழ்மட்ட பிரிவுகளை. விண்ணப்பித்த மாற்றங்களை. புராதான சின்னங்களை. உயர் அழுத்த மின்சாரத்தை கம்பங்களை தெரிவிக்க என தொடர்புக்கொள்ளுங்கள்.

ஆர்.ராமச்சந்திரன்.
கிராம நிர்வாக அலுவலர்
124 - தென்கல்பாக்கம் கிராமம்
125 - மேல்நல்ல கிராமம்
செய்யார் வட்டம், திருவண்ணாமலை மாவட்டம்.

TOPOGRAPHICAL VIEW OF MELNARMA ROUGH STONE QUARRY



NAME OF THE APPLICANT	: J.K VETRIVELAN
DISTRICT	: THIRUVANNAMALAI
TALUK	: CHEYYAR
VILLAGE	: MELNARMA
S.F NO	: 98/2, 98/3,98/4,98/7,100/1,100/2 ,101/2,101/3, 101/4,105/1,105/3,105/7,105/8,105/11
EXTENT	: 7.44 HA

VAO SIGN

PLACE :

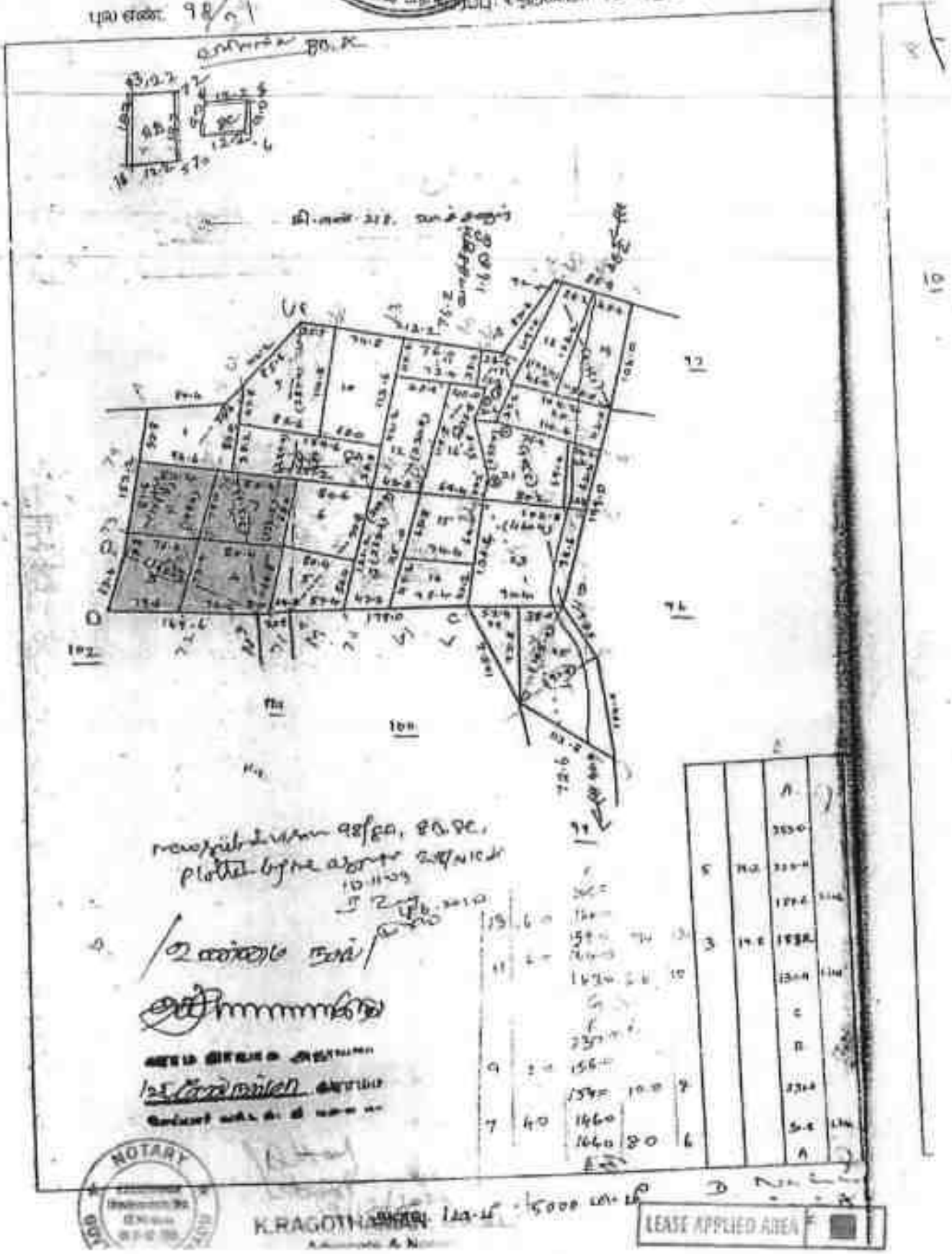
DATE :

கிராம நிர்வாக அலுவலர்
124 - தென்கல்பாக்கம் கிராமம்
125 - மேல்நர்மா கிராமம்
செய்யார் வட்டம், திருவண்ணாமலை மாவட்டம்

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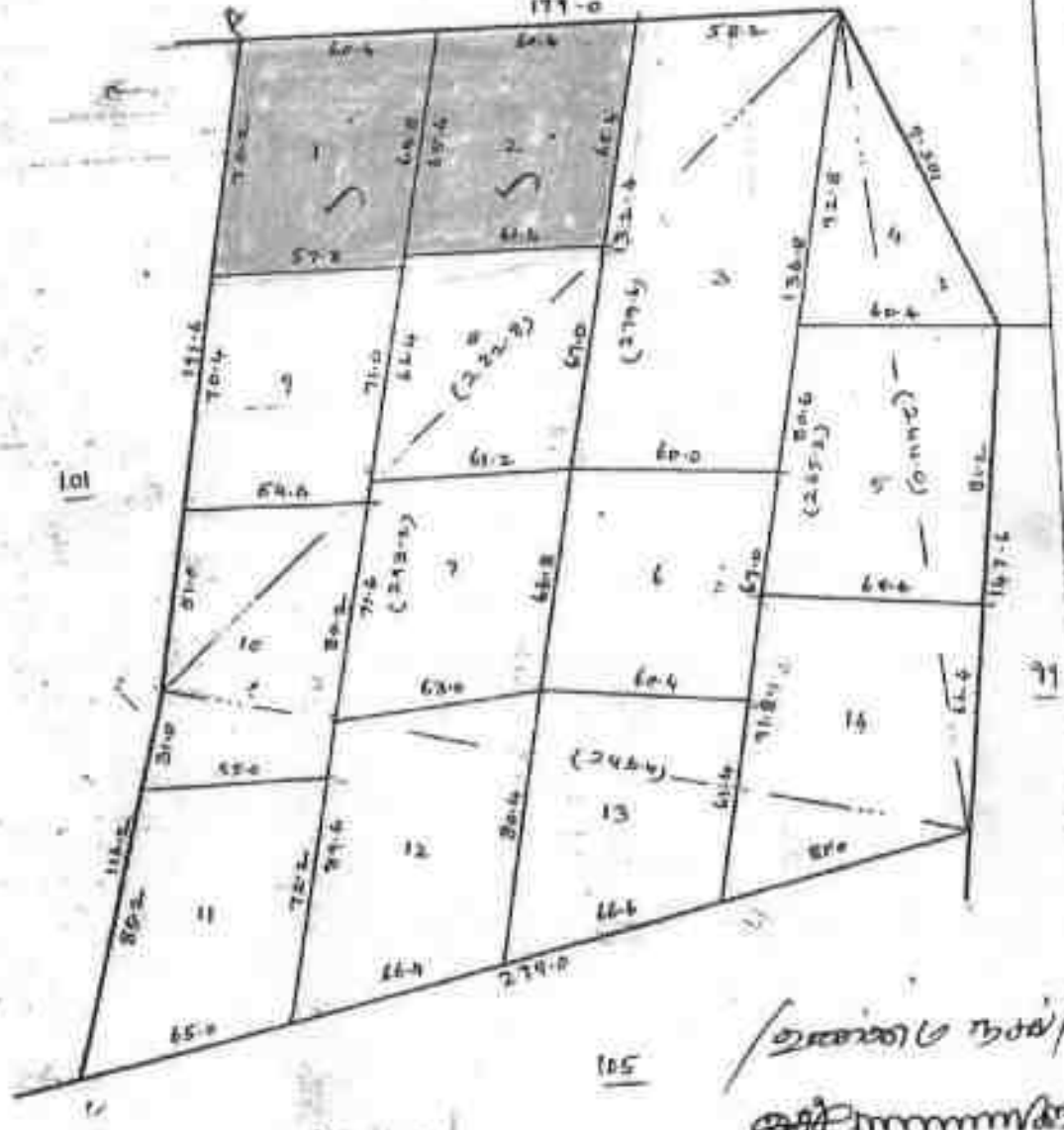
ANNEXURE-6

ANNEXURE 11

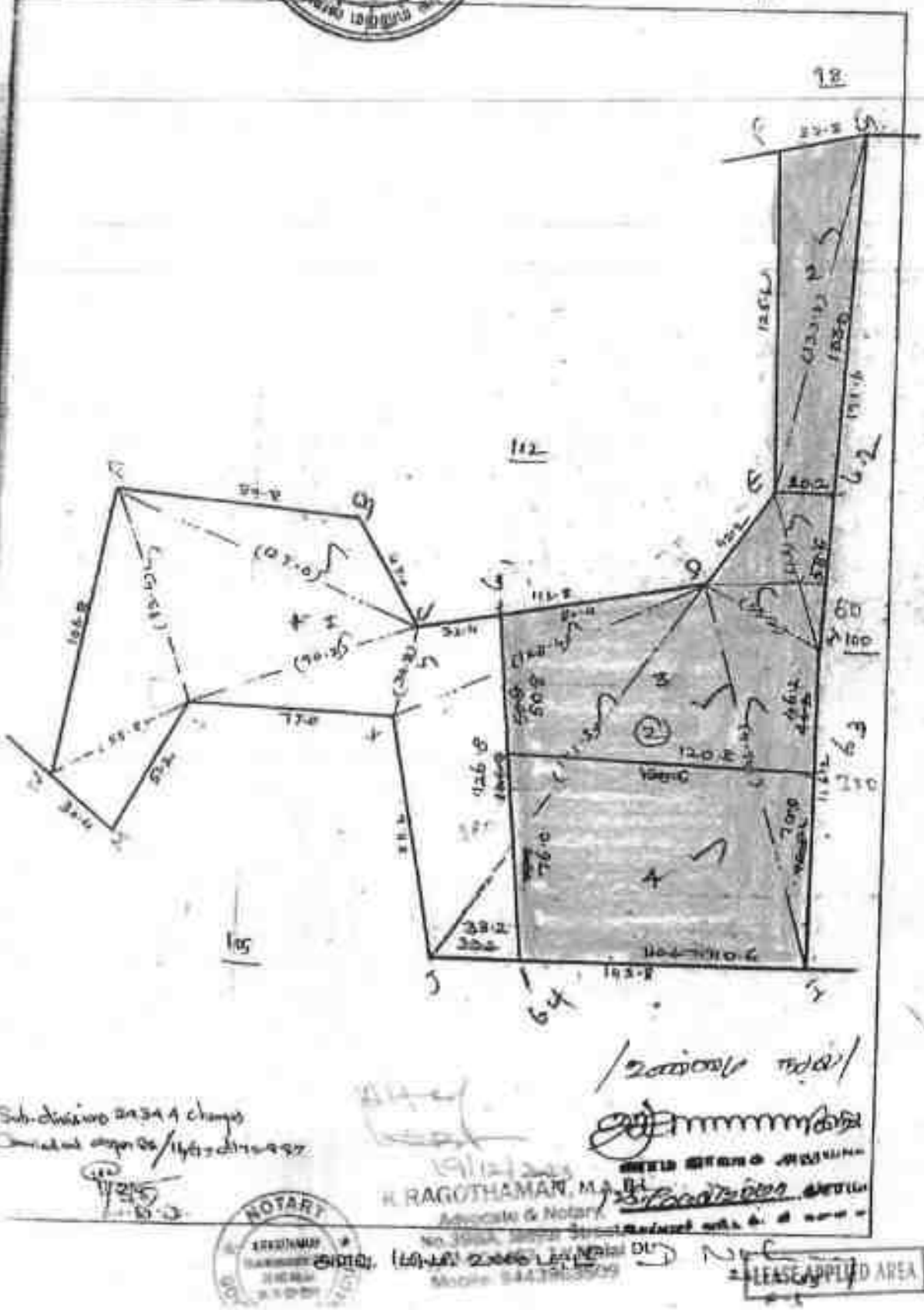


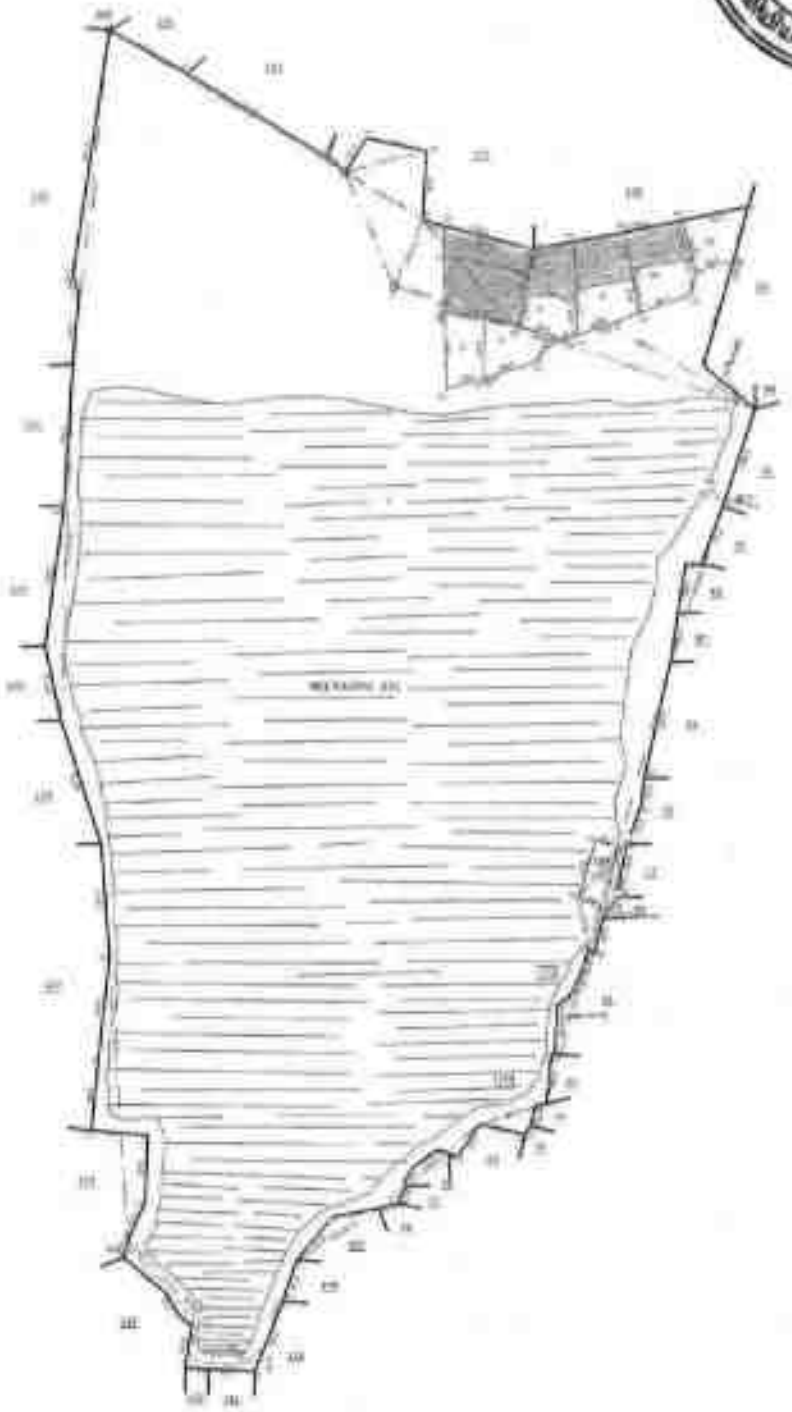
K.RAGOTHAMAN

LEASE APPLIED AREA



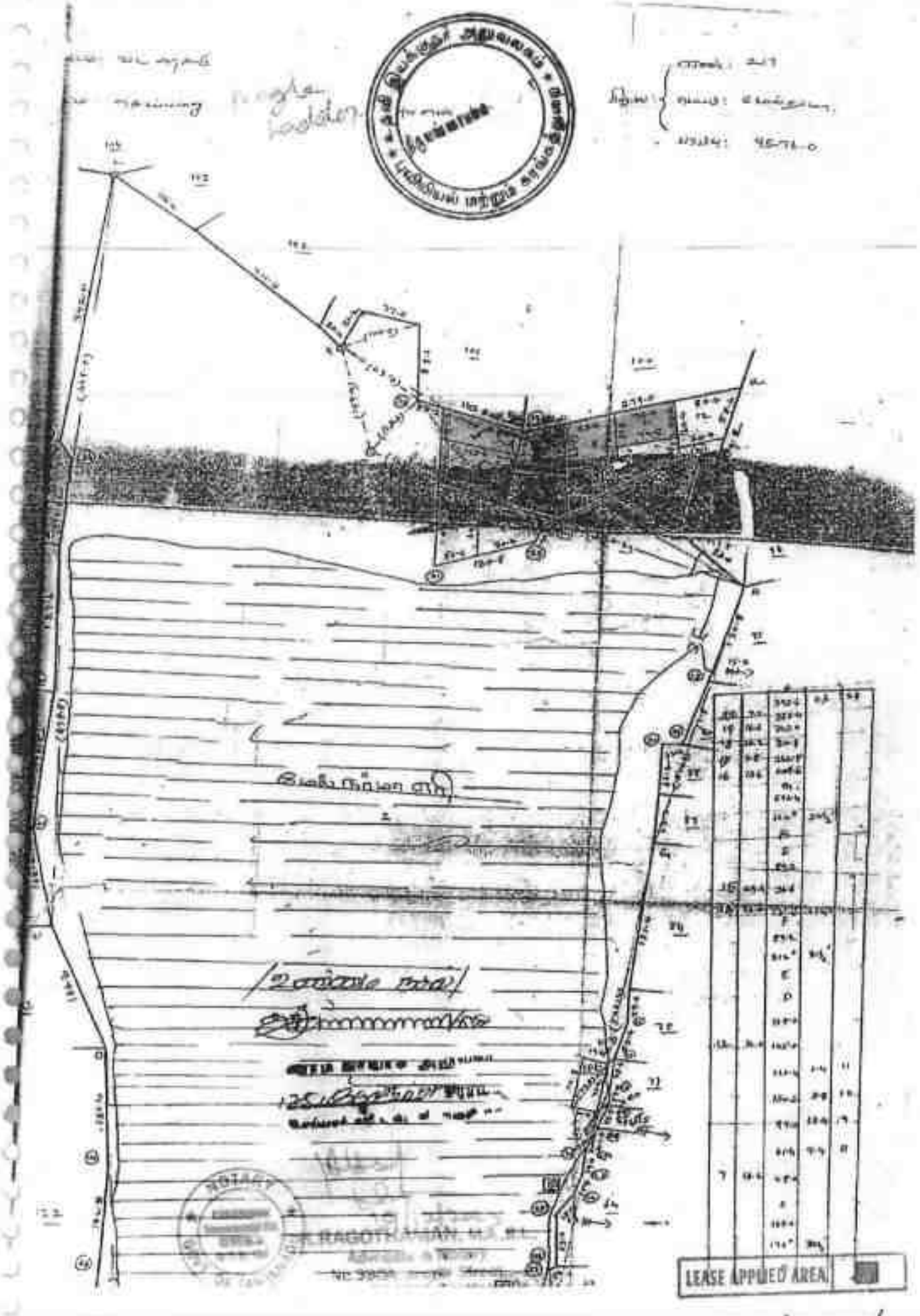
K. RAGOTHAMAN, M.A., B.L.,
Advocate & Notary,


18
112
105
LEASE APPLIED AREA



LEASE APPLIED AREA

23b



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ANNEXURE (1)



LEASE APPLIED AREA

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ANNEXURE IV



தமிழ்நாடு அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருவண்ணாமலை

வட்டம் : செய்யார்

வருவாய் கிராமம் : மேல்நர்மா

பட்டா எண் : 612

உரிமையாளர்கள் பெயர்

1. பூராணன் மனைவி சாந்தி

புல எண்	உட்பிரிவு	பரப்பு		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
101	2	0 - 33.00	0.66	--	--	--	--	2022/0103/06/273574- -- -------- 22-03-2022
101	4	0 - 84.50	1.69	--	--	--	--	2022/0103/06/273574- -- -------- 22-03-2022
98	2	0 - 62.00	1.24	--	--	--	--	2022/0103/06/318569- -- -------- 01-12-2022
98	3	0 - 59.50	1.19	--	--	--	--	2022/0103/06/277030- -- -------- 11-04-2022
		2 - 39.00	4.78					

குறிப்பு :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **06/04/217/00612/80769** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உ நகல் பெற்றுக்கொள்ளலாம்.
2. இந்த தகவல்கள் 04-09-2024 அன்று 01:21:04 PM நேரத்தில் அளிக்கப்பட்டது.
3. கைப்பேசி வேற்றாண்மை2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

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தமிழ்நாடு அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருவண்ணாமலை

வட்டம் : செய்யார்

வருவாய் கிராமம் : மேல்நர்மா

பட்டா எண் : 623

உரிமையாளர்கள் பெயர்

1. கண்ணன் மகன் சதாசுரன்

புல எண்	உட்பிரிவு	பண்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
98	4	0 - 54.50	1.09	--	--	--	--	2022/01101/06/316172 -- ---------- 25-11-2022
98	7	0 - 57.00	1.14	--	--	--	--	2022/01101/06/280852 -- ---------- 02-05-2022
		1 - 11.50	2.23					

குறிப்பு :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் 08/04/117/00833/80771 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

2. இந்த நகல்கள் 04-09-2024 அன்று 01:24:59 PM நேரத்தில் அச்சடிக்கப்பட்டது.

3. மைட்டபெரி தேமராவில்20 barcode படிப்பான் மூலம் படுத்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

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தமிழ்நாடு அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருவண்ணாமலை

வட்டம் : செய்யார்

வருவாய் கிராமம் : மேல்நெற்குணம்

பட்டா எண் : 515

உரிமையாளர்கள் பெயர்

1.	[illegible]	மகன்	சீனிவாசன்	
2.	[illegible]	மகன்	கோபாலன்	
3.	[illegible]	மகன்	முனியன்	
4.	[illegible]	மகன்	வெற்றிவேலன்	
5.	[illegible]	மகன்	குமரவேல்	

புல எண்	உட்பிரிவு	மன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		தொக - ஏ	ரூ - பை	தொக - ஏ	ரூ - பை	தொக - ஏ	ரூ - பை	
100	1	0 - 40.50	1.56	--	--	--	--	2022/0103/06/316172-25-11-2022
100	10	0 - 44.00	1.70	--	--	--	--	2018/0103/06/095907-06-10-2018
100	11	0 - 44.50	1.70	--	--	--	--	2018/0103/06/095907-06-10-2018
100	12	0 - 50.50	1.95	--	--	--	--	2018/0103/06/095907-06-10-2018
100	13	0 - 40.50	1.56	--	--	--	--	2018/0103/06/095907-06-10-2018
100	2	0 - 40.00	1.54	--	--	--	--	2022/0103/06/316172-25-11-2022
100	3	0 - 81.50	3.12	--	--	--	--	2022/0103/06/316172-25-11-2022
100	4	0 - 30.50	1.17	--	--	--	--	2022/0103/06/316172-25-11-2022
100	5	0 - 52.50	2.03	--	--	--	--	2022/0103/06/316172-25-11-2022
100	6	0 - 40.00	1.54	--	--	--	--	2022/0103/06/316172-25-11-2022
100	7	0 - 41.00	1.58	--	--	--	--	2018/0103/06/095907-06-10-2018
100	8	0 - 40.00	1.54	--	--	--	--	2022/0103/06/316172-25-11-2022
100	9	0 - 40.00	1.54	--	--	--	--	2018/0103/06/095907-06-10-2018
105	1	0 - 40.50	0.81	--	--	--	--	2018/0103/06/095907-06-10-2018
105	11	0 - 37.50	0.75	--	--	--	--	2018/0103/06/095907-06-10-2018
105	6	0 - 40.50	0.81	--	--	--	--	2018/0103/06/095907-06-10-2018

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3B

105	7	0 - 42.00	0.84	--	--	--	--	2018/0103/06/099907- -- ------ 06-10-2018
105	8	0 - 40.50	0.81	--	--	--	--	2018/0103/06/099907- -- ------ 06-10-2018
56	28	0 - 22.00	0.44	--	--	--	--	2023/0105/06/420570- -2023/06/04/00006050 ------ 23-07-2023
96	5	0 - 65.50	1.32	--	--	--	--	2022/0103/06/316172- -- ------ 25-11-2022
98	14	0 - 35.00	0.70	--	--	--	--	2022/0103/06/316172- -- ------ 25-11-2022
98	23	0 - 93.00	1.55	--	--	--	--	2019/0103/06/108281- ------ 13-01-2019
98	24	0 - 24.00	0.48	--	--	--	--	2022/0103/06/316172- -- ------ 25-11-2022
		10 - 25.50	31.35					

குறிப்பு :

1.	மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டில்தான் பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **06/04/217/00515/70791** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2.	இச் சான்றுகள் 04-09-2024 அன்று 01:27:47 PM நேரத்தில் அளிக்கப்பட்டது.
3.	கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கலாம்

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தமிழ்நாடு அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருவண்ணாமலை

வட்டம் : செய்யார்

வருவாய் கிராமம் : மேல்நர்மா

பட்டா எண் : 641

உரிமையாளர்கள் பெயர்

1. சதாகரன் மனைவி செல்வியா

புல எண்	உட்பிரிவு	பண்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
101	3	0 - 87.50	1.75	--	--	--	--	2022/0103/06/309923- ---------- 12-10-2022
		0 - 87.50	1.75					

குறிப்பு :

1. மேற்கண்ட தகவல் / சான்றிதழ் தகவல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **06/04/217/00641/80751** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இந்த தகவல்கள் 04-09-2024 அன்று 01:33:54 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. மைக்ரோசாப்ட் கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கலாம்

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தமிழ்நாடு அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருவண்ணாமலை

வட்டம் : செங்கம்

வருவாய் கிராமம் : மேல்நர்மா

பட்டா எண் : 557

உரிமையாளர்கள் பெயர்

1. சீனியாசன் மனைவி பார்வதி

புல எண்	உட்பிரிவு	பஞ்செய்		நஞ்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
104	3	0 - 65.00	1.30	--	--	--	--	2020/0103/06/191548-10-10-2020
105	4	0 - 40.50	0.81	--	--	--	--	2020/0103/06/191548-10-10-2020
		1 - 5.50	2.11					

குறிப்பு :

1. மேற்கண்ட நகலில் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **06/04/217/00557/70717** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இந்த நகலானது 04-09-2024 அன்று 01:33:37 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. மொபைல் கேமராவில் 2D barcode படிப்பான் மூலம் படித்து TCIGRES வழி இணையதளத்தில் சரிபார்க்கவும்

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Mobile: 9443983500

NOTARY
GOVT. OF TAMILNADU

ANNEXURE V

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NOTARY
GOVT OF TAMILNADU

2419

323



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NOTARY
GOVT OF TAMILNADU

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324



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K.RAGOTHAMAN, M.A.,B.L.,
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NOTARY
GOVT. OF TAMILNADU

ANNEXURE VI

District: Tiruvannamalai Taluk: CHEYYAR

Total For Survey Number- 96

Total For Survey Number- 98

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K.RAGOTHAMAN, B.A., B.L.,
Advocate & Notary,
No.399A, Jeeyar Street,
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Mobile: 9443963509

District : Tiruvannamalai Taluk : CHEYYAR Village :

98	1	98-1		புஞ்சை	6 - 4	6	2	0	0	52.50	1	05	W Gudalur		
99	2	99-2	P	புறம்போக்கு	1 - 3	0	0	9	0	75.25	0	00	0		
99	3	99-3	P	புறம்போக்கு	0 - 0	0	0	9	0	75.50	0	00	0		
99	4	99-4		புஞ்சை	6 - 4	6	2	9	0	46.50	0		82 179 மாவடியான் வழுதி		
													7 பேர்கள்		
				Total For Survey Number- 99					1	496	1	98			
100	1	100-1		புஞ்சை	7 - 3	4	3	80	0	40.50	1	56	76 கல்லாவி		
100	2	100-2		புஞ்சை	7 - 3	4	3	85	0	43.00	1	56	76 கல்லாவி		
100	3	100-3		புஞ்சை	7 - 3	4	3	85	0	41.50	1	52	191 முக்கலை நடராசர்		
100	4	100-4		புஞ்சை	7 - 3	4	3	85	0	30.50	1	17	191 முக்கலை நடராசர்		
100	5	100-5		புஞ்சை	7 - 3	4	3	85	0	52.50	2	82	191 முக்கலை நடராசர்		
100	6	100-6		புஞ்சை	7 - 3	4	3	85	0	40.00	1	74	191 முக்கலை நடராசர்		
100	7	100-7		புஞ்சை	7 - 3	4	3	85	0	47.00	1	58	191 முக்கலை நடராசர்		
100	8	100-8		புஞ்சை	7 - 3	4	3	85	0	49.00	1	54	191 முக்கலை நடராசர்		
100	9	100-9		புஞ்சை	7 - 3	4	3	85	0	49.00	1	54	191 முக்கலை நடராசர்		
100	10	100-10		புஞ்சை	7 - 3	4	3	85	0	44.00	1	70	191 முக்கலை நடராசர்		
100	11	100-11		புஞ்சை	7 - 3	4	3	85	0	44.00	1	70	191 முக்கலை நடராசர்		
100	12	100-12		புஞ்சை	7 - 3	4	3	85	0	50.50	1	01	191 முக்கலை நடராசர்		
100	13	100-13		புஞ்சை	7 - 3	4	3	85	0	40.50	1	56	191 முக்கலை நடராசர்		
100	14	100-14		புஞ்சை	7 - 3	4	3	85	0	54.00	2	11	247 பாடி		
				Total For Survey Number- 100					4	484	19	58			
101	1	101-1	P	புறம்போக்கு	0 - 0	0	0	0	1	43.00	0	00	0		
101	2	101-2		புஞ்சை	0 - 4	5	2	0	0	33.00	0	98	205 பூவலை		
101	3	101-3		புஞ்சை	0 - 4	6	2	0	0	67.50	1	75	207 தண்டரை		
101	4	101-4		புஞ்சை	0 - 4	6	2	0	0	94.00	1	50	200 பூவலை		
				Total For Survey Number- 101					2	48.0	4	58			
102		102	P	புறம்போக்கு	0 - 0	0	0	0	10	51.00	0	00	0		
102	1	102-1		புஞ்சை	0 - 4	5	2	0	0	68.00	1	92	234 தாதாரை		
102	2	102-2		புஞ்சை	0 - 4	5	2	0	0	40.50	0	81	217 வன்னாடு		
102	3	102-3		புஞ்சை	0 - 4	6	2	0	0	40.50	1	47	230 சிவபுரம்		
				Total For Survey Number- 102					1	48.0	1	92			
103		103	P	புறம்போக்கு	0 - 0	0	0	0	1	72.50	0	00	0		
103	1	103-1		புஞ்சை	0 - 4	6	2	0	0	40.50	0	81	215 பெருமாள		
103	2	103-2	P	புறம்போக்கு	0 - 0	0	0	0	14	0.50	0	00	0		
103	3	103-3		புஞ்சை	0 - 4	6	2	0	0	85.00	1	30	215 பெருமாள		
103	4	103-4		புஞ்சை	0 - 4	6	2	0	0	40.50	0	81	215 பெருமாள		
103	5	103-5		புஞ்சை	0 - 4	5	2	0	0	44.50	0	89	30 பெரி		
103	6	103-6		புஞ்சை	0 - 4	6	2	0	0	40.50	0	91	191 முக்கலை நடராசர்		
103	7	103-7		புஞ்சை	0 - 4	6	2	0	0	42.00	0	84	191 முக்கலை நடராசர்		
103	8	103-8		புஞ்சை	0 - 4	6	2	0	0	40.50	0	81	191 முக்கலை நடராசர்		
103	9	103-9		புஞ்சை	0 - 4	6	2	0	0	42.50	0	85	196 இலுப்பை		
103	10	103-10		புஞ்சை	0 - 4	6	2	0	0	35.50	0	71	164 மாவடியான்		
103	11	103-11		புஞ்சை	0 - 4	6	2	0	0	37.50	0	75	191 முக்கலை நடராசர்		
103	12	103-		புஞ்சை	0 - 4	6	2	0	0	40.50	0	81	179 மாவடியான் வழுதி		
		103											7 பேர்கள்		
		104		புஞ்சை A	4 - 5	11	10	70	0	18.00	1	37	121 ஆதாரத் பொருள்		
		107		புறம்போக்கு	0 - 0	0	0	0	0	46.50	0	55	0		
		106		புறம்போக்கு	0 - 0	0	0	0	0	52.50	0	00	0		
1	14	104-1		புஞ்சை	7 - 3	4	3	85	0	44.00	1	70	75 பெரியவர் சின்னப்பா		
		104		புஞ்சை	7 - 3	4	3	85	0	2.00	0	10	4 பேர்கள்		
		105		புஞ்சை	7 - 3	4	3	85	0	44.00	1	70	191 முக்கலை நடராசர்		

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NOTARY GOVT. OF TAMILNADU

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Advocate & Notary,
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Cheyyar-604407, T.V.Malai Dt.

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ANNEXURE VII



தமிழ்நாடு தமிழ்நாடு TAMILNADU

AC 759367

K. ARUL, B.Sc.,
Stamp Vendor
Vandavasi-604 408, T.V.Malai Dt.
L. No. 19/2008

4118/2024

பொது அதிகார ஆவணம் (ஏ) ஜெனரல் பவர் ஆப் அட்டார்னி

2024-ஆம் வருஷம் ஆகஸ்டு மாதம் 28உ இருபத்தி எட்டாம் தேதி திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், அழிவிடைதாங்கி மதுரா, ஜம்போடை கிராமம், மாரியம்மன் கோவில் தெரு, நெ.782 வீட்டில் வசிக்கும் திரு.J.C.**கண்ணன்** அவர்களின் குமாரர் 45 வயதுள்ள திரு.K.**வெற்றிவேலன்** (Aadhar.No.9200 9020 9694) (Cell No.9786228681) அவர்களுக்கு.

திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், அழிவிடைதாங்கி மதுரா, ஜம்போடை கிராமம், மாரியம்மன் கோவில் தெரு, நெ.782 வீட்டில் வசிக்கும் திரு.J.C.**கண்ணன்** அவர்களின் குமாரர்கள் 52 வயதுள்ள திரு.K.**சீனிவாசன்** (Aadhar.C.No.5183 7527 2718) (Cell No.9786228696)-1 50 வயதுள்ள திரு.K.**புயல்வன்** (Aadhar.C.No.2447 1902 7206) (Cell No.9786228697)-2 47 வயதுள்ள திரு.K.**சோமாலன்** (Aadhar.C.No.2495 0194 8421) (Cell No.9786228686)-3 42 வயதுள்ள திரு.K.**சுதாகரன்** (Aadhar.C.No.3518 4379 6955) (Cell No.9786228636)-4 மேற்படி 1-வது நபரான திரு.K.**சீனிவாசன்** அவர்களின் மனைவி 45 வயதுள்ள திருமதி.S.**பார்வதி** (Aadhar.C.No.6452 3434 4710) (Cell No.9786228696)-5

1 ஆகஸ்டு 2024 வருஷம் 4118
ஆவணம் 2-7 தாக்கல் செய்தது
1 ஆவணம்

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भारतीय गैर न्यायिक

एक सौ रुपये Rs. 100

ONE HUNDRED RUPEES

रु. 100

भारत INDIA

INDIA NON JUDICIAL

தமிழ்நாடு TAMILNADU

DS 717729

Stamp Vendor
Vandavasi-604 408. T.V.Malai. Dt.
L. No. 19/ 2008

-2-

மேற்படி 2-வது நபரான திரு.K.பூபாலன் அவர்களின் மனைவி 42 வயதுள்ள திருமதி.B.சாந்தி (Aadhar.C.No.8849 2455 6813) (Cell No.9786228648)-6 மேற்படி 4-வது நபரான திரு.K.சுதாகரன் அவர்களின் மனைவி 31 வயதுள்ள திருமதி.G.சௌமியா (Aadhar.C.No.2414 7783 2319) (Cell No.9786228633)-7 ஆகிய நாங்கள் சம்மதித்து எழுதிக்கொடுத்த ஜெனரல்பவர்பத்திரம் யாதெனில், கீழ்கண்ட சொத்து விவரத்தில் குறிப்பிட்டுள்ள சொத்துக்கள் நாங்கள் சுயமாய் கிரையம் வாங்கி ஆண்டு அனுபவித்து வரும் சொத்துக்கள் ஆகும்.

அதாவது எங்களில் 1 முதல் 4 வரை நபர்களும் மற்றும் நீங்களும் சேர்ந்து கடந்த 20-09-2018-ம் தேதியில் காஞ்சிபுரம் மாவட்டம், திருப்பேரும்புத்தூர் டவுன், காந்தி ரோடு, நெ.77/317 வீட்டில் வசித்து வந்த அய்யாசாமி நாடார் அவர்களின் குமாரர் **முக்கையா நாடார்** என்பவரிடமிருந்து கிரையம் வாங்கி அந்த ஆவணம் வந்தவாசி சார்பதிவாளர் அலுவலகத்தில் 1 புத்தகம் 2018-ம் ஆண்டின் 2963 என்னாக பதிவான கிரையப்பத்திரப்படி கிரையம் வாங்கி எங்களில் 1 முதல் 4 வரை நபர்கள் மீதும் மற்றும் உங்கள் மீதும் மேல்நாமா கிராமத்தில் 515 நெ கூட்டுப்பட்டாவாய் தாக்கலாகி ஆண்டு அனுபவித்து வரும் சொத்தினையும்,

1 ஜூலை 2024 வரைபடம் சரி.
ஆவணம் 27 தவறானது
2 தவறு

B. சாந்தி

G. சௌமியா

253

330

भारतीय गैर न्यायिक

एक सौ रुपये Rs. 100

रु. 100 ONE HUNDRED RUPEES

भारत INDIA

INDIA NON JUDICIAL

தமிழ்நாடு தமிலநாடு TAMILNADU

DS 717730

நாள்: 29 F 2024

K [illegible]

[illegible]

-3-

[illegible]RUL, B.Sc.,
Stamp Vendor
Vandavasi-604 408, T.V.Malai. Dt
L. No. 19/ 2008

எங்களில் 1 முதல் 4 வரை நபர்களும் மற்றும் நீங்களும் சேர்ந்து கடந்த 24-06-2019-ம் தேதியில் திருவண்ணாமலை மாவட்டம், செய்யாறு வட்டம், மேல்நர்மா கிராமத்தில் வசிக்கும், தேவன் அவர்களின் மனைவி **கண்ணகி** என்பவரிடமிருந்து கிரையம் வாங்கி அந்த ஆவணம் வந்தவாசி சார்பதிவாளர் அலுவலகத்தில் 1 புத்தகம் 2019-ம் ஆண்டின் 2062 எண்ணாக பதிவான கிரையப்பத்திரப்படி கிரையம் வாங்கி எங்களில் 1 முதல் 4 வரை நபர்கள் மீதும் மற்றும் உங்கள் மீதும் மேல்நர்மா கிராமத்தில் 515 ஆ கூட்டுப்பட்டாவாய் தாக்களைக் ஆண்டு அனுபவித்து வரும் சொத்தினையும்,

மற்றும் எங்களில் 4-வது நபரான சுதாகரன் அவர்கள் கடந்த 02-05-2022-ம் தேதியில் திருவண்ணாமலை மாவட்டம், வந்தவாசி வட்டம், கீழ்சாத்தமங்கலம் கிராமம், இந்திரா நகர், வள்ளுவர் தெரு, எண்.311 வீட்டில் வசித்து வந்து ஜோசப் அவர்களின் மனைவி **கிளாராமேரி** என்பவரிடமிருந்து கிரையம் வாங்கி அந்த ஆவணம் வந்தவாசி சார்பதிவாளர் அலுவலகத்தில் 1 புத்தகம் 2022-ம் ஆண்டின் 1870 எண்ணாக பதிவான கிரையப்பத்திரப்படி கிரையம் வாங்கி எங்களில் 4-வது நபர்மீது 623 ஆ தனிப்பட்டாவாய் ஆண்டு அனுபவித்து வரும் சொத்தினையும்,

[illegible]

[illegible]

[illegible]

254

331

भारतीय गैर न्यायिक

एक सौ रुपये

Rs. 100

ONE HUNDRED RUPEES

रु. 100

भारत INDIA

INDIA NON JUDICIAL

தமிழ்நாடு தமிழ்நாடு TAMILNADU

DB 717731

K. ARUL, B.Sc.,
Stamp Vendor
Vandavasi-604 408. T.V.Malai. Dt
L. No. 19/2008

மற்றும் எங்களில் 4-வது நபரான சுதாகரன் அவர்கள் கடந்த 02-05-2022-ம் தேதியில் திருவண்ணாமலை மாவட்டம், வந்தவாசி வட்டம், தீம்சாத்தமங்கலம் கிராமம், இந்திரா நகர், வள்ளுவர் தெரு, நெ.311 வீட்டில் வசித்து வந்து ஜோசப் அவர்களின் மனைவி **கினாராமேரி** என்பவரிடமிருந்து கிரையம் வாங்கி அந்த ஆவணம் வந்தவாசி சார்பதிவாளர் அலுவலகத்தில் 1 புத்தகம் 2022-ம் ஆண்டின் 1871 என்னாக பதிவான கிரையப்பத்திரப்படி கிரையம் வாங்கி எங்களில் 4-வது நபர்மீது 623 நெ தனிப்பட்டாவாய் ஆண்டு அனுபவித்து வரும் சொத்தினையும்,

மற்றும் எங்களில் 5-வது நபரான பார்வதி அவர்கள் கடந்த 20-08-2020-ம் தேதியில் திருவண்ணாமலை மாவட்டம், செய்யாறு வட்டம், மேல்நர்மா கிராமம், வட்சுமிபுரம் கிராமத்தில் வசித்து வந்த பெருமாள் அவர்களின் குமாரர் **ராமமூர்த்தி** என்பவரிடமிருந்து கிரையம் வாங்கி அந்த ஆவணம் வந்தவாசி சார்பதிவாளர் அலுவலகத்தில் 1 புத்தகம் 2020-ம் ஆண்டின் 2091 என்னாக பதிவான கிரையப்பத்திரப்படி கிரையம் வாங்கி எங்களில் 5-வது நபர்மீது 557 நெ தனிப்பட்டாவாகி ஆண்டு அனுபவித்து வரும் சொத்தினையும்

255

भारतीय गैर न्यायिक

एक सौ रुपये Rs. 100

ONE

रु.-100 HUNDRED RUPEES

भारत INDIA

INDIA NON JUDICIAL

தமிழ்நாடு தமிலநாடு TAMILNADU

DS 717732

K. ARUL, B.Sc.,
Stamp Vendor
Vandavasi-604 408, T.V.Malai. Dt.
L. No. 19/2008

மற்றும் எங்களில் 6-வது நபரான சாந்தி அவர்கள் கடந்த 14-12-2021-ம் தேதியில் திருவண்ணாமலை மாவட்டம், செய்யாறு வட்டம், மேல்நர்மா கிராமத்தில் வசித்து வந்த முருகேச நாயக்கர் அவர்களின் குமாரர்கள் **பொன்னுசாமி-1 ஆறுமுகம்-2** ஆகிய இவர்களிடமிருந்து கிரையம் வாங்கி அந்த ஆவணம் வந்தவாசி சார்பதிவாளர் அலுவலகத்தில் 1 புத்தகம் 2021-ம் ஆண்டின் 4929 எண்ணாக பதிவான கிரையப்பத்திரப்படி கிரையம் வாங்கி எங்களில் 6-வது நபர்மீது 612 நெ தனிப்பட்டாவாகி ஆண்டு அனுபவித்து வரும் சொத்தினையும்

மற்றும் எங்களில் 6-வது நபரான சாந்தி அவர்களுக்கு கடந்த 22-03-2022-ம் தேதியில் திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், திருப்பணமூர் கிராமம், வெங்கட்ராயன் பேட்டை பிள்ளையார் கோவில் தெரு, நெ.412 வீட்டில் வசித்து வரும் அவருடைய தந்தை **மணி** அவர்கள் ஒரு தானசெட்டில்மெண்டு ஆவணம் எழுதிக்கொடுத்து அந்த ஆவணம் வந்தவாசி சார்பதிவாளர் அலுவலகத்தில் 1 புத்தகம் 2022-ம் ஆண்டின் 1195 எண்ணாக பதிவான தானசெட்டில்மெண்டு பத்திரப்படி கிடைத்து எங்களில் 6-வது நபர்மீது 612 நெ தனிப்பட்டாவாகி ஆண்டு அனுபவித்து வரும் சொத்தினையும்

மற்றும் எங்களில் 6-வது நபரான சாந்தி அவர்கள் கடந்த [illegible]2020-ம் தேதியில் **பாப்பாத்தியம்மாள்** அவர்களிடமிருந்து கிரையம் வாங்கி அந்த ஆவணம் வந்தவாசி சார்பதிவாளர் அலுவலகத்தில் 1 புத்தகம் 2020-ம் ஆண்டின் 3450 எண்ணாக பதிவான கிரையப்பத்திரப்படி கிரையம் வாங்கி எங்களில் 6-வது நபர்மீது 612 ந் தனிப்பட்டாவாகி ஆண்டு அனுபவித்து வரும் சொத்தினையும்

மற்றும் எங்களில் 6-வது நபரான சாந்தி அவர்கள் கடந்த 07-12-2021-ம் தேதியில் **ஏகாம்பரம்** அவர்களிடமிருந்து கிரையம் வாங்கி அந்த ஆவணம் வந்தவாசி சார்பதிவாளர் அலுவலகத்தில் 1 புத்தகம் 2021-ம் ஆண்டின் 4821 எண்ணாக பதிவான கிரையப்பத்திரப்படி கிரையம் வாங்கி எங்களில் 6-வது நபர்மீது 612 ந் தனிப்பட்டாவாகி ஆண்டு அனுபவித்து வரும் சொத்தினையும்

மற்றும் எங்களில் 6-வது நபரான சாந்தி அவர்கள் கடந்த 22-10-2020-ம் தேதியில் **சுப்பிரமணி** அவர்களிடமிருந்து கிரையம் வாங்கி அந்த ஆவணம் வந்தவாசி சார்பதிவாளர் அலுவலகத்தில் 1 புத்தகம் 2020-ம் ஆண்டின் 3248 எண்ணாக பதிவான கிரையப்பத்திரப்படி கிரையம் வாங்கி எங்களில் 6-வது நபர்மீது 612 ந் தனிப்பட்டாவாகி ஆண்டு அனுபவித்து வரும் சொத்தினையும்

மற்றும் எங்களில் 7-வது நபரான சௌமியா அவர்கள் கடந்த 12-10-2022-ம் தேதியில் திருவண்ணாமலை மாவட்டம், செய்யாறு வட்டம், மேல்நர்மா கிராமத்தில் வசித்து வந்த சடையாண்டி அவர்களின் மனைவி **தேவகி-1** மேற்படி சடையாண்டி அவர்களின் குமாரர் **வெங்கடேசன்-2** மேற்படி சடையாண்டி அவர்களின் குமாரத்திகள் **மைதிலி-3 ராணி-4** ஆகிய இவர்களிடமிருந்து கிரையம் வாங்கி அந்த ஆவணம் வந்தவாசி சார்பதிவாளர் அலுவலகத்தில் 1 புத்தகம் 2022-ம் ஆண்டின் 4594 எண்ணாக பதிவான கிரையப்பத்திரப்படி கிரையம் வாங்கி எங்களில் 7-வது நபர்மீது 641 ந் தனிப்பட்டாவாகி ஆண்டு அனுபவித்து வரும் சொத்தினையும் மற்றும் எங்களால் பராமரிக்கவும், பாதுகாக்கவும் முடியாத காரணத்தினாலும் எங்களுக்கு ஒரு நல்ல முகவர் தேவைப்படவே தங்களை பொது அதிகார முகவராக நியமித்து கீழ்க்கண்ட அதிகாரங்களை தங்களுக்கு அளிக்கின்றோம்.

மேற்படி எங்களுக்கு சொந்தமானதும் நாங்கள் சர்வசுதந்திரமாக அனுபவித்து வந்தும் எங்கள் அனைவரின் சுவாதீனத்தில் இருந்து வரும் சொத்துக்களில் மேற்படி அனைத்து படிவங்களிலும் எங்களுக்கு பதிலாக தாங்களே கையொப்பம் இடவும், இதர பாரங்களில் எங்களுடைய சார்பாக கையொப்பம் இட்டு நடைமுறைபடுத்தவும், தொடர்ந்து செயல்படவும், நாங்கள் இதன் மூலம் தங்களுக்கு அதிகாரம் அளிக்கின்றோம். மேற்படி சொத்துக்களில் வழக்குகள் ஏற்படின் நக்க நீதிமன்றத்தில் நீங்களே எங்கள் சார்பாக வழக்குகள் தொடரவும் வக்காளத்து நாமாக்கள் மற்றும் இதர பாரங்களில் எங்கள் சார்பாக கையொப்பம் இட்டு வழக்கினை தொடர்ந்து செயல்படவும் வாபஸ் பெறவும் ராஜி செய்து கொள்ளவும் நாங்கள் இதன் மூலம் தங்களுக்கு அதிகாரம் அளிக்கின்றோம்.

நீங்கள் இந்த சொத்துக்களை முழுமையாக விற்பனை செய்யவும், அடமானம் செய்யவும், குத்தகைக்கு விடவும் அதற்கான அனைத்து பத்திரங்களையும் எழுதிக்கொடுத்து கையொப்பம் இடவும் இந்த சொத்து சம்மந்தமான பரிவர்த்தனை பத்திரங்கள், பிழைதிருத்தல் பத்திரங்கள், தானப்பத்திரங்கள், போன்றவை எழுதிக் கொடுக்கவும், எழுதிப்பெறவும், தமிழ்நாடு புவியியல் மற்றும் சுரங்கத்துறை அனுமதி பெற்று சிறு கனிமம், சாதாரண கற்கள், கிராவில் மண் எடுத்துக்கொள்ளவும் மேற்கண்ட துறைக்கு அனுமதி பெறவும், மேற்கண்ட துறைக்கு கூட்டு ஒப்பந்தம் செய்துக் கொடுக்கவும் இதில் மின் இணைப்பு பெறவும், மாநில சுற்று சூழல் தாக்கம் மதிப்பீட்டு ஆணையத்தில் தடையில்லா சான்று பெறவும் அதற்கான படிவங்களில் தாங்களே கையெழுத்திடவும்.

மேற்படி இந்த சொத்தின் மீதான அனைத்து வரி வகையராக்களையும் எங்களுக்கு பதிலாக நீங்களே எங்களது பெயரில் செலுத்தவும். மேற்படி இச்சொத்து சம்மந்தமாக நீங்கள் மேற்கொள்ளும் அனைத்து சட்ட விரோதமற்ற சட்டப்பூர்வமான நடவடிக்கைகளையும் நாங்களே நேரில் இருந்து செய்ததாக ஒப்புக்கொள்கின்றோம்.

இந்த சொத்துக்கள் சம்மந்தமாக தகுந்த கணக்கும் குறிப்பும் வைத்து நாங்கள் கோரும் போது எங்கள் வசம் ஒப்படைக்க வேண்டும். இந்த பொது அதிகார ஆவணத்திற்காக நாங்கள் தங்களிடமிருந்து எந்த விதமான பிரதிபலனும் பெறவில்லை. இந்தப்படிக்கு நாங்கள் சம்மதித்து எழுதிக்கொடுத்த பொது அதிகார ஆவணம்.

சொத்து விபரம்

திருவண்ணாமலை மாவட்டம், செய்யார் வி.டி. வந்தவாசி [illegible] வட்டம், **மேல்நீலமா** கிராம சர்க்கார்

புன்சை சர்வே எண்.**100/1** பூரா 0.40.5 ஏர்ஸ் இதற்கு 1.00 ஏக்கர்.
புன்சை சர்வே எண்.**100/2** பூரா 0.40.0 ஏர்ஸ் இதற்கு 0.99 சென்டு.
புன்சை சர்வே எண்.**105/11** பூரா 0.37.5 ஏர்ஸ் இதற்கு 0.93 சென்டு.
புன்சை சர்வே எண்.**105/8** பூரா 0.40.5 ஏர்ஸ் இதற்கு 1.00 ஏக்கர்.
புன்சை சர்வே எண்.**105/7** பூரா 0.42.0 ஏர்ஸ் இதற்கு 1.04 சென்டு.
புன்சை சர்வே எண்.**105/1** பூரா 0.40.5 ஏர்ஸ் இதற்கு 1.00 ஏக்கர்.
புன்சை சர்வே எண்.**98/7** பூரா 0.57.0 ஏர்ஸ் இதற்கு 1.41 சென்டு.
புன்சை சர்வே எண்.**98/4** பூரா 0.54.5 ஏர்ஸ் இதற்கு 1.35 சென்டு.
புன்சை சர்வே எண்.**105/3** பூரா 0.65.0 ஏர்ஸ் இதற்கு 1.60 சென்டு.
புன்சை சர்வே எண்.**101/2** பூரா 0.33.0 ஏர்ஸ் இதற்கு 0.82 சென்டு.
புன்சை சர்வே எண்.**101/4** பூரா 0.84.5 ஏர்ஸ் இதற்கு 2.09 சென்டு
புன்சை சர்வே எண்.**98/2** பூரா 0.62.0 ஏர்ஸ் இதற்கு 1.53 சென்டு.
புன்சை சர்வே எண்.**98/3** பூரா 0.59.5 ஏர்ஸ் இதற்கு 1.47 சென்டு.
புன்சை சர்வே எண்.**101/3** பூரா 0.87.5 ஏர்ஸ் இதற்கு 2.16 சென்டு நிலம் உள்ட இந்த பொது அதிகார ஆவணத்தில் அடங்கும்.

[illegible]

[illegible]

[illegible]

மேற்படி சொத்து அனுக்காவூர் பஞ்சாயத்து யூனியன் எல்லைக்குட்பட்ட மேல்நர்மா கிராம பஞ்சாயத்திற்கு சம்மந்தப்பட்டது.

மேற்படி சொத்து மதிப்பு.65,21,400/-

எழுதிவாங்குபவர் கையெழுத்து

எழுதிகொடுப்பவர்கையெழுத்து

சாட்சிகள்

1.

தமர் துரை இளந்திரையன்
த.நெ.118 பிராமணர் தெரு, மெய்க்கரை கிராமம்
உத்திரமேரூர் வட்டம்
ஆதார் எண். 7803 8007 0672

2.

பிரதாப் துரை முனி
த.நெ.779, மாரியம்மன் கோவில் தெரு,
ஜம்போடை, கிராமம்
ஆதார் எண்.3238 2727 6919

சான்று செய்தவர்:



கி.பூபாலன்,
ஆவண எழுத்தர்
த.நெ.91, தெரு, வந்தவாசி-604408
Cell.9443967903, Writerboobalan@gmail.com
ஆவண எழுத்தர் உரிமம் எண். B 704/cyr/91

2024 ... 418
27 ...
9 ...

1968 ஆம் வருஷத்திய சென்னை முத்திரை மதிப்பு சுறைப்பு திருத்த சட்டம் 3(1)

ஸ்டேட்மெண்ட் **மார்கெட் மதிப்பு அறிக்கை** - மேல்நாடு

வ. எண்	சர்வே எண்	விஸ்தீரணம் செண்டு	ஏர்ஸ்	வரிகாட்டிப்படி 1 செ. மதிப்பு	சொத்தின் தன்மை		எழுதி கொடுப்பவரின் தீர்மானப்படி காலை விலை
1.	100/1	1.00		2100	புன்செ	ரூ.	2,10,000.00
2.	100/2	0.99		2100	புன்செ	ரூ.	2,07,900.00
3.	105/11	0.93		2100	புன்செ	ரூ.	1,95,300.00
4.	105/8	1.00		2100	புன்செ	ரூ.	2,10,000.00
5.	105/7	1.04		2100	புன்செ	ரூ.	2,18,400.00
6.	105/1	1.00		2100	புன்செ	ரூ.	2,10,000.00
7.	98/7	1.41		2100	புன்செ	ரூ.	2,96,100.00
8.	98/4	1.35			புன்செ	ரூ.	29,43,000.00
9.	105/3	1.60		2100	புன்செ	ரூ.	3,36,000.00
10.	101/2	0.82		2100	புன்செ	ரூ.	1,72,200.00
11.	101/4	2.09		2100	புன்செ	ரூ.	4,38,900.00
12.	98/2	1.53		2100	புன்செ	ரூ.	3,21,300.00
13.	98/3	1.47		2100	புன்செ	ரூ.	3,08,700.00
14.	101/3	2.16		2100	புன்செ	ரூ.	4,53,600.00

ஆக மொத்த மதிப்பு ரூ. 65,21,400.00

எழுதி கொடுப்பவர் கையெழுத்து

1 2024

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சொத்தானது நீர்நிலை பகுதியில் அமையப் பெறவில்லை என்பதற்கான சான்று/உறுதிமொழி (Declaration) நீதிபேராணைகள் 22163/2018 -ல் வழங்கப்பட்ட தீர்ப்புரையாகாண்க.

இந்த ஆவணத்தில் கண்ட சொத்தானது நீர்நிலைகள், நீர்வழிப்பாதைகள், நீர்பிடிப்பு பகுதியில் கட்டுப்படவில்லை என சான்றளிக்கிறோம். மேலும் இதனில் தங்களுக்கு தவறான தகவல் அல்லது சான்று அளிக்கப்பட்டதாக பின்னாளில் கண்டுபிழக்கப்பட்டால் அதனால் நான்/நாங்கள் சட்ட பூர்வ நடவடிக்கைகளுக்கு உட்படுத்தப்படுவோம் என்பதையும் அறிவேன்/அறிவோம்.

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27 ...
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தமிழ்நாடு அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருவண்ணாமலை

வட்டம் : செய்யார்

வருவாய் கிராமம் : மேல்நர்மா

பட்டா எண் : 515

உரிமையாளர்கள் பெயர்

1.	சுப்பராயன்	மகன்	சீனிவாசன்	
2.	வள்ளல்	மகள்	கோபாலன்	
3.	சுப்பராயன்	மகன்	முனுசாமி	
4.	சுப்பராயன்	மகன்	வெங்கடேசன்	
5.	வள்ளல்	மகன்	சதாசிவம்	

புல எண்	உட்பிரிவு	பஞ்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
100	1	0 - 40.50	1.56	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
100	10	0 - 44.00	1.70	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018
100	11	0 - 44.00	1.70	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018
100	12	0 - 50.50	1.95	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018
100	13	0 - 40.50	1.56	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018
100	2	0 - 40.00	1.54	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
100	3	0 - 81.50	3.12	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
100	4	0 - 30.50	1.17	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
100	5	0 - 52.50	2.03	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
100	5	0 - 40.00	1.54	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
100	7	0 - 41.00	1.58	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018
100	8	0 - 40.00	1.54	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
100	9	0 - 40.00	1.54	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018
105	1	0 - 40.50	0.81	--	--	--	--	2018/0103/06/099907- -- -------- 06-10-2018

105	11	0 - 37.50	0.75	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018
105	6	0 - 40.50	0.81	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018
105	7	0 - 42.00	0.84	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018
105	8	0 - 40.50	0.81	--	--	--	--	2018/0103/06/095907- -- -------- 06-10-2018
96	28	0 - 22.00	0.44	--	--	--	--	2023/0103/06/420570- -2023/06/04/00006850 -------- 25-07-2023
96	5	0 - 65.50	1.32	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
98	14	0 - 35.00	0.70	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
98	23	0 - 93.00	1.86	--	--	--	--	2019/0103/06/108281- -- -------- 13-01-2019
98	24	0 - 24.00	0.48	--	--	--	--	2022/0103/06/316172- -- -------- 25-11-2022
		10 - 25.50	31.35					

குறிப்பு :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவ்வசல் காலங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **06/04/217/00515/70791** என்ற குறியீட எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இந்த சான்றிதழ் 20-08-2024 அன்று 11:03:18 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. சான்றிதழின் மேலுள்ளவாறான 2D barcode படப்பிரதி நேரம் பார்க்க 3G/GPRS வழி இணைய தளத்தில் சரிபார்க்கலாம்

1 ... 2.024 ... 14.2.
2.7 ...
13

தமிழ்நாடு அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருவண்ணாமலை

வட்டம் : செய்யார்

வருவாய் கிராமம் : மேல்நர்யா

பட்டா எண் : 623

உரிமையாளர்கள் பெயர்

1. வள்ளல் மகன் உதாரன்

புல எண்	உட்பிரிவு	புன்செய்		தன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	நீர்வகை	பரப்பு	நீர்வகை	பரப்பு	நீர்வகை	
		ஹெக் - ஏர்	ஆ - மை	ஹெக் - ஏர்	ஆ - மை	ஹெக் - ஏர்	ஆ - மை	
98	4	0 - 54.50	1.09	--	--	--	--	2022/0103/06/316172- -- ------- 25-11-2022
98	7	0 - 57.00	1.14	--	--	--	--	2022/0103/06/280852- -- ------- 02-05-2022
		1 - 11.50	2.23					

குறிப்பு :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் https://eservices.tn.gov.in என்ற இணைய தளத்தில் 06/04/217/00623/80771 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்து கொள்ளவும்.

2. இந்த நகல்கள் 20-08-2024 அன்று 11:12:22 AM நேரத்தில் அளிக்கப்பட்டது

3. ஸ்மார்ட்போன் கேமராவின் 2D barcode படிப்பான் மூலம் படித்து TCS/GFRS வழி இணையதளத்தில் சரிபார்க்கலாம்

1 ஏப்ரல் 2024 ரூ. 4118

27 பாகல் கோட்டை

14

B. Santhi

தமிழ்நாடு அரசு

வருவாய்த் துறை

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

வட்டம் : செய்யார்

வருவாய் கிராமம் : இருவண்ணாமலை

பட்டா எண் : 557

வருவாய் கிராமம் : மேல்நர்மா

உரிமையாளர்கள் பெயர்

1. சிவிலாசன் மனைவி பார்வதி

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏ	ரூ - பை	ஹெக் - ஏ	ரூ - பை	ஹெக் - ஏ	ரூ - பை	
105	3	0 - 65.00	1.30	--	--	--	--	2020/0103/06/191548- -- ------ 10-10-2020
105	4	0 - 40.50	0.81	--	--	--	--	2020/0103/06/191548- -- ------ 10-10-2020
		1 - 5.50	2.11					

குறிப்பு :

1. மேற்கண்ட தகவல் / சான்றிதழ் தகவல் விவரங்களை மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்களே **https://eservices.tn.gov.in** என்ற இணைய முகத்தில் **06/04/217/00557/70717** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 20-08-2024 அன்று 11:06:55 AM நேரத்தில் அச்சுக்கு எடுக்கப்பட்டது.
3. கைபேசி கோரிக்கைகளுக்கு 20 எண்ணில் பதிப்பகம் மூலம் பயிக்க 3G/GPRS வழி இணைய முகத்தில் சரிபார்க்கவும்.

K. Mahendra

Vikram

Deputy

Tahsildar

B. Samu

G. Raja

2024 1/12

27

15

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K. Mahendra

பட்டாடிஜிட்டல் கையொப்ப இணைய சேவை - நில உரிமை விபரங்கள்

தமிழ்நாடு அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருவண்ணாமலை

வட்டம் : செய்யார்

வருவாய் கிராமம் : மேல்நர்யா

பட்டா எண் : 612

உரிமையாளர்கள் பெயர்

1. பூபாலன் மனைவி ராதி

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏ	ரூ - பை	ஹெக் - ஏ	ரூ - பை	ஹெக் - ஏ	ரூ - பை	
101	2	0 - 33.00	0.66	--	--	--	--	2022/0103/RK/273574-- -------- 22-03-2022
101	4	0 - 84.50	1.69	--	--	--	--	2022/0103/06/273574-- -------- 22-03-2022
98	2	0 - 62.00	1.24	--	--	--	--	2022/0103/06/318509-- -------- 01-12-2022
98	3	0 - 59.50	1.19	--	--	--	--	2022/0103/06/277930-- -------- 11-04-2022
		2 - 39.00	4.78					

குறிப்பு :

1. மேற்கண்ட தகவல் / சான்றிதழ் தகல் விவரங்கள் மின பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் https://eservices.tn.gov.in என்ற இணைய தளத்தில் 06/04/217/00612/00769 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

2. இச் சகவல்கள் 20-08-2024 அன்று 11:05:25 AM நேரத்தில் அச்சுக்கப்பட்டது.

3. கைபேசி கொராவில்20 barcode படிப்பான் மூலம் படத்தை 20/QRCS வழி இணையதளத்தில் சரிபார்க்கவும்

1 ... 2024 ... 418

27 ... கொண்ட கொண்டது

16 ... நிறுவனம்

B. Sathish

G. Sujith

வடகாடுபட்டி அதங்கரை இணைய சேவை - நில உரிமை விபரங்கள்

தமிழ்நாடு அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருவண்ணாமலை

வட்டம் : செய்யார்

வருவாய் கிராமம் : மேல்நர்மா

பட்டா எண் : 641

உரிமையாளர்கள் பெயர்

1. கதாவரன் மனைவி செல்வியா

புல எண்	உட்பிரிவு	புனசெய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
101	3	0 - 67.50	1.75	--	--	--	--	2022/0103/06/309923- -- ------ 12-10-2022
		0 - 67.50	1.75					

குறிப்பு :

1. மேற்கண்ட ஆவண / சான்றிதழ் நகல் விவரங்களை மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய முகத்தில் **06/04/217/00641/80751** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளலாம்.
2. இந்த ஆவணமானது 20-09-2024 அன்று 11:08:33 AM மணிக்கு அச்சடிக்கப்பட்டது.
3. எங்கேயேனும் கொராணா-19 தொற்று பரவியுள்ள ஏதும் பகுதி TO/FROM வழி இணையதளத்தில் எரிபொருள்களும்

1 ஆகஸ்ட் 2024 418

https://eservices.tn.gov.in/eservicesnew/land/printNilaExtract_ta.html?lan=ta 2/7

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ANNEXURE-7

Shrient Analytical and Research Labs Pvt. Ltd

416/15, Dhargas Road, West Tambaram, Chennai- 600045
Phone Number +91 82208 36377 Email: - **info@shrientanalytical.com**
www.shrientanalytical.com

TEST REPORT

Report No.	SARL/24/4316

Report Date.	19.10.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4316	Sample Received on	14.10.2024
Sample Collected by	LABORATORY	Test Commenced on	14.10.2024
Sample Collected on	08.10.2024	Test Completed on	19.10.2024
Temperature	36°C	Relative Humidity	25%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	56.3	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	26.7	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

For Shrient Analytical and Research Labs Pvt. Ltd

Verified

Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

*****END OF THE REPORT*****

Please Contact:
For any Technical Issues & Complaints: vimalnath@shrientanalytical.com

Terms and conditions:

(1) The test items will not be retained for more than 15 days from the date of issue of test report. (2) The results relate only to the items tested (3) The test report shall not be reproduced except in full without the written approval of the laboratory (4) Any use for advertising purposes must be granted in writing. This technical report may only be quoted in full. This report is the result of a single examination of the object in question and is not generally applicable evaluation of the quality of other products in regular production. For further details, please see testing and certification regulation, chapter A-3.4. (5) The correctness of the information related to sample(s) in the Test Request Form/Customer letterhead/Email is the customer's responsibility. The laboratory reports the said information in the test report and is not liable for the same.

Shrient Analytical and Research Labs Pvt. Ltd

416/15, Dhargas Road, West Tambaram, Chennai- 600045
Phone Number +91 82208 36377 Email: - **info@shrientanalytical.com**
www.shrientanalytical.com

TEST REPORT

Report No.	SARL/24/4317	Report Date.	19.10.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-AYYAVADI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4317	Sample Received on	14.10.2024
Sample Collected by	LABORATORY	Test Commenced on	14.10.2024
Sample Collected on	08.10.2024	Test Completed on	19.10.2024
Temperature	36°C	Relative Humidity	25%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	50.4	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	22.0	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.8	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	6.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

For Shrient Analytical and Research Labs Pvt. Ltd

Verified

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45

Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

*****END OF THE REPORT*****

Please Contact:
For any Technical Issues & Complaints: vimalnath@shrientanalytical.com

Terms and conditions:

(1) The test items will not be retained for more than 15 days from the date of issue of test report. (2) The results relate only to the items tested (3) The test report shall not be reproduced except in full without the written approval of the laboratory (4) Any use for advertising purposes must be granted in writing. This technical report may only be quoted in full. This report is the result of a single examination of the object in question and is not generally applicable evaluation of the quality of other products in regular production. For further details, please see testing and certification regulation, chapter A-3.4. (5) The correctness of the information related to sample(s) in the Test Request Form/Customer letterhead/Email is the customer's responsibility. The laboratory reports the said information in the test report and is not liable for the same.

Shrient Analytical and Research Labs Pvt. Ltd

416/15, Dhargas Road, West Tambaram, Chennai- 600045
Phone Number +91 82208 36377 Email: - **info@shrientanalytical.com**
www.shrientanalytical.com

TEST REPORT

Report No.	SARL/24/4304	Report Date.	19.10.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALATHURAI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4318	Sample Received on	14.10.2024
Sample Collected by	LABORATORY	Test Commenced on	14.10.2024
Sample Collected on	08.10.2024	Test Completed on	19.10.2024
Temperature	36°C	Relative Humidity	27%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	45.7	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.5	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	7.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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For Shrient Analytical and Research Labs Pvt. Ltd

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Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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Please Contact:
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TEST REPORT

Report No.	SARL/24/4305	Report Date.	19.10.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4319	Sample Received on	14.10.2024
Sample Collected by	LABORATORY	Test Commenced on	14.10.2024
Sample Collected on	09.10.2024	Test Completed on	19.10.2024
Temperature	34°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	51.0	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.1	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.9	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4320	Report Date.	19.10.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-AYYAVADI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4320	Sample Received on	14.10.2024
Sample Collected by	LABORATORY	Test Commenced on	14.10.2024
Sample Collected on	09.10.2024	Test Completed on	19.10.2024
Temperature	34°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	47.8	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	19.7	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.1	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	7.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4321

Report Date.	19.10.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALATHURAI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4321	Sample Received on	14.10.2024
Sample Collected by	LABORATORY	Test Commenced on	14.10.2024
Sample Collected on	09.10.2024	Test Completed on	19.10.2024
Temperature	36°C	Relative Humidity	27%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	48.0	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	20.8	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.1	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	7.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4322	Report Date.	19.10.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VEERAMBAKAM
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4322	Sample Received on	14.10.2024
Sample Collected by	LABORATORY	Test Commenced on	14.10.2024
Sample Collected on	10.10.2024	Test Completed on	19.10.2024
Temperature	36°C	Relative Humidity	27%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	44.8	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	22.3	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.5	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4323	Report Date.	19.10.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-THURAIYUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4323	Sample Received on	14.10.2024
Sample Collected by	LABORATORY	Test Commenced on	14.10.2024
Sample Collected on	10.10.2024	Test Completed on	19.10.2024
Temperature	36°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	55.7	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	30.4	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.8	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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J. GNANAPRAKASAM
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TEST REPORT

Report No.	SARL/24/4324	Report Date.	19.10.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VEERAMBAKAM
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4324	Sample Received on	14.10.2024
Sample Collected by	LABORATORY	Test Commenced on	14.10.2024
Sample Collected on	11.10.2024	Test Completed on	19.10.2024
Temperature	36°C	Relative Humidity	26%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	45.7	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	18.9	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4325	Report Date.	19.10.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-THURAIYUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4325	Sample Received on	14.10.2024
Sample Collected by	LABORATORY	Test Commenced on	14.10.2024
Sample Collected on	11.10.2024	Test Completed on	19.10.2024
Temperature	36°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	53.0	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.8	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.8	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4326	Report Date.	19.10.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-VAACHANUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4326	Sample Received on	14.10.2024
Sample Collected by	LABORATORY	Test Commenced on	14.10.2024
Sample Collected on	12.10.2024	Test Completed on	19.10.2024
Temperature	36°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	50.3	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.4	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.3	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4327	Report Date.	19.10.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A7-ALATHUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4327	Sample Received on	14.10.2024
Sample Collected by	LABORATORY	Test Commenced on	14.10.2024
Sample Collected on	12.10.2024	Test Completed on	19.10.2024
Temperature	35°C	Relative Humidity	32%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	50.9	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.6	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.5	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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For Shrient Analytical and Research Labs Pvt. Ltd

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Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45

Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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Please Contact:
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TEST REPORT

Report No.	SARL/24/4328	Report Date.	19.10.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-VAACHANUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4328	Sample Received on	14.10.2024
Sample Collected by	LABORATORY	Test Commenced on	14.10.2024
Sample Collected on	13.10.2024	Test Completed on	19.10.2024
Temperature	35°C	Relative Humidity	32%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	47.8	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.3	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.8	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4329	Report Date.	19.10.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A7-ALATHUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4329	Sample Received on	14.10.2024
Sample Collected by	LABORATORY	Test Commenced on	14.10.2024
Sample Collected on	13.10.2024	Test Completed on	19.10.2024
Temperature	35°C	Relative Humidity	32%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	48.4	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.5	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.0	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4350

Report Date.	26.10.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-VAACHANUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4350	Sample Received on	21.10.2024
Sample Collected by	LABORATORY	Test Commenced on	21.10.2024
Sample Collected on	15.10.2024	Test Completed on	26.10.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	54.8	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.3	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4351	Report Date.	26.10.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A7-ALATHUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4351	Sample Received on	21.10.2024
Sample Collected by	LABORATORY	Test Commenced on	21.10.2024
Sample Collected on	15.10.2024	Test Completed on	26.10.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	55.4	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.5	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4352	Report Date.	26.10.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-VAACHANUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4352	Sample Received on	21.10.2024
Sample Collected by	LABORATORY	Test Commenced on	21.10.2024
Sample Collected on	16.10.2024	Test Completed on	26.10.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	60.0	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	27.4	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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For Shrient Analytical and Research Labs Pvt. Ltd

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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4353	Report Date.	26.10.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A7-ALATHUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4353	Sample Received on	21.10.2024
Sample Collected by	LABORATORY	Test Commenced on	21.10.2024
Sample Collected on	16.10.2024	Test Completed on	26.10.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	60.6	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	27.6	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	11.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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For Shrient Analytical and Research Labs Pvt. Ltd

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TEST REPORT

Report No.	SARL/24/4354	Report Date.	26.10.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VEERAMBAKAM
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4354	Sample Received on	21.10.2024
Sample Collected by	LABORATORY	Test Commenced on	21.10.2024
Sample Collected on	17.10.2024	Test Completed on	26.10.2024
Temperature	37°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	52.9	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	25.1	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4355	Report Date.	26.10.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-THURAIYUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4355	Sample Received on	21.10.2024
Sample Collected by	LABORATORY	Test Commenced on	21.10.2024
Sample Collected on	17.10.2024	Test Completed on	26.10.2024
Temperature	37°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	60.8	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	28.4	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4356	Report Date.	26.10.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VEERAMBAKAM
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4356	Sample Received on	21.10.2024
Sample Collected by	LABORATORY	Test Commenced on	21.10.2024
Sample Collected on	18.10.2024	Test Completed on	26.10.2024
Temperature	37°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	51.0	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	25.5	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.0	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

For Shrient Analytical and Research Labs Pvt. Ltd

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Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45

Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4357	Report Date.	26.10.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-THURAIYUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4357	Sample Received on	21.10.2024
Sample Collected by	LABORATORY	Test Commenced on	21.10.2024
Sample Collected on	18.10.2024	Test Completed on	26.10.2024
Temperature	37°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	57.8	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	29.2	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	7.0	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4358	Report Date.	26.10.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4358	Sample Received on	21.10.2024
Sample Collected by	LABORATORY	Test Commenced on	21.10.2024
Sample Collected on	19.10.2024	Test Completed on	26.10.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	61.7	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	29.3	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	7.0	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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For Shrient Analytical and Research Labs Pvt. Ltd

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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4359	Report Date.	26.10.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-AYYAVADI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4359	Sample Received on	21.10.2024
Sample Collected by	LABORATORY	Test Commenced on	21.10.2024
Sample Collected on	19.10.2024	Test Completed on	26.10.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	46.2	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	22.4	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	6.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4360	Report Date.	26.10.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALATHURAI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4360	Sample Received on	21.10.2024
Sample Collected by	LABORATORY	Test Commenced on	21.10.2024
Sample Collected on	19.10.2024	Test Completed on	26.10.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	46.8	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.0	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.7	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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Technical Manager

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TEST REPORT

Report No.	SARL/24/4361	Report Date.	26.10.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4361	Sample Received on	21.10.2024
Sample Collected by	LABORATORY	Test Commenced on	21.10.2024
Sample Collected on	20.10.2024	Test Completed on	26.10.2024
Temperature	35°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	65.3	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	31.0	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	7.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	11.0	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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For Shrient Analytical and Research Labs Pvt. Ltd

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Technical Manager

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TEST REPORT

Report No.	SARL/24/4362	Report Date.	26.10.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-AYYAVADI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4362	Sample Received on	21.10.2024
Sample Collected by	LABORATORY	Test Commenced on	21.10.2024
Sample Collected on	20.10.2024	Test Completed on	26.10.2024
Temperature	35°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	53.9	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.6	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.8	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	6.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4363	Report Date.	26.10.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALATHURAI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4363	Sample Received on	21.10.2024
Sample Collected by	LABORATORY	Test Commenced on	21.10.2024
Sample Collected on	20.10.2024	Test Completed on	26.10.2024
Temperature	35°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	45.7	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	21.5	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.0	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4389

Report Date.	02.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4389	Sample Received on	28.10.2024
Sample Collected by	LABORATORY	Test Commenced on	28.10.2024
Sample Collected on	22.10.2024	Test Completed on	02.11.2024
Temperature	36°C	Relative Humidity	25%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	68.9	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	32.7	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	7.9	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	11.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4390	Report Date.	02.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-AYYAVADI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4390	Sample Received on	28.10.2024
Sample Collected by	LABORATORY	Test Commenced on	28.10.2024
Sample Collected on	22.10.2024	Test Completed on	02.11.2024
Temperature	36°C	Relative Humidity	25%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	51.1	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.3	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	6.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

For Shrient Analytical and Research Labs Pvt. Ltd

Verified

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45

Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

*****END OF THE REPORT*****

Please Contact:
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TEST REPORT

Report No.	SARL/24/4391

Report Date.	02.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALATHURAI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4391	Sample Received on	28.10.2024
Sample Collected by	LABORATORY	Test Commenced on	28.10.2024
Sample Collected on	22.10.2024	Test Completed on	02.11.2024
Temperature	36°C	Relative Humidity	25%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	49.2	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.9	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.7	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	7.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4392	Report Date.	02.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4392	Sample Received on	28.10.2024
Sample Collected by	LABORATORY	Test Commenced on	28.10.2024
Sample Collected on	23.10.2024	Test Completed on	02.11.2024
Temperature	34°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	62.6	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	29.7	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	7.1	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4393

Report Date.	02.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-AYYAVADI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4393	Sample Received on	28.10.2024
Sample Collected by	LABORATORY	Test Commenced on	28.10.2024
Sample Collected on	23.10.2024	Test Completed on	02.11.2024
Temperature	36°C	Relative Humidity	25%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	43.3	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	20.8	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	7.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4394

Report Date.	02.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALATHURAI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4394	Sample Received on	28.10.2024
Sample Collected by	LABORATORY	Test Commenced on	28.10.2024
Sample Collected on	23.10.2024	Test Completed on	02.11.2024
Temperature	34°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	46.8	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	20.6	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.3	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4395

Report Date.	02.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VEERAMBAKAM
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4395	Sample Received on	28.10.2024
Sample Collected by	LABORATORY	Test Commenced on	28.10.2024
Sample Collected on	24.10.2024	Test Completed on	02.11.2024
Temperature	36°C	Relative Humidity	27%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	57.8	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	26.4	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.0	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4396	Report Date.	02.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-THURAIYUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4396	Sample Received on	28.10.2024
Sample Collected by	LABORATORY	Test Commenced on	28.10.2024
Sample Collected on	24.10.2024	Test Completed on	02.11.2024
Temperature	36°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	52.4	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.8	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4397	Report Date.	02.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VEERAMBAKAM
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4397	Sample Received on	28.10.2024
Sample Collected by	LABORATORY	Test Commenced on	28.10.2024
Sample Collected on	25.10.2024	Test Completed on	02.11.2024
Temperature	36°C	Relative Humidity	26%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	52.7	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	28.3	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.8	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4398	Report Date.	02.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-THURAIYUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4398	Sample Received on	28.10.2024
Sample Collected by	LABORATORY	Test Commenced on	28.10.2024
Sample Collected on	25.10.2024	Test Completed on	02.11.2024
Temperature	36°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	56.0	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.4	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4399	Report Date.	02.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-VAACHANUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4399	Sample Received on	28.10.2024
Sample Collected by	LABORATORY	Test Commenced on	28.10.2024
Sample Collected on	26.10.2024	Test Completed on	02.11.2024
Temperature	36°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	52.7	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	25.3	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.7	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

For Shrient Analytical and Research Labs Pvt. Ltd

Verified

Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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Please Contact:
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TEST REPORT

Report No.	SARL/24/4400	Report Date.	02.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A7-ALATHUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4400	Sample Received on	28.10.2024
Sample Collected by	LABORATORY	Test Commenced on	28.10.2024
Sample Collected on	26.10.2024	Test Completed on	02.11.2024
Temperature	35°C	Relative Humidity	32%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	53.3	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	25.5	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.9	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4401

Report Date.	02.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-VAACHANUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4401	Sample Received on	28.10.2024
Sample Collected by	LABORATORY	Test Commenced on	28.10.2024
Sample Collected on	27.10.2024	Test Completed on	02.11.2024
Temperature	35°C	Relative Humidity	32%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	55.2	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	26.3	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.8	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	12.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4402	Report Date.	02.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A7-ALATHUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4402	Sample Received on	28.10.2024
Sample Collected by	LABORATORY	Test Commenced on	28.10.2024
Sample Collected on	27.10.2024	Test Completed on	02.11.2024
Temperature	35°C	Relative Humidity	32%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	55.8	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	26.5	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.0	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	12.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4424

Report Date.	09.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-VAACHANUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4424	Sample Received on	04.11.2024
Sample Collected by	LABORATORY	Test Commenced on	04.11.2024
Sample Collected on	29.10.2024	Test Completed on	09.11.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	48.0	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.5	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.1	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4425	Report Date.	09.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A7-ALATHUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4425	Sample Received on	04.11.2024
Sample Collected by	LABORATORY	Test Commenced on	04.11.2024
Sample Collected on	29.10.2024	Test Completed on	09.11.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	48.6	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.7	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.3	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4426

Report Date.	09.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-VAACHANUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4426	Sample Received on	04.11.2024
Sample Collected by	LABORATORY	Test Commenced on	04.11.2024
Sample Collected on	30.10.2024	Test Completed on	09.11.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	50.3	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.0	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4427	Report Date.	09.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A7-ALATHUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4427	Sample Received on	04.11.2024
Sample Collected by	LABORATORY	Test Commenced on	04.11.2024
Sample Collected on	30.10.2024	Test Completed on	09.11.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	50.9	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.2	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.0	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4428	Report Date.	09.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VEERAMBAKAM
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4428	Sample Received on	04.11.2024
Sample Collected by	LABORATORY	Test Commenced on	04.11.2024
Sample Collected on	31.10.2024	Test Completed on	09.11.2024
Temperature	37°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	45.8	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	22.3	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.2	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4429	Report Date.	09.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-THURAIYUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4429	Sample Received on	04.11.2024
Sample Collected by	LABORATORY	Test Commenced on	04.11.2024
Sample Collected on	31.10.2024	Test Completed on	09.11.2024
Temperature	37°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	46.0	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	21.8	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	7.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4430	Report Date.	09.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VEERAMBAKAM
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4430	Sample Received on	04.11.2024
Sample Collected by	LABORATORY	Test Commenced on	04.11.2024
Sample Collected on	01.11.2024	Test Completed on	09.11.2024
Temperature	37°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	49.8	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.5	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4431	Report Date.	09.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-THURAIYUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4431	Sample Received on	04.11.2024
Sample Collected by	LABORATORY	Test Commenced on	04.11.2024
Sample Collected on	01.11.2024	Test Completed on	09.11.2024
Temperature	37°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	48.7	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	20.8	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4432

Report Date.	09.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4432	Sample Received on	04.11.2024
Sample Collected by	LABORATORY	Test Commenced on	04.11.2024
Sample Collected on	02.11.2024	Test Completed on	09.11.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	50.0	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.6	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.7	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4433	Report Date.	09.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-AYYAVADI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4433	Sample Received on	04.11.2024
Sample Collected by	LABORATORY	Test Commenced on	04.11.2024
Sample Collected on	02.11.2024	Test Completed on	09.11.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	48.8	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.9	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.3	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	5.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4434	Report Date.	09.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALATHURAI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4434	Sample Received on	04.11.2024
Sample Collected by	LABORATORY	Test Commenced on	04.11.2024
Sample Collected on	02.11.2024	Test Completed on	09.11.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	45.9	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.6	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.8	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	7.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4435	Report Date.	09.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4435	Sample Received on	04.11.2024
Sample Collected by	LABORATORY	Test Commenced on	04.11.2024
Sample Collected on	03.11.2024	Test Completed on	09.11.2024
Temperature	35°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	55.4	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	26.2	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.3	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4436	Report Date.	09.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-AYYAVADI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4436	Sample Received on	04.11.2024
Sample Collected by	LABORATORY	Test Commenced on	04.11.2024
Sample Collected on	03.11.2024	Test Completed on	09.11.2024
Temperature	35°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	43.7	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	21.6	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	6.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4437

Report Date.	09.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALATHURAI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4437	Sample Received on	04.11.2024
Sample Collected by	LABORATORY	Test Commenced on	04.11.2024
Sample Collected on	03.11.2024	Test Completed on	09.11.2024
Temperature	35°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	47.5	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	22.6	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.5	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4460

Report Date.	16.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4460	Sample Received on	11.11.2024
Sample Collected by	LABORATORY	Test Commenced on	11.11.2024
Sample Collected on	05.11.2024	Test Completed on	16.11.2024
Temperature	36°C	Relative Humidity	25%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	53.6	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	25.4	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.1	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4461	Report Date.	16.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-AYYAVADI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4461	Sample Received on	11.11.2024
Sample Collected by	LABORATORY	Test Commenced on	11.11.2024
Sample Collected on	05.11.2024	Test Completed on	16.11.2024
Temperature	36°C	Relative Humidity	25%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	52.0	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.7	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.2	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	6.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4462	Report Date.	16.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALATHURAI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4462	Sample Received on	11.11.2024
Sample Collected by	LABORATORY	Test Commenced on	11.11.2024
Sample Collected on	05.11.2024	Test Completed on	16.11.2024
Temperature	36°C	Relative Humidity	25%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	48.9	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.4	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.0	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4463	Report Date.	16.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4463	Sample Received on	11.11.2024
Sample Collected by	LABORATORY	Test Commenced on	11.11.2024
Sample Collected on	06.11.2024	Test Completed on	16.11.2024
Temperature	34°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	59.1	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	28.0	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.7	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4464	Report Date.	16.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-AYYAVADI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4464	Sample Received on	11.11.2024
Sample Collected by	LABORATORY	Test Commenced on	11.11.2024
Sample Collected on	06.11.2024	Test Completed on	16.11.2024
Temperature	34°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	46.3	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	20.5	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	5.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4465	Report Date.	16.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALATHURAI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4465	Sample Received on	11.11.2024
Sample Collected by	LABORATORY	Test Commenced on	11.11.2024
Sample Collected on	06.11.2024	Test Completed on	16.11.2024
Temperature	36°C	Relative Humidity	27%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	46.1	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	22.8	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.8	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4466	Report Date.	16.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VEERAMBAKAM
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4466	Sample Received on	11.11.2024
Sample Collected by	LABORATORY	Test Commenced on	11.11.2024
Sample Collected on	07.11.2024	Test Completed on	16.11.2024
Temperature	36°C	Relative Humidity	27%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	44.7	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	22.4	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.5	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4467	Report Date.	16.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-THURAIYUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4467	Sample Received on	11.11.2024
Sample Collected by	LABORATORY	Test Commenced on	11.11.2024
Sample Collected on	07.11.2024	Test Completed on	16.11.2024
Temperature	36°C	Relative Humidity	26%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	51.0	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.0	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	7.0	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4468	Report Date.	16.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VEERAMBAKAM
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4468	Sample Received on	11.11.2024
Sample Collected by	LABORATORY	Test Commenced on	11.11.2024
Sample Collected on	08.11.2024	Test Completed on	16.11.2024
Temperature	36°C	Relative Humidity	26%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	50.8	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	26.5	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.3	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4469

Report Date.	16.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-THURAIYUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4469	Sample Received on	11.11.2024
Sample Collected by	LABORATORY	Test Commenced on	11.11.2024
Sample Collected on	08.11.2024	Test Completed on	16.11.2024
Temperature	36°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	47.5	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	22.6	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.5	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4470	Report Date.	16.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-VAACHANUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4470	Sample Received on	11.11.2024
Sample Collected by	LABORATORY	Test Commenced on	11.11.2024
Sample Collected on	09.11.2024	Test Completed on	16.11.2024
Temperature	36°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	56.3	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	25.4	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.5	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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For Shrient Analytical and Research Labs Pvt. Ltd

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Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4471

Report Date.	16.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A7-ALATHUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4471	Sample Received on	11.11.2024
Sample Collected by	LABORATORY	Test Commenced on	11.11.2024
Sample Collected on	09.11.2024	Test Completed on	16.11.2024
Temperature	35°C	Relative Humidity	32%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	56.9	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	25.6	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.7	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4472

Report Date.	16.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-VAACHANUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4472	Sample Received on	11.11.2024
Sample Collected by	LABORATORY	Test Commenced on	11.11.2024
Sample Collected on	10.11.2024	Test Completed on	16.11.2024
Temperature	35°C	Relative Humidity	32%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	52.0	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	26.5	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4473	Report Date.	16.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A7-ALATHUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4473	Sample Received on	11.11.2024
Sample Collected by	LABORATORY	Test Commenced on	11.11.2024
Sample Collected on	10.11.2024	Test Completed on	16.11.2024
Temperature	35°C	Relative Humidity	32%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	52.6	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	26.7	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.8	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4497

Report Date.	23.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-VAACHANUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4497	Sample Received on	18.11.2024
Sample Collected by	LABORATORY	Test Commenced on	18.11.2024
Sample Collected on	12.11.2024	Test Completed on	23.11.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	53.8	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.4	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.2	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4498	Report Date.	23.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A7-ALATHUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4498	Sample Received on	18.11.2024
Sample Collected by	LABORATORY	Test Commenced on	18.11.2024
Sample Collected on	12.11.2024	Test Completed on	23.11.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	54.4	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.6	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4499

Report Date.	23.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-VAACHANUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4499	Sample Received on	18.11.2024
Sample Collected by	LABORATORY	Test Commenced on	18.11.2024
Sample Collected on	13.11.2024	Test Completed on	23.11.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	52.0	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.5	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4500	Report Date.	23.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A7-ALATHUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4500	Sample Received on	18.11.2024
Sample Collected by	LABORATORY	Test Commenced on	18.11.2024
Sample Collected on	13.11.2024	Test Completed on	23.11.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	52.6	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.7	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4501	Report Date.	23.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VEERAMBAKAM
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4501	Sample Received on	18.11.2024
Sample Collected by	LABORATORY	Test Commenced on	18.11.2024
Sample Collected on	14.11.2024	Test Completed on	23.11.2024
Temperature	37°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	52.7	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	25.9	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.8	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	7.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4502	Report Date.	23.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-THURAIYUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4502	Sample Received on	18.11.2024
Sample Collected by	LABORATORY	Test Commenced on	18.11.2024
Sample Collected on	14.11.2024	Test Completed on	23.11.2024
Temperature	37°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	48.9	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.4	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.0	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4503

Report Date.	23.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VEERAMBAKAM
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4503	Sample Received on	18.11.2024
Sample Collected by	LABORATORY	Test Commenced on	18.11.2024
Sample Collected on	15.11.2024	Test Completed on	23.11.2024
Temperature	37°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	50.2	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	28.3	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.5	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4504	Report Date.	23.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-THURAIYUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4504	Sample Received on	18.11.2024
Sample Collected by	LABORATORY	Test Commenced on	18.11.2024
Sample Collected on	15.11.2024	Test Completed on	23.11.2024
Temperature	37°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	48.1	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	22.8	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.8	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4505	Report Date.	23.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4505	Sample Received on	18.11.2024
Sample Collected by	LABORATORY	Test Commenced on	18.11.2024
Sample Collected on	16.11.2024	Test Completed on	23.11.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	69.5	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	33.0	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	8.0	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	11.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4506	Report Date.	23.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-AYYAVADI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4506	Sample Received on	18.11.2024
Sample Collected by	LABORATORY	Test Commenced on	18.11.2024
Sample Collected on	16.11.2024	Test Completed on	23.11.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	51.2	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.8	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	6.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4507	Report Date.	23.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALATHURAI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4507	Sample Received on	18.11.2024
Sample Collected by	LABORATORY	Test Commenced on	18.11.2024
Sample Collected on	16.11.2024	Test Completed on	23.11.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	48.2	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	21.8	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.1	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	7.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4508	Report Date.	23.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4508	Sample Received on	18.11.2024
Sample Collected by	LABORATORY	Test Commenced on	18.11.2024
Sample Collected on	17.11.2024	Test Completed on	23.11.2024
Temperature	35°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	66.3	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	31.4	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	7.5	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	11.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4509

Report Date.	23.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-AYYAVADI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4509	Sample Received on	18.11.2024
Sample Collected by	LABORATORY	Test Commenced on	18.11.2024
Sample Collected on	17.11.2024	Test Completed on	23.11.2024
Temperature	35°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	54.7	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.4	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	6.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4510	Report Date.	23.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALATHURAI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4510	Sample Received on	18.11.2024
Sample Collected by	LABORATORY	Test Commenced on	18.11.2024
Sample Collected on	17.11.2024	Test Completed on	23.11.2024
Temperature	35°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	51.2	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.3	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	7.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4532

Report Date.	30.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4532	Sample Received on	25.11.2024
Sample Collected by	LABORATORY	Test Commenced on	25.11.2024
Sample Collected on	19.11.2024	Test Completed on	30.11.2024
Temperature	36°C	Relative Humidity	25%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	57.1	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	27.1	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.5	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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For Shrient Analytical and Research Labs Pvt. Ltd

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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4533	Report Date.	30.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-AYYAVADI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4533	Sample Received on	25.11.2024
Sample Collected by	LABORATORY	Test Commenced on	25.11.2024
Sample Collected on	19.11.2024	Test Completed on	30.11.2024
Temperature	36°C	Relative Humidity	25%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	45.9	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	21.8	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.2	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	6.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4534

Report Date.	30.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALATHURAI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4534	Sample Received on	25.11.2024
Sample Collected by	LABORATORY	Test Commenced on	25.11.2024
Sample Collected on	19.11.2024	Test Completed on	30.11.2024
Temperature	36°C	Relative Humidity	25%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	53.7	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	25.3	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.2	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4535	Report Date.	30.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4535	Sample Received on	25.11.2024
Sample Collected by	LABORATORY	Test Commenced on	25.11.2024
Sample Collected on	20.11.2024	Test Completed on	30.11.2024
Temperature	34°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	52.7	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.9	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.0	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4536	Report Date.	30.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-AYYAVADI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4536	Sample Received on	25.11.2024
Sample Collected by	LABORATORY	Test Commenced on	25.11.2024
Sample Collected on	20.11.2024	Test Completed on	30.11.2024
Temperature	34°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	53.0	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.3	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	6.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4537	Report Date.	30.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALATHURAI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4537	Sample Received on	25.11.2024
Sample Collected by	LABORATORY	Test Commenced on	25.11.2024
Sample Collected on	21.11.2024	Test Completed on	30.11.2024
Temperature	36°C	Relative Humidity	27%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	50.9	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	26.7	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.8	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4538	Report Date.	30.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VEERAMBAKAM
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4538	Sample Received on	25.11.2024
Sample Collected by	LABORATORY	Test Commenced on	25.11.2024
Sample Collected on	21.11.2024	Test Completed on	30.11.2024
Temperature	36°C	Relative Humidity	27%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	48.9	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	29.3	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4539	Report Date.	30.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-THURAIYUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4539	Sample Received on	25.11.2024
Sample Collected by	LABORATORY	Test Commenced on	25.11.2024
Sample Collected on	21.11.2024	Test Completed on	30.11.2024
Temperature	36°C	Relative Humidity	27%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	46.2	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.4	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4540

Report Date.	30.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VEERAMBAKAM
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4540	Sample Received on	25.11.2024
Sample Collected by	LABORATORY	Test Commenced on	25.11.2024
Sample Collected on	21.11.2024	Test Completed on	30.11.2024
Temperature	36°C	Relative Humidity	27%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	52.7	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.8	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4541	Report Date.	30.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-THURAIYUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4541	Sample Received on	25.11.2024
Sample Collected by	LABORATORY	Test Commenced on	25.11.2024
Sample Collected on	22.11.2024	Test Completed on	30.11.2024
Temperature	36°C	Relative Humidity	26%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	47.8	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.8	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4542	Report Date.	30.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-VAACHANUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4542	Sample Received on	25.11.2024
Sample Collected by	LABORATORY	Test Commenced on	25.11.2024
Sample Collected on	23.11.2024	Test Completed on	30.11.2024
Temperature	36°C	Relative Humidity	26%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	48.4	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.8	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.1	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4543

Report Date.	30.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A7-ALATHUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4543	Sample Received on	25.11.2024
Sample Collected by	LABORATORY	Test Commenced on	25.11.2024
Sample Collected on	23.11.2024	Test Completed on	30.11.2024
Temperature	36°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	49.0	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.0	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.3	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4544	Report Date.	30.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-VAACHANUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4544	Sample Received on	25.11.2024
Sample Collected by	LABORATORY	Test Commenced on	25.11.2024
Sample Collected on	24.11.2024	Test Completed on	30.11.2024
Temperature	36°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	56.0	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	25.9	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.8	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4545	Report Date.	30.11.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A7-ALATHUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4545	Sample Received on	25.11.2024
Sample Collected by	LABORATORY	Test Commenced on	25.11.2024
Sample Collected on	24.11.2024	Test Completed on	30.11.2024
Temperature	35°C	Relative Humidity	32%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	56.6	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	26.1	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.0	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	11.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4548

Report Date.	07.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-VAACHANUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4548	Sample Received on	02.12.2024
Sample Collected by	LABORATORY	Test Commenced on	02.12.2024
Sample Collected on	26.11.2024	Test Completed on	07.12.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	51.2	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.5	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.8	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4549	Report Date.	07.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A7-ALATHUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4549	Sample Received on	02.12.2024
Sample Collected by	LABORATORY	Test Commenced on	02.12.2024
Sample Collected on	26.11.2024	Test Completed on	07.12.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	51.8	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.7	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	7.0	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4550

Report Date.	07.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-VAACHANUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4550	Sample Received on	02.12.2024
Sample Collected by	LABORATORY	Test Commenced on	02.12.2024
Sample Collected on	27.11.2024	Test Completed on	07.12.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	48.9	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.8	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.7	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4551

Report Date.	07.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A7-ALATHUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4551	Sample Received on	02.12.2024
Sample Collected by	LABORATORY	Test Commenced on	02.12.2024
Sample Collected on	27.11.2024	Test Completed on	07.12.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	49.5	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.0	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.9	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4552	Report Date.	07.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VEERAMBAKAM
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4552	Sample Received on	02.12.2024
Sample Collected by	LABORATORY	Test Commenced on	02.12.2024
Sample Collected on	28.11.2024	Test Completed on	07.12.2024
Temperature	37°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	51.2	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	25.3	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4553	Report Date.	07.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-THURAIYUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4553	Sample Received on	02.12.2024
Sample Collected by	LABORATORY	Test Commenced on	02.12.2024
Sample Collected on	28.11.2024	Test Completed on	07.12.2024
Temperature	37°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	58.0	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	26.5	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4554	Report Date.	07.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VEERAMBAKAM
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4554	Sample Received on	02.12.2024
Sample Collected by	LABORATORY	Test Commenced on	02.12.2024
Sample Collected on	29.11.2024	Test Completed on	07.12.2024
Temperature	37°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	48.2	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.3	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.0	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4555	Report Date.	07.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-THURAIYUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4555	Sample Received on	02.12.2024
Sample Collected by	LABORATORY	Test Commenced on	02.12.2024
Sample Collected on	29.11.2024	Test Completed on	07.12.2024
Temperature	37°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	51.2	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.8	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.0	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	11.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4556	Report Date.	07.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4556	Sample Received on	02.12.2024
Sample Collected by	LABORATORY	Test Commenced on	02.12.2024
Sample Collected on	30.11.2024	Test Completed on	07.12.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	65.0	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	30.3	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	8.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	11.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4557	Report Date.	07.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-AYYAVADI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4557	Sample Received on	02.12.2024
Sample Collected by	LABORATORY	Test Commenced on	02.12.2024
Sample Collected on	30.11.2024	Test Completed on	07.12.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	46.9	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	21.0	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.1	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	7.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4558

Report Date.	07.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALATHURAI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4558	Sample Received on	02.12.2024
Sample Collected by	LABORATORY	Test Commenced on	02.12.2024
Sample Collected on	30.11.2024	Test Completed on	07.12.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	51.8	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	25.3	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	7.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4559

Report Date.	07.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4559	Sample Received on	02.12.2024
Sample Collected by	LABORATORY	Test Commenced on	02.12.2024
Sample Collected on	01.12.2024	Test Completed on	07.12.2024
Temperature	35°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	67.1	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	31.8	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	7.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	11.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4560	Report Date.	07.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-AYYAVADI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4560	Sample Received on	02.12.2024
Sample Collected by	LABORATORY	Test Commenced on	02.12.2024
Sample Collected on	01.12.2024	Test Completed on	07.12.2024
Temperature	35°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	53.8	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	22.3	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.8	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	6.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4561

Report Date.	07.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALATHURAI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4561	Sample Received on	02.12.2024
Sample Collected by	LABORATORY	Test Commenced on	02.12.2024
Sample Collected on	01.12.2024	Test Completed on	07.12.2024
Temperature	35°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	49.0	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.3	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	7.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4604	Report Date.	14.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4604	Sample Received on	09.12.2024
Sample Collected by	LABORATORY	Test Commenced on	09.12.2024
Sample Collected on	03.12.2024	Test Completed on	14.12.2024
Temperature	36°C	Relative Humidity	25%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	58.0	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	27.5	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4605	Report Date.	14.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-AYYAVADI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4605	Sample Received on	09.12.2024
Sample Collected by	LABORATORY	Test Commenced on	09.12.2024
Sample Collected on	03.12.2024	Test Completed on	14.12.2024
Temperature	36°C	Relative Humidity	25%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	52.2	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	25.6	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	6.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4606

Report Date.	14.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALATHURAI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4606	Sample Received on	09.12.2024
Sample Collected by	LABORATORY	Test Commenced on	09.12.2024
Sample Collected on	03.12.2024	Test Completed on	14.12.2024
Temperature	36°C	Relative Humidity	25%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	51.2	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	25.4	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4607

Report Date.	14.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4607	Sample Received on	09.12.2024
Sample Collected by	LABORATORY	Test Commenced on	09.12.2024
Sample Collected on	04.12.2024	Test Completed on	14.12.2024
Temperature	34°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	54.4	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	25.7	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.2	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4608	Report Date.	14.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-AYYAVADI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4608	Sample Received on	09.12.2024
Sample Collected by	LABORATORY	Test Commenced on	09.12.2024
Sample Collected on	04.12.2024	Test Completed on	14.12.2024
Temperature	34°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	54.8	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.6	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.8	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	7.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4609

Report Date.	14.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALATHURAI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4609	Sample Received on	09.12.2024
Sample Collected by	LABORATORY	Test Commenced on	09.12.2024
Sample Collected on	04.12.2024	Test Completed on	14.12.2024
Temperature	34°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	53.7	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.4	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.0	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4610

Report Date.	14.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VEERAMBAKAM
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4610	Sample Received on	09.12.2024
Sample Collected by	LABORATORY	Test Commenced on	09.12.2024
Sample Collected on	05.12.2024	Test Completed on	14.12.2024
Temperature	36°C	Relative Humidity	27%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	44.8	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	21.3	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.8	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4611

Report Date.	14.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-THURAIYUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4611	Sample Received on	09.12.2024
Sample Collected by	LABORATORY	Test Commenced on	09.12.2024
Sample Collected on	05.12.2024	Test Completed on	14.12.2024
Temperature	36°C	Relative Humidity	27%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	53.8	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	25.5	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4612

Report Date.	14.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VEERAMBAKAM
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4612	Sample Received on	09.12.2024
Sample Collected by	LABORATORY	Test Commenced on	09.12.2024
Sample Collected on	06.12.2024	Test Completed on	14.12.2024
Temperature	36°C	Relative Humidity	26%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	49.2	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	22.5	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.0	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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For Shrient Analytical and Research Labs Pvt. Ltd

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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4613	Report Date.	14.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-THURAIYUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4613	Sample Received on	09.12.2024
Sample Collected by	LABORATORY	Test Commenced on	09.12.2024
Sample Collected on	06.12.2024	Test Completed on	14.12.2024
Temperature	36°C	Relative Humidity	26%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	53.0	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.5	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.5	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	12.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4614

Report Date.	14.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-VAACHANUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4614	Sample Received on	09.12.2024
Sample Collected by	LABORATORY	Test Commenced on	09.12.2024
Sample Collected on	07.12.2024	Test Completed on	14.12.2024
Temperature	36°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	50.4	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	22.4	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.1	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4615

Report Date.	14.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A7-ALATHUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4615	Sample Received on	09.12.2024
Sample Collected by	LABORATORY	Test Commenced on	09.12.2024
Sample Collected on	07.12.2024	Test Completed on	14.12.2024
Temperature	36°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	51.0	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	22.6	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.3	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	11.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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Authorized Signatory
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TEST REPORT

Report No.	SARL/24/4616	Report Date.	14.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-VAACHANUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4616	Sample Received on	09.12.2024
Sample Collected by	LABORATORY	Test Commenced on	09.12.2024
Sample Collected on	08.12.2024	Test Completed on	14.12.2024
Temperature	35°C	Relative Humidity	32%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	48.5	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.3	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4617

Report Date.	14.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A7-ALATHUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4617	Sample Received on	09.12.2024
Sample Collected by	LABORATORY	Test Commenced on	09.12.2024
Sample Collected on	08.12.2024	Test Completed on	14.12.2024
Temperature	35°C	Relative Humidity	32%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	49.1	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.5	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.8	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4640

Report Date.	21.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-VAACHANUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4640	Sample Received on	16.12.2024
Sample Collected by	LABORATORY	Test Commenced on	16.12.2024
Sample Collected on	10.12.2024	Test Completed on	21.12.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	52.7	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	27.4	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4641	Report Date.	21.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A7-ALATHUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4641	Sample Received on	16.12.2024
Sample Collected by	LABORATORY	Test Commenced on	16.12.2024
Sample Collected on	10.12.2024	Test Completed on	21.12.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	53.3	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	27.6	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4642

Report Date.	21.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-VAACHANUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4642	Sample Received on	16.12.2024
Sample Collected by	LABORATORY	Test Commenced on	16.12.2024
Sample Collected on	11.12.2024	Test Completed on	21.12.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	50.9	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.8	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.9	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4643	Report Date.	21.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A7-ALATHUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4643	Sample Received on	16.12.2024
Sample Collected by	LABORATORY	Test Commenced on	16.12.2024
Sample Collected on	11.12.2024	Test Completed on	21.12.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	51.5	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	25.0	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.1	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	11.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4644	Report Date.	21.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VEERAMBAKAM
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4644	Sample Received on	16.12.2024
Sample Collected by	LABORATORY	Test Commenced on	16.12.2024
Sample Collected on	12.12.2024	Test Completed on	21.12.2024
Temperature	37°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	43.8	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	20.7	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4645

Report Date.	21.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-THURAIYUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4645	Sample Received on	16.12.2024
Sample Collected by	LABORATORY	Test Commenced on	16.12.2024
Sample Collected on	12.12.2024	Test Completed on	21.12.2024
Temperature	37°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	57.8	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	27.4	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.8	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	11.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4646	Report Date.	21.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VEERAMBAKAM
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4646	Sample Received on	16.12.2024
Sample Collected by	LABORATORY	Test Commenced on	16.12.2024
Sample Collected on	13.12.2024	Test Completed on	21.12.2024
Temperature	37°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	51.1	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	27.0	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4647	Report Date.	21.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-THURAIYUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4647	Sample Received on	16.12.2024
Sample Collected by	LABORATORY	Test Commenced on	16.12.2024
Sample Collected on	13.12.2024	Test Completed on	21.12.2024
Temperature	37°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	54.9	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	25.5	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	8.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	11.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4648	Report Date.	21.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4648	Sample Received on	16.12.2024
Sample Collected by	LABORATORY	Test Commenced on	16.12.2024
Sample Collected on	14.12.2024	Test Completed on	21.12.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	64.3	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	30.2	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	7.3	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4649	Report Date.	21.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-AYYAVADI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4649	Sample Received on	16.12.2024
Sample Collected by	LABORATORY	Test Commenced on	16.12.2024
Sample Collected on	14.12.2024	Test Completed on	21.12.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	51.2	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	25.3	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.2	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	6.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4650

Report Date.	21.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALATHURAI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4650	Sample Received on	16.12.2024
Sample Collected by	LABORATORY	Test Commenced on	16.12.2024
Sample Collected on	14.12.2024	Test Completed on	21.12.2024
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	57.0	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	29.5	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	7.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4651

Report Date.	21.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4651	Sample Received on	16.12.2024
Sample Collected by	LABORATORY	Test Commenced on	16.12.2024
Sample Collected on	15.12.2024	Test Completed on	21.12.2024
Temperature	35°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	59.9	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	28.4	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.9	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4652	Report Date.	21.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-AYYAVADI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4652	Sample Received on	16.12.2024
Sample Collected by	LABORATORY	Test Commenced on	16.12.2024
Sample Collected on	15.12.2024	Test Completed on	21.12.2024
Temperature	35°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	53.8	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.4	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.1	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4653	Report Date.	21.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALATHURAI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4653	Sample Received on	16.12.2024
Sample Collected by	LABORATORY	Test Commenced on	16.12.2024
Sample Collected on	15.12.2024	Test Completed on	21.12.2024
Temperature	35°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	55.7	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	25.3	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.8	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	7.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4700

Report Date.	29.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4700	Sample Received on	23.12.2024
Sample Collected by	LABORATORY	Test Commenced on	23.12.2024
Sample Collected on	17.12.2024	Test Completed on	29.12.2024
Temperature	36°C	Relative Humidity	25%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	63.5	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	29.1	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	7.2	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4701	Report Date.	29.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-AYYAVADI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4701	Sample Received on	23.12.2024
Sample Collected by	LABORATORY	Test Commenced on	23.12.2024
Sample Collected on	17.12.2024	Test Completed on	29.12.2024
Temperature	36°C	Relative Humidity	25%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	52.2	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	29.5	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	7.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4702

Report Date.	29.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALATHURAI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4702	Sample Received on	23.12.2024
Sample Collected by	LABORATORY	Test Commenced on	23.12.2024
Sample Collected on	17.12.2024	Test Completed on	29.12.2024
Temperature	36°C	Relative Humidity	25%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	53.0	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.5	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.0	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4703	Report Date.	29.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4703	Sample Received on	23.12.2024
Sample Collected by	LABORATORY	Test Commenced on	23.12.2024
Sample Collected on	18.12.2024	Test Completed on	29.12.2024
Temperature	34°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	66.1	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	29.9	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	8.3	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	11.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4704	Report Date.	29.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-AYYAVADI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4704	Sample Received on	23.12.2024
Sample Collected by	LABORATORY	Test Commenced on	23.12.2024
Sample Collected on	18.12.2024	Test Completed on	29.12.2024
Temperature	34°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	46.9	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	19.5	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	3.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	6.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4705

Report Date.	29.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALATHURAI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4705	Sample Received on	23.12.2024
Sample Collected by	LABORATORY	Test Commenced on	23.12.2024
Sample Collected on	18.12.2024	Test Completed on	29.12.2024
Temperature	34°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	51.3	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	22.6	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	3.9	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4706	Report Date.	29.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VEERAMBAKAM
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4706	Sample Received on	23.12.2024
Sample Collected by	LABORATORY	Test Commenced on	23.12.2024
Sample Collected on	19.12.2024	Test Completed on	29.12.2024
Temperature	36°C	Relative Humidity	27%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	43.7	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	25.9	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.3	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.0	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4707	Report Date.	29.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-THURAIYUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4707	Sample Received on	23.12.2024
Sample Collected by	LABORATORY	Test Commenced on	23.12.2024
Sample Collected on	19.12.2024	Test Completed on	29.12.2024
Temperature	36°C	Relative Humidity	27%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	57.7	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	29.6	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	7.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4708	Report Date.	29.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VEERAMBAKAM
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4708	Sample Received on	23.12.2024
Sample Collected by	LABORATORY	Test Commenced on	23.12.2024
Sample Collected on	20.12.2024	Test Completed on	29.12.2024
Temperature	36°C	Relative Humidity	27%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	48.0	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.3	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4709	Report Date.	29.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-THURAIYUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4709	Sample Received on	23.12.2024
Sample Collected by	LABORATORY	Test Commenced on	23.12.2024
Sample Collected on	20.12.2024	Test Completed on	29.12.2024
Temperature	36°C	Relative Humidity	26%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	53.2	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	26.3	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.2	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4710	Report Date.	29.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-VAACHANUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4710	Sample Received on	23.12.2024
Sample Collected by	LABORATORY	Test Commenced on	23.12.2024
Sample Collected on	21.12.2024	Test Completed on	29.12.2024
Temperature	36°C	Relative Humidity	26%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	55.8	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	26.5	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.8	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4711

Report Date.	29.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A7-ALATHUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4711	Sample Received on	23.12.2024
Sample Collected by	LABORATORY	Test Commenced on	23.12.2024
Sample Collected on	21.12.2024	Test Completed on	29.12.2024
Temperature	36°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	56.4	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	26.7	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.0	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4712

Report Date.	29.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-VAACHANUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4712	Sample Received on	23.12.2024
Sample Collected by	LABORATORY	Test Commenced on	23.12.2024
Sample Collected on	22.12.2024	Test Completed on	29.12.2024
Temperature	36°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	61.9	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	34.5	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4713	Report Date.	29.12.2024

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A7-ALATHUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4713	Sample Received on	23.12.2024
Sample Collected by	LABORATORY	Test Commenced on	23.12.2024
Sample Collected on	22.12.2024	Test Completed on	29.12.2024
Temperature	35°C	Relative Humidity	32%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	62.5	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	34.7	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.8	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4838

Report Date.	11.01.2025

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-VAACHANUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4838	Sample Received on	30.12.2024
Sample Collected by	LABORATORY	Test Commenced on	30.12.2024
Sample Collected on	24.12.2024	Test Completed on	11.01.2025
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	57.8	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	30.4	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4839	Report Date.	11.01.2025

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A7-ALATHUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4839	Sample Received on	30.12.2024
Sample Collected by	LABORATORY	Test Commenced on	30.12.2024
Sample Collected on	24.12.2024	Test Completed on	11.01.2025
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	58.4	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	30.6	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	10.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4840

Report Date.	11.01.2025

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-VAACHANUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4840	Sample Received on	30.12.2024
Sample Collected by	LABORATORY	Test Commenced on	30.12.2024
Sample Collected on	25.12.2024	Test Completed on	11.01.2025
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	53.7	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	28.3	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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For Shrient Analytical and Research Labs Pvt. Ltd

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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4841	Report Date.	11.01.2025

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A7-ALATHUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4841	Sample Received on	30.12.2024
Sample Collected by	LABORATORY	Test Commenced on	30.12.2024
Sample Collected on	25.12.2024	Test Completed on	11.01.2025
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	54.3	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	28.5	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4842	Report Date.	11.01.2025

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VEERAMBAKAM
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4842	Sample Received on	30.12.2024
Sample Collected by	LABORATORY	Test Commenced on	30.12.2024
Sample Collected on	26.12.2024	Test Completed on	11.01.2025
Temperature	37°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	46.3	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	20.6	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4843	Report Date.	11.01.2025

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-THURAIYUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4843	Sample Received on	30.12.2024
Sample Collected by	LABORATORY	Test Commenced on	30.12.2024
Sample Collected on	26.12.2024	Test Completed on	11.01.2025
Temperature	37°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	56.3	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	28.5	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.0	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4844	Report Date.	11.01.2025

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VEERAMBAKAM
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4844	Sample Received on	30.12.2024
Sample Collected by	LABORATORY	Test Commenced on	30.12.2024
Sample Collected on	27.12.2024	Test Completed on	11.01.2025
Temperature	37°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	46.7	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.4	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4845	Report Date.	11.01.2025

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-THURAIYUR
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4845	Sample Received on	30.12.2024
Sample Collected by	LABORATORY	Test Commenced on	30.12.2024
Sample Collected on	27.12.2024	Test Completed on	11.01.2025
Temperature	37°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	51.0	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.4	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	5.4	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	9.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4846	Report Date.	11.01.2025

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4846	Sample Received on	30.12.2024
Sample Collected by	LABORATORY	Test Commenced on	30.12.2024
Sample Collected on	28.12.2024	Test Completed on	11.01.2025
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	70.0	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	32.4	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	8.9	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	12.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4847	Report Date.	11.01.2025

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-AYYAVADI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4847	Sample Received on	30.12.2024
Sample Collected by	LABORATORY	Test Commenced on	30.12.2024
Sample Collected on	28.12.2024	Test Completed on	11.01.2025
Temperature	36°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	53.0	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.4	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.0	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	6.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4848

Report Date.	11.01.2025

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALATHURAI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4848	Sample Received on	30.12.2024
Sample Collected by	LABORATORY	Test Commenced on	30.12.2024
Sample Collected on	28.12.2024	Test Completed on	11.01.2025
Temperature	35°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	47.8	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	24.3	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	6.0	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	7.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4849	Report Date.	11.01.2025

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4849	Sample Received on	30.12.2024
Sample Collected by	LABORATORY	Test Commenced on	30.12.2024
Sample Collected on	29.12.2024	Test Completed on	11.01.2025
Temperature	35°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	68.0	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	31.0	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	7.7	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	11.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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For Shrient Analytical and Research Labs Pvt. Ltd

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Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45

Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4850

Report Date.	11.01.2025

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-AYYAVADI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4850	Sample Received on	30.12.2024
Sample Collected by	LABORATORY	Test Commenced on	30.12.2024
Sample Collected on	29.12.2024	Test Completed on	11.01.2025
Temperature	35°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	55.1	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	23.3	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.5	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	6.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4851

Report Date.	11.01.2025

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALATHURAI
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-4851	Sample Received on	30.12.2024
Sample Collected by	LABORATORY	Test Commenced on	30.12.2024
Sample Collected on	29.12.2024	Test Completed on	11.01.2025
Temperature	35°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM_{10})	IS:5182: Part 23:2006	$\mu g/m^3$	53.7	100
2	Particulate Matter less than 2.5micron size ($PM_{2.5}$)	IS 5182 (Part 24):2019	$\mu g/m^3$	26.4	60
3	Sulphur dioxide (SO_2)	IS:5182: Part 02:2001	$\mu g/m^3$	4.6	80
4	Nitrogen Dioxide (NO_2)	IS:5182: Part 06:2006	$\mu g/m^3$	8.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m^3	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/4865

Report Date.	11.01.2025

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	NOISE LEVEL DATA

Customer Reference	As per work order	Sampling Method	SARL/IOP/023
Sample Reference No	SARL/NO/CHE-4865	Date of Monitoring	28.12.2024/ 29.12.2024
Sample Collected by	LABORATORY		

Time in hrs	N1	N2	N3	N4	N5	N6	N7
06.00	42.9	39.5	41.2	41.7	39.4	41.2	37.8
07.00	45.0	46.9	43.8	49.6	41.7	43.3	45.2
08.00	47.2	50.9	46.7	48.4	47.9	45.5	49.2
09.00	48.7	52.3	48.6	50.1	51.5	47.0	50.6
10.00	50.0	49.6	49.8	42.3	53.3	48.3	47.9
11.00	46.3	52.6	48.7	45.6	50.5	44.6	50.9
12.00	48.2	46.8	49.6	46.7	49.6	46.5	45.1
13.00	46.7	47.6	50.2	44.9	49.0	45.0	45.8
14.00	46.9	50.6	48.3	47.8	52.4	45.2	48.9
15.00	45.3	49.7	45.6	44.0	52.7	43.6	48.1
16.00	46.7	49.5	48.7	46.2	52.0	45.0	47.8
17.00	44.3	44.6	44.9	47.7	51.0	42.6	42.9
18.00	43.0	42.5	45.3	46.6	48.4	41.3	40.8
19.00	40.8	41.8	46.7	44.2	46.9	39.1	40.1
20.00	39.7	40.6	42.4	41.7	44.7	38.0	38.9
21.00	41.3	42.5	43.5	39.7	43.7	39.6	40.8
22.00	40.5	38.7	41.6	37.8	40.2	38.8	37.0
23.00	40.9	37.3	40.7	38.3	39.6	39.2	35.6
24.00	37.5	39.5	39.2	39.0	38.7	35.8	37.8
01.00	38.0	37.9	39.6	37.9	37.9	36.3	36.2
02.00	36.7	38.7	39.0	39.3	39.7	35.0	37.0
03.00	37.3	40.0	39.7	38.4	40.3	35.6	38.3
04.00	38.0	37.9	40.5	38.6	40.8	36.3	36.2
05.00	39.8	41.6	39.5	39.4	40.3	38.1	39.9

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TEST REPORT

Report No.	SARL/24/4865

Report Date.	11.01.2025

	N1	N2	N3	N4	N5	N6	N7
DAY EQUIVALENT	**46.1**	**48.4**	**47.3**	**46.3**	**49.8**	**44.4**	**46.7**
NIGHT EQUIVALENT	**38.8**	**39.2**	**40.1**	**38.6**	**39.8**	**37.1**	**37.5**
DAY & NIGHT EQUIVALENT	**44.7**	**46.9**	**45.9**	**44.9**	**48.3**	**43.0**	**45.2**

Remarks:

LOCATIONS:

N1- MINE LEASE AREA
N2-AYYAVADI
N3-ALATHURAI
N4-VEERAMBAKAM
N5-THURAIYUR
N6-VAACHANUR
N7-ALATHUR

For Shrient Analytical and Research Labs Pvt. Ltd

Verified

Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4859

Report Date.	11.01.2025

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	SOIL
Sample Mark	S1-PROPOSED MINE LEASE AREA

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-4859	Sample Received on	30.12.2024
Sample Collected by	LABORATORY	Test Commenced on	30.12.2024
Sample Collected on	29.12.2024	Test Completed on	11.01.2025
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	7.58
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	68.57
3	Dry matter content	IS 15106: 2002	%	99.54
4	Water Content	IS 15106: 2002	%	0.46
5	Organic Matter	IS 2720: Part 22: 1972	%	0.48
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	178
7	Soil Texture	Methods Manual - Soil testing in India - P. No-67: 2011	%	LOAM
8	Grain Size Distribution i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	50.12
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	28.97
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	20.91
9	Phosphorus as P	IS 10158: 1982	mg/kg	1.34
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	664
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	345
12	Total soluble sulphates	IS 2720: Part 27: 1977	%	BDL (D.L.0.02)
13	Porosity	SARL/SOP/SO/001 (Issue No:01, Issue Date – 01.03.2023): 2023	%	22.5
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	4.7

BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd

Verified

Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4860

Report Date.	11.01.2025

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	SOIL
Sample Mark	S2-AYYAVADI

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-4860	Sample Received on	30.12.2024
Sample Collected by	LABORATORY	Test Commenced on	30.12.2024
Sample Collected on	29.12.2024	Test Completed on	11.01.2025
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	6.9
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	75.42
3	Dry matter content	IS 15106: 2002	%	92.15
4	Water Content	IS 15106: 2002	%	7.85
5	Organic Matter	IS 2720: Part 22: 1972	%	0.56
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	201
7	Soil Texture	Methods Manual - Soil testing in India - P. No-67: 2011	%	LOAM
8	Grain Size Distribution i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	30.65
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	42.15
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	27.2
9	Phosphorus as P	IS 10158: 1982	mg/kg	1.25
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	542
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	310
12	Total soluble sulphates	IS 2720: Part 27: 1977	%	BDL (D.L.0.02)
13	Porosity	SARL/SOP/SO/001 (Issue No:01, Issue Date – 01.03.2023): 2023	%	23.7
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	3.8

BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd

Verified

Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4861

Report Date.	11.01.2025

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	SOIL
Sample Mark	S3-ALATHURAI

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-4861	Sample Received on	30.12.2024
Sample Collected by	LABORATORY	Test Commenced on	30.12.2024
Sample Collected on	29.12.2024	Test Completed on	11.01.2025
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	6.89
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	45.67
3	Dry matter content	IS 15106: 2002	%	97.64
4	Water Content	IS 15106: 2002	%	2.36
5	Organic Matter	IS 2720: Part 22: 1972	%	0.72
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	135
7	Soil Texture	Methods Manual - Soil testing in India - P. No-67: 2011	%	LOAM
8	Grain Size Distribution i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	48.57
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	31.64
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	19.79
9	Phosphorus as P	IS 10158: 1982	mg/kg	1.64
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	420
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	628
12	Total soluble sulphates	IS 2720: Part 27: 1977	%	BDL (D.L.0.02)
13	Porosity	SARL/SOP/SO/001 (Issue No:01, Issue Date – 01.03.2023): 2023	%	20.6
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	4.8

BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd

Verified

Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4862

Report Date.	11.01.2025

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	SOIL
Sample Mark	S4-VEERAMBAKAM

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-4862	Sample Received on	30.12.2024
Sample Collected by	LABORATORY	Test Commenced on	30.12.2024
Sample Collected on	29.12.2024	Test Completed on	11.01.2025
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	6.97
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	56.58
3	Dry matter content	IS 15106: 2002	%	98.96
4	Water Content	IS 15106: 2002	%	1.04
5	Organic Matter	IS 2720: Part 22: 1972	%	0.79
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	172
7	Soil Texture	Methods Manual - Soil testing in India - P. No-67: 2011	%	LOAM
8	Grain Size Distribution i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	32.92
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	45.47
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	21.61
9	Phosphorus as P	IS 10158: 1982	mg/kg	1.28
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	370
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	586
12	Total soluble sulphates	IS 2720: Part 27: 1977	%	BDL (D.L.0.02)
13	Porosity	SARL/SOP/SO/001 (Issue No:01, Issue Date – 01.03.2023): 2023	%	21.9
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	4.8

BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd

Verified

Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4863

Report Date.	11.01.2025

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	SOIL
Sample Mark	S5-THURAIYUR

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-4863	Sample Received on	30.12.2024
Sample Collected by	LABORATORY	Test Commenced on	30.12.2024
Sample Collected on	29.12.2024	Test Completed on	11.01.2025
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	7.02
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	39.87
3	Dry matter content	IS 15106: 2002	%	96.54
4	Water Content	IS 15106: 2002	%	3.46
5	Organic Matter	IS 2720: Part 22: 1972	%	1.21
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	226
7	Soil Texture	Methods Manual - Soil testing in India - P. No-67: 2011	%	LOAM
8	Grain Size Distribution i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	39.87
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	36.54
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	23.59
9	Phosphorus as P	IS 10158: 1982	mg/kg	2.12
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	410
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	654
12	Total soluble sulphates	IS 2720: Part 27: 1977	%	BDL (D.L.0.02)
13	Porosity	SARL/SOP/SO/001 (Issue No:01, Issue Date – 01.03.2023): 2023	%	21.1
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	3.6

BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd

Verified

Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4864	Report Date.	11.01.2025

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	SOIL
Sample Mark	S6-VAACHANUR

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-4864	Sample Received on	30.12.2024
Sample Collected by	LABORATORY	Test Commenced on	30.12.2024
Sample Collected on	29.12.2024	Test Completed on	11.01.2025
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	7.46
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	124.5
3	Dry matter content	IS 15106: 2002	%	94.58
4	Water Content	IS 15106: 2002	%	5.42
5	Organic Matter	IS 2720: Part 22: 1972	%	0.96
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	156
7	Soil Texture	Methods Manual - Soil testing in India - P. No-67: 2011	%	LOAM
8	Grain Size Distribution i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	65.24
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	23.72
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	11.04
9	Phosphorus as P	IS 10158: 1982	mg/kg	1.87
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	462
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	290
12	Total soluble sulphates	IS 2720: Part 27: 1977	%	BDL (D.L.0.02)
13	Porosity	SARL/SOP/SO/001 (Issue No:01, Issue Date – 01.03.2023): 2023	%	25.6
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	5.1

BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd

Verified

Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4852	Report Date.	11.01.2025

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	WATER
Sample Mark	W1-PROPOSED MINE LEASE AREA

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-4852	Sample Received on	30.12.2024
Sample Collected by	LABORATORY	Test Commenced on	30.12.2024
Sample Collected on	29.12.2024	Test Completed on	11.01.2025
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result	*Limits Permissible
A.	**Physical parameters**				
1	Odour	IS 3025 (Part 5): 2018	-	Agreeable	Agreeable
2	Turbidity	APHA 24th Edition 2130 B: 2023	NTU	<1.0	5.0
3	pH at 25 ˚C	APHA 24th Edition 4500 – H+ B: 2023	-	7.32	6.50-8.50
4	Electrical Conductivity	APHA 24th Edition 2510 B: 2023	(µS/cm)	1020	-
B.	**Chemical parameters**				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	612	2000
6	Total hardness (as CaCO3)	APHA 24th Edition 2340 C: 2023	mg/L	432	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	82.4	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	54.2	100
9	Calcium Hardness (as CaCO3)	APHA 24th Edition 3500 Ca B: 2023	mg/L	206	-
10	Magnesium Hardness (as CaCO3)	APHA 24th Edition 3500 Mg B: 2023	mg/L	226	-
11	Total alkalinity (as CaCO3)	APHA 24th Edition 2320 B: 2023	mg/L	318	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	81.3	1000

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TEST REPORT

Report No.	SARL/24/4852

Report Date.	11.01.2025

Sl. No.	Parameters	Protocol	Unit	Result	*Limits Permissible
13	Free Residual chlorine	APHA 24th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L - 0.2)	1.0
14	Sulphate as (SO42-)	APHA 24th Edition 4500 SO42- E: 2023	mg/L	122	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.08	0.3
16	Nitrate (as NO3)	IS 3025 (Part 34): 1988	mg/L	2.26	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.32	1.5
18	Manganese (as Mn)	APHA 24th Edition 3500 Mn B: 2023	mg/L	BDL (D.L - 0.05)	0.3

Remarks: *Drinking Water Specifications as per IS – 10500:2012. BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd

Verified

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45

Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4853

Report Date.	11.01.2025

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	WATER
Sample Mark	W2-AYYAVADI

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-4853	Sample Received on	30.12.2024
Sample Collected by	LABORATORY	Test Commenced on	30.12.2024
Sample Collected on	29.12.2024	Test Completed on	11.01.2025
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result	*Limits Permissible
A.	**Physical parameters**				
1	Odour	IS 3025 (Part 5): 2018	-	Agreeable	Agreeable
2	Turbidity	APHA 24th Edition 2130 B: 2023	NTU	<1.0	5.0
3	pH at 25 ˚C	APHA 24th Edition 4500 – H+ B: 2023	-	7.84	6.50-8.50
4	Electrical Conductivity	APHA 24th Edition 2510 B: 2023	(µS/cm)	395.6	-
B.	**Chemical parameters**				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	238	2000
6	Total hardness (as CaCO3)	APHA 24th Edition 2340 C: 2023	mg/L	170	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	42	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	15.6	100
9	Calcium Hardness (as CaCO3)	APHA 24th Edition 3500 Ca B: 2023	mg/L	105	-
10	Magnesium Hardness (as CaCO3)	APHA 24th Edition 3500 Mg B: 2023	mg/L	65.0	-
11	Total alkalinity (as CaCO3)	APHA 24th Edition 2320 B: 2023	mg/L	145	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	34.3	1000

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TEST REPORT

Report No.	SARL/24/4853

Report Date.	11.01.2025

Sl. No.	Parameters	Protocol	Unit	Result	*Limits Permissible
13	Free Residual chlorine	APHA 24th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L - 0.2)	1.0
14	Sulphate as (SO42-)	APHA 24th Edition 4500 SO42- E: 2023	mg/L	13.2	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.06	0.3
16	Nitrate (as NO3)	IS 3025 (Part 34): 1988	mg/L	BDL(D.L-1.0)	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.23	1.5
18	Manganese (as Mn)	APHA 24th Edition 3500 Mn B: 2023	mg/L	BDL (D.L - 0.05)	0.3

Remarks: *Drinking Water Specifications as per IS – 10500:2012. BDL – Below Detectable limit (DL - Detectable limit).

x

For Shrient Analytical and Research Labs Pvt. Ltd

Verified

Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4854

Report Date.	11.01.2025

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	WATER
Sample Mark	W3-ALATHURAI

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-4854	Sample Received on	30.12.2024
Sample Collected by	LABORATORY	Test Commenced on	30.12.2024
Sample Collected on	29.12.2024	Test Completed on	11.01.2025
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result	*Limits Permissible
A.	**Physical parameters**				
1	Odour	IS 3025 (Part 5): 2018	-	Agreeable	Agreeable
2	Turbidity	APHA 24th Edition 2130 B: 2023	NTU	<1.0	5.0
3	pH at 25 ˚C	APHA 24th Edition 4500 – H+ B: 2023	-	6.92	6.50-8.50
4	Electrical Conductivity	APHA 24th Edition 2510 B: 2023	(µS/cm)	712.4	-
B.	**Chemical parameters**				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	430	2000
6	Total hardness (as CaCO3)	APHA 24th Edition 2340 C: 2023	mg/L	236	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	56	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	23.0	100
9	Calcium Hardness (as CaCO3)	APHA 24th Edition 3500 Ca B: 2023	mg/L	140	-
10	Magnesium Hardness (as CaCO3)	APHA 24th Edition 3500 Mg B: 2023	mg/L	96.0	-
11	Total alkalinity (as CaCO3)	APHA 24th Edition 2320 B: 2023	mg/L	158	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	132	1000

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TEST REPORT

Report No.	SARL/24/4854

Report Date.	11.01.2025

Sl. No.	Parameters	Protocol	Unit	Result	*Limits Permissible
13	Free Residual chlorine	APHA 24th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L - 0.2)	1.0
14	Sulphate as (SO42-)	APHA 24th Edition 4500 SO42- E: 2023	mg/L	72.2	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.02	0.3
16	Nitrate (as NO3)	IS 3025 (Part 34): 1988	mg/L	3.15	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.25	1.5
18	Manganese (as Mn)	APHA 24th Edition 3500 Mn B: 2023	mg/L	BDL (D.L - 0.05)	0.3

Remarks: *Drinking Water Specifications as per IS – 10500:2012. BDL – Below Detectable limit (DL - Detectable limit).

x

For Shrient Analytical and Research Labs Pvt. Ltd

Verified

Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4855

Report Date.	11.01.2025

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	WATER
Sample Mark	W4-VEERAMBAKAM

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-4855	Sample Received on	30.12.2024
Sample Collected by	LABORATORY	Test Commenced on	30.12.2024
Sample Collected on	29.12.2024	Test Completed on	11.01.2025
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result	*Limits Permissible
A.	**Physical parameters**				
1	Odour	IS 3025 (Part 5): 2018	-	Agreeable	Agreeable
2	Turbidity	APHA 24th Edition 2130 B: 2023	NTU	<1.0	5.0
3	pH at 25 ˚C	APHA 24th Edition 4500 – H+ B: 2023	-	7.36	6.50-8.50
4	Electrical Conductivity	APHA 24th Edition 2510 B: 2023	(µS/cm)	1675	-
B.	**Chemical parameters**				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	1006	2000
6	Total hardness (as CaCO3)	APHA 24th Edition 2340 C: 2023	mg/L	352	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	65.2	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	45.4	100
9	Calcium Hardness (as CaCO3)	APHA 24th Edition 3500 Ca B: 2023	mg/L	163.0	-
10	Magnesium Hardness (as CaCO3)	APHA 24th Edition 3500 Mg B: 2023	mg/L	189.0	-
11	Total alkalinity (as CaCO3)	APHA 24th Edition 2320 B: 2023	mg/L	324	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	340	1000

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TEST REPORT

Report No.	SARL/24/4855

Report Date.	11.01.2025

Sl. No.	Parameters	Protocol	Unit	Result	*Limits Permissible
13	Free Residual chlorine	APHA 24th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L - 0.2)	1.0
14	Sulphate as (SO42-)	APHA 24th Edition 4500 SO42- E: 2023	mg/L	206	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.12	0.3
16	Nitrate (as NO3)	IS 3025 (Part 34): 1988	mg/L	2.06	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.36	1.5
18	Manganese (as Mn)	APHA 24th Edition 3500 Mn B: 2023	mg/L	BDL (D.L - 0.05)	0.3

Remarks: *Drinking Water Specifications as per IS – 10500:2012. BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd

Verified

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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/4856

Report Date.	11.01.2025

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	WATER
Sample Mark	W5-THURAIYUR

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-4856	Sample Received on	30.12.2024
Sample Collected by	LABORATORY	Test Commenced on	30.12.2024
Sample Collected on	29.12.2024	Test Completed on	11.01.2025
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result	*Limits Permissible
A.	**Physical parameters**				
1	Odour	IS 3025 (Part 5): 2018	-	Agreeable	Agreeable
2	Turbidity	APHA 24th Edition 2130 B: 2023	NTU	<1.0	5.0
3	pH at 25 ˚C	APHA 24th Edition 4500 – H+ B: 2023	-	7.28	6.50-8.50
4	Electrical Conductivity	APHA 24th Edition 2510 B: 2023	(µS/cm)	992.3	-
B.	**Chemical parameters**				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	956	2000
6	Total hardness (as CaCO3)	APHA 24th Edition 2340 C: 2023	mg/L	410	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	75.6	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	53.0	100
9	Calcium Hardness (as CaCO3)	APHA 24th Edition 3500 Ca B: 2023	mg/L	189	-
10	Magnesium Hardness (as CaCO3)	APHA 24th Edition 3500 Mg B: 2023	mg/L	221.0	-
11	Total alkalinity (as CaCO3)	APHA 24th Edition 2320 B: 2023	mg/L	252	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	116	1000

Shrient Analytical and Research Labs Pvt. Ltd

416/15, Dhargas Road, West Tambaram, Chennai- 600045
Phone Number +91 82208 36377 Email: - **info@shrientanalytical.com**
www.shrientanalytical.com

TEST REPORT

Report No.	SARL/24/4856

Report Date.	11.01.2025

Sl. No.	Parameters	Protocol	Unit	Result	*Limits Permissible
13	Free Residual chlorine	APHA 24th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L - 0.2)	1.0
14	Sulphate as (SO42-)	APHA 24th Edition 4500 SO42- E: 2023	mg/L	112	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.1	0.3
16	Nitrate (as NO3)	IS 3025 (Part 34): 1988	mg/L	2.74	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.25	1.5
18	Manganese (as Mn)	APHA 24th Edition 3500 Mn B: 2023	mg/L	BDL (D.L - 0.05)	0.3

Remarks: *Drinking Water Specifications as per IS – 10500:2012. BDL – Below Detectable limit (DL - Detectable limit).

x

For Shrient Analytical and Research Labs Pvt. Ltd

Verified

Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

*****END OF THE REPORT*****

Please Contact:
For any Technical Issues & Complaints: vimalnath@shrientanalytical.com

Terms and conditions:

(1) The test items will not be retained for more than 15 days from the date of issue of test report. (2) The results relate only to the items tested (3) The test report shall not be reproduced except in full without the written approval of the laboratory (4) Any use for advertising purposes must be granted in writing. This technical report may only be quoted in full. This report is the result of a single examination of the object in question and is not generally applicable evaluation of the quality of other products in regular production. For further details, please see testing and certification regulation, chapter A-3.4. (5) The correctness of the information related to sample(s) in the Test Request Form/Customer letterhead/Email is the customer's responsibility. The laboratory reports the said information in the test report and is not liable for the same.

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TEST REPORT

Report No.	SARL/24/4857

Report Date.	11.01.2025

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	WATER
Sample Mark	W6-VAACHANUR

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-4857	Sample Received on	30.12.2024
Sample Collected by	LABORATORY	Test Commenced on	30.12.2024
Sample Collected on	29.12.2024	Test Completed on	11.01.2025
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result	*Limits Permissible
A.	**Physical parameters**				
1	Odour	IS 3025 (Part 5): 2018	-	Agreeable	Agreeable
2	Turbidity	APHA 24th Edition 2130 B: 2023	NTU	<1.0	5.0
3	pH at 25 ˚C	APHA 24th Edition 4500 – H+ B: 2023	-	7.52	6.50-8.50
4	Electrical Conductivity	APHA 24th Edition 2510 B: 2023	(µS/cm)	1149	-
B.	**Chemical parameters**				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	690	2000
6	Total hardness (as CaCO3)	APHA 24th Edition 2340 C: 2023	mg/L	333	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	72.1	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	36.7	100
9	Calcium Hardness (as CaCO3)	APHA 24th Edition 3500 Ca B: 2023	mg/L	180	-
10	Magnesium Hardness (as CaCO3)	APHA 24th Edition 3500 Mg B: 2023	mg/L	153	-
11	Total alkalinity (as CaCO3)	APHA 24th Edition 2320 B: 2023	mg/L	253	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	184	1000

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TEST REPORT

Report No.	SARL/24/4857

Report Date.	11.01.2025

Sl. No.	Parameters	Protocol	Unit	Result	*Limits Permissible
13	Free Residual chlorine	APHA 24th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L - 0.2)	1.0
14	Sulphate as (SO42-)	APHA 24th Edition 4500 SO42- E: 2023	mg/L	210	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	BDL(D.L - 0.01)	0.3
16	Nitrate (as NO3)	IS 3025 (Part 34): 1988	mg/L	1.97	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.54	1.5
18	Manganese (as Mn)	APHA 24th Edition 3500 Mn B: 2023	mg/L	BDL (D.L - 0.05)	0.3

Remarks: *Drinking Water Specifications as per IS – 10500:2012. BDL – Below Detectable limit (DL - Detectable limit).

x

For Shrient Analytical and Research Labs Pvt. Ltd

Verified

Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

*****END OF THE REPORT*****

Please Contact:
For any Technical Issues & Complaints: vimalnath@shrientanalytical.com

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Shrient Analytical and Research Labs Pvt. Ltd
416/15, Dhargas Road, West Tambaram, Chennai- 600045
Phone Number +91 82208 36377 Email: - **info@shrientanalytical.com**
www.shrientanalytical.com

TEST REPORT

Report No.	SARL/24/4858	Report Date.	11.01.2025

Customer Name & Address	Rough Stone and Gravel Quarry of Tvl. JCK Mines, extent 7.44.0 Ha,Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	WATER
Sample Mark	W7-ALATHUR

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-4858	Sample Received on	30.12.2024
Sample Collected by	LABORATORY	Test Commenced on	30.12.2024
Sample Collected on	29.12.2024	Test Completed on	11.01.2025
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result	*Limits Permissible
A.	**Physical parameters**				
1	Odour	IS 3025 (Part 5): 2018	-	Agreeable	Agreeable
2	Turbidity	APHA 24th Edition 2130 B: 2023	NTU	<1.0	5.0
3	pH at 25 ˚C	APHA 24th Edition 4500 – H+ B: 2023	-	7.32	6.50-8.50
4	Electrical Conductivity	APHA 24th Edition 2510 B: 2023	(µS/cm)	1852	-
B.	**Chemical parameters**				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	1120	2000
6	Total hardness (as CaCO3)	APHA 24th Edition 2340 C: 2023	mg/L	442	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	76.8	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	60.2	100
9	Calcium Hardness (as CaCO3)	APHA 24th Edition 3500 Ca B: 2023	mg/L	192	-
10	Magnesium Hardness (as CaCO3)	APHA 24th Edition 3500 Mg B: 2023	mg/L	251	-
11	Total alkalinity (as CaCO3)	APHA 24th Edition 2320 B: 2023	mg/L	301	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	360	1000

Shrient Analytical and Research Labs Pvt. Ltd

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TEST REPORT

Report No.	SARL/24/4858

Report Date.	11.01.2025

Sl. No.	Parameters	Protocol	Unit	Result	*Limits Permissible
13	Free Residual chlorine	APHA 24th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L - 0.2)	1.0
14	Sulphate as (SO42-)	APHA 24th Edition 4500 SO42- E: 2023	mg/L	352	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	BDL(D.L - 0.01)	0.3
16	Nitrate (as NO3)	IS 3025 (Part 34): 1988	mg/L	3.05	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.66	1.5
18	Manganese (as Mn)	APHA 24th Edition 3500 Mn B: 2023	mg/L	BDL (D.L - 0.05)	0.3

Remarks: *Drinking Water Specifications as per IS – 10500:2012. BDL – Below Detectable limit (DL - Detectable limit).

x

For Shrient Analytical and Research Labs Pvt. Ltd

Verified

Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

*****END OF THE REPORT*****

Please Contact:
For any Technical Issues & Complaints: vimalnath@shrientanalytical.com

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ANNEXURE-8

National Accreditation Board for Testing and Calibration Laboratories

NABL

CERTIFICATE OF ACCREDITATION

SHRIENT ANALYTICAL & RESEARCH LABS PRIVATE LIMITED

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2017

"General Requirements for the Competence of Testing & Calibration Laboratories"

for its facilities at

416/15, DHARGAS ROAD, PERUNGALATHUR, WEST TAMBARAM, CHENNAI, KANCHIPURAM, TAMIL NADU, INDIA

in the field of

TESTING

Certificate Number: TC-12339

Issue Date: 30/09/2023 **Valid Until:** 29/09/2025

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.
(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Name of Legal Entity: SHRIENT ANALYTICAL AND RESEARCH LABS PRIVATE LIMITED

Signed for and on behalf of NABL

N. Venkateswaran
Chief Executive Officer

ANNEXURE-9

भारतीय गैर न्यायिक

बीस रुपये

Rs.20

रु.20

TWENTY RUPEES

INDIA

INDIA NON JUDICIAL

தமிழ்நாடு TAMIL NADU M. Prabu 92AB 023464

30 SEP 2023

Global Mining Solutions
Chennai

THIS **MEMORANDUM OF UNDERSTANDING (MOU)** IS ENTERED INTO ON THIS THE 30.09.2023
BETWEEN

M/s. GLOBAL MINING SOLUTIONS , duly represented by its Managing Director Mr.M.Prabhu, having its registered office at Plot No. 6 V.S. City,Kottamettupatti, Omalur, Salem – 636455, hereinafter referred to as **"GMS"** (which expression shall unless repugnant to the context or meaning thereof be deemed to include its successors, assigns, nominees, affiliated companies, etc.) of the One Part;

AND

SHRIENT ANALYTICAL AND RESERCH LABS PRIVATE LIMITED., represented by its General Manager- Technical Mr. V.Vimal Nath its registeredat 416 /15 Dhargas Road ,Perunkolathur, West Tambara, Chennai -600045,Tamil NAdu **"SARL"** (which expression shall unless repugnant to the context or meaning thereof be deemed to include its successors and assigns) of the Other Part.

(Hereinafter **GMS** and **SARL** will be individually referred to as **"Party"** and collectively referred to as **"Parties"**)

WHEREAS,

a) **GMS** is engaged in the Business of offering consultancy, EIA works, and Testing Services.
b) **SARL** is engaged in manufacture and supply of wide range of chemicals for various water, process and waste water treatment applications. Besides having NABL accredited laboratory also.

NOW, THEREFORE IN CONSIDERATION OF THE MUTUAL PROMISES AND COVENANTS CONTAINED IN THIS MOU, IT IS HEREBY AGREED BETWEEN THE PARTIES AS FOLLOWS:

1) GMS will subcontract testing services of the NABL Accredited SARL scope for following

- Ambient Air Quality Monitoring and analysis
- Water and waste water Quality analysis
- Soil Quality Analysis
- Noise Monitoring

2) Prices will be as mutually agreed.

3) DURATION AND RENEWAL

This MoU is entered into initially for a period of 24 (Twenty-four) from the date of entering into this MoU, and the same is extendable for a further periods on mutually agreed terms and conditions between the parties herein.

Provided, if either party is unwilling to extend the term of the MoU for a second term. Notice in writing, of such intention not to extend the term of this MoU, should be given to the other party not later than three months before the expiry of the first term of six months.

4) TERMINATION

a) Without prejudice to any other remedies both the parties may have, the right at any time by giving notice in writing to the other party to terminate the MoU.
b) Termination of this MOU can be done by either party, with a 1 month notice period by the terminating party. It is expected that the parties will discuss any issues that arise that would lead to the need to terminate this agreement prior to the written formal termination of the agreement.
c) Both the Parties shall on the termination of this MoU return to the other party forthwith any books, records, papers or other property in its possessions belonging to the other party.

5) CONFIDENTIALITY

Both during the term of this MoU as well as after the termination of this MoU, the Parties are obliged to keep confidential all proprietary informal on such as technical data, know-how, business and operating conditions, technical experience, working methods and the like received from the other Party and not to disclose this information to anyone other than employees, directors and officers. The Parties are obliged to make sure that their employees, directors and officers who have a need to know, at the same time as they receive the said information, are informed.

IN WITNESS WHEREOF THE PARTIES HAVE SIGNED THESE PRESENTS, THE DAY AND YEAR FIRST HEREINABOVE WRITTEN IN THE PRESENCE OF THE FOLLOWING WITNESSES:

M/S GLOBAL MINING SOLUTIONS

M/S SHRIENT ANALYTICAL AND RESERCH LABS PRIVATE LIMITED

WITNESSES:

M. Vasanthakumar

Name: Vasantha Kumar
Address: 315, Ramaninagar,
East Thiruvagavundanur, Salem-636005

Name: J.Gnanaprakasam
Address:Plot No 11 Saraswathi Nagar
Old perunkolathur,Chennai-600059

ANNEXURE-10

KUBERAN EXPLOSIVES & CO

Explosives Blasting Contractors & Dealers

Plot No. 1, Meenakshi Avenue, 3rd Cross Street, Old Perungalathur, Chennai – 600063.

Cell No: 9444814614, 9941181779.E.mail ID: dhanamexplo1@yahoo.com

Date- 01.10.2024

M/S. JCK MINES
Proprietor Mr.J.K.Vetrivel S/o Kannan
No.782, Maryamman Koyil St
Iyyampodai Village, Azhivadaithangi Po,
Vembakkam Taluk,
Tiruvannamalai District.

Sub : Regarding Blasting work using Explosive in your proposed Quarry.

Dear Sir,

With reference to the subject, we would like to introduce our self that we are having Explosive License in Form 22 No. E/HQ/TN/22/298(E56920) situated in Survey No. 592/2B 1A , 1c4 Arungunam Village, Madhurandagam Taluk, Kancheepuram District and our office functioning at Address No.1 Meenakshi Avenue, 3rd Cross Street, Old Perungalathur, Chennai Tamilnadu- 600063.

We are enacting Explosive Vans separately for Transporting Class 2 Explosives and Class 6 Detonators from our Magazine to your work site. We engaged well experienced Licensed Blasters and Shot Firer for safe Blasting work since 6 Years. We are carrying the Blasting work without untoward any incident.

We are willing to undertake Blasting work on Contract basis at your proposed Quarry at SF. No. 98/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7, 105/8, 105/11 over in 7.44.00 Hectors in Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamilnadu.

Thanking You,

Yours Faithfully,
For KUBERAN EXPLOSIVES & CO.

KUBERAN EXPLOSIVES ARUGUNAM VILLAGE

Authorized Signatory

Encl: Explosives License.

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भारत सरकार | Government of India
वाणिज्य और उद्योग मंत्रालय | Ministry of Commerce & Industry
पेट्रोलियम तथा विस्फोटक सुरक्षा संगठन (पेसो) | Petroleum & Explosive 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, IInd Floor, Shastri Bhavan
26 हड्डोस रोड, नुंगमबक्कम चेन्नै | 26 Haddows Road, Nungambakkam Chennai 600006
फोन (Phone) - 28331023 | फैक्स (Fax)- 28284848
ई-मेल Email: peschennai@explosives.gov.in

संख्या (No.): E/HQ/TN/22/298(ES6920) दिनांक (Date): 07/04/2021

सेवा में | To,

M/s. Kabeeran Explosives & Co.,
S. No. 164, Varumanur Village, Ramnam (Post), Thennori (Via), Town/Village - Kanchipuram
District KANCHIPURAM, State-Tamil Nadu, Pincode -

0 8 APR 2021

विषय: Survey No(s).392/2B 1A, ग्राम 164, Arugunam village, Madurantakam Taluk, जिला KANCHIPURAM, राज्य Tamil Nadu में विस्फोटक के भंडारीकरण से उपयोग के लिए लाइसेंस हेतु विस्फोटक नियम, 2008 के अंतर्गत LE-3 में जारी अनुज्ञप्ति सं E/HQ/TN/22/298(ES6920) के नवीनीकरण संबंधी पत्र।

Subject: Possession for Use of of Explosives from magazine situated at Survey No(s). 392/2B 1A, 164, Arugunam village, Madurantakam Taluk, Dist. KANCHIPURAM, Tamil Nadu -License No.: E/HQ/TN/22/298(ES6920) granted in Form LE-3 of Explosives Rules, 2008 - Renewal regarding.

महाशय | Sir,

आपका उपर्युक्त विषय का पत्र संख्या X दिनांक 23/03/2021 का संदर्भ पढ़ना करें। विस्फोटक नियम, 2008 के अंतर्गत प्रारूप LE-3 में जारी अनुज्ञप्ति दिनांक **31/03/2026** तक नवीनीकृत कर इस पत्र के साथ भेजी जा रही है।
Reference to your letter No.: X dated: 23/03/2021, the subject licence duly renewed upto **31/03/2026** and issued in Form LE-3 of Explosives Rules, 2008 is forwarded herewith.

अनुज्ञप्ति के आगामी नवीकरण हेतु कृपया निम्नांकित दस्तावेज दिनांक **31/03/2026** से पहले **इस कार्यालय** को पेश करें।
For further renewal of licence, please submit the following documents so as to reach **this office** on or before **31/03/2026**.

- प्रारूप आरई-1 में विधिवत पूर्ण एवं हस्ताक्षरित आवेदन।
  Application in Form RE-1 duly filled in and signed.
- एक से पाँच वर्ष के अनुज्ञप्ति शुल्कों का, विस्फोटक नियम, 2008 के तहत ऑनलाइन आवेदन पोर्टल पर उपलब्ध ई-भुगतान सुविधा के माध्यम से लाइसेंस शुल्क ऑनलाइन जमा किया जाना है।
  License 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 license 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 मालपत्र (ऐडवाइस) आपूर्तिकर्ता को दिया जाए और उसकी भी 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 इस तिमाही के अंत में आरई-7 में प्रस्तुत की जाए। विवरणी इस कार्यालय में अगली तिमाही के 10 तारीख से पहले पहुंच जानी 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 आपरेशन एक सक्षम व्यक्ति द्वारा की जाएगी जो उपलब्ध नियमों के तहत एक वैध शॉट फायर प्रमाणपत्र धारक हो। हालांकि, खान अधिनियम 1952 के अधीन आने वाले खानों में ब्लास्टिंग आपरेशन करने वाले ब्लास्टर की 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 | Yours faithfully,

(डॉ. ए सेक हुसैन | Dr. A SHEIK HUSSAIN)
उप विस्फोटक नियंत्रक | Dy. Controller of Explosives
कृते संयुक्त मुख्य विस्फोटक नियंत्रक | For Joint Chief Controller of Explosives
दक्षिणांचल, चेन्नै | South Circle, Chennai

प्रतिलिपि प्राप्त | 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
दक्षिणांचल, चेन्नै | South Circle, Chennai

(अधिक जानकारी जैसे आवेदन का स्थिति, शुल्क आदि के लिए हमारी वेबसाईट 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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अनुज्ञप्ति प्ररूप एल. ई.-3 | LICENCE FORM LE-3

(विस्फोटक नियम, 2008 की अनुसूची 4 के भाग I के अनुच्छेद 3(a) में (9) देखिए)
(See article 3(a) in (ii) of Part I of Schedule IV of Explosives Rules, 2008)

(ए) उपशीर्ष 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
Licence to possess (i) for use explosives of class 1, 2,3,4,5,6 or 7 in a magazine



अनुज्ञप्ति सं. (Licence No.) : E/HQ/TN/22/298(E56920)
वार्षिक फीस रुपए (Annual Fee Rs): 12400/-

1. Licence is hereby granted to

M/s. Kaberan Explosives & Co. (अधिकारिणी / Occupier : K. IlhanaKotteswaran), D. No. 164, Varanavasi Village, Ramnan (Post), Thennan (Via), Town/Village - Kanchipuram, District-KANCHIPURAM, State-Tamil Nadu, Pincode -

को अनुज्ञप्ति अनुदत्त की जाती है।

2. अनुज्ञप्तिधारी की प्रास्थिति (Status of licensee) : **Individual**

3. अनुज्ञप्ति निम्नलिखित प्रयोजनों के लिए विधिमान्य है: Licence is valid only for the following purpose
Licence for use of Nitrate Mixture, Detonating Fuse, Detonators. के उपयोग के लिए

4. अनुज्ञप्ति विस्फोटकों के निम्नलिखित किस्मों, प्रभार और मात्रा के लिए विधिमान्य है। Licence is valid for the following kinds and quantity of explosives :- (बी) (a)

क्र. Sr. No.	नाम और विवरण Name and Description	वर्ग और विभाग Class & Division	उप-प्रभाग Sub-division	महीने किसी एक समय में Quantity at any one time
1	Nitrate Mixture	5 ,0	0	6400 Kg
2	Detonating Fuse	6 ,2	0	50000 Mtrs
3	Detonators	6 ,3	0	48000 Nos

(बी) किसी एक कलैंडर मास में खरीदे जाने वाले विस्फोटक की मात्रा (अनुच्छेद 3(a) और (ii) के अधीन अनुज्ञप्ति के लिए) 20 times as above.
(b) Quantity of explosives to be purchased in a calendar month/application for licence under article 3(a) and (ii)

5. निम्नलिखित रेखांकित (रेखांकनों) से अनुज्ञप्त परिसर की मुद्रि होती है: रेखांकन क्र. (Drawing No.) E/HQ/TN/22/298/E56920A
The licensed premises shall conform to the following drawing(s) दिनांक (Dated) 10/01/2012

6. अनुज्ञप्ति परिसर निम्नलिखित पते पर स्थित है। The licensed premises are situated at following address:
Survey No(s). 502/2B 1A , (Town/Village) : 164, Aruguanm village, Maduranthakam Taluk पुलिस थाना (Police Station) : **Madaranthagam**

जिला (District)	**KANCHIPURAM**	राज्य (State)	**Tamil Nadu**	पिनकोड (Pincode)	
दूरभाष (Phone)	**9444816614**	ई मेल (E-Mail)		फैक्स (Fax)	

7. अनुज्ञप्ति परिसर में निम्नलिखित सुविधाएं अंतर्विष्ट हैं। **a main magazine room, a lobby and a detonators store room.**
The licensed premises consists of following facilities

8. अनुज्ञप्ति खाण – खाण पर पर्यवेक्षणाधित विस्फोटक अधिनियम, 1884 और उसके अधीन विरचित विस्फोटक नियम, 2008 के उपबंधों, शर्तों और अतिरिक्त शर्तों और निम्नलिखित उपबन्धों के अधीन रहते हुए अनुदत्त की जाती है।
The licence is granted subject to the provisions 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 वर्णित रेखाचित्र (स्थान, भविष्यित संकेतों और अन्य विवरण दर्शित करते हुए)
Drawings (showing site, constructional and other details) as stated in serial No. 5 above.
2. अनुज्ञप्ति प्राधिकारी द्वारा इसके साथ इस अनुज्ञप्ति की शर्तें और अतिरिक्त शर्तें।
Conditions and Additional Conditions of this licence signed by the licensing authority.
3. दूरी प्ररूप DF-2 | Distance Form DF-2

9. यह अनुज्ञप्ति तारीख **31 मार्च 2012** तक विधिमान्य होगी। This licence shall remain valid till **31st day of March 2012.**

यह अनुज्ञप्ति, अधिनियम या उसके अधीन विरचित नियमों या अनुसूची 4 के भाग 4 के प्रति निर्दिष्ट शर्त VII के अधीन तथा उपवर्णित इस अनुज्ञप्ति की शर्तों का अधिक्रमण करने या यदि अनुज्ञप्त परिसर परिसर पर उसकी बाबत उपबंध में दर्शित विवरण के अनुरूप नहीं पाए जाने पर निलंबित या प्रतिसंहृत की जा सकती है, जहां यह 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 Sr. VII, wherever applicable, referred to in Part 4 of Schedule V or if the licensed premises are not found conforming to the description shown in the plans and Annexure attached hereto.

तारीख | The Date - 10/01/2012

मुख्य विस्फोटक नियंत्रक | Chief Controller of Explosives

Amendments :
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 01/08/2012
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 05/03/2013
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 18/03/2014

नवीकरण के पृष्ठांकन 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 मोहर Signature of licensing authority and stamp
07/04/2021	31/03/2026	R. Chief Controller of Explosives, South Circle, Chennai

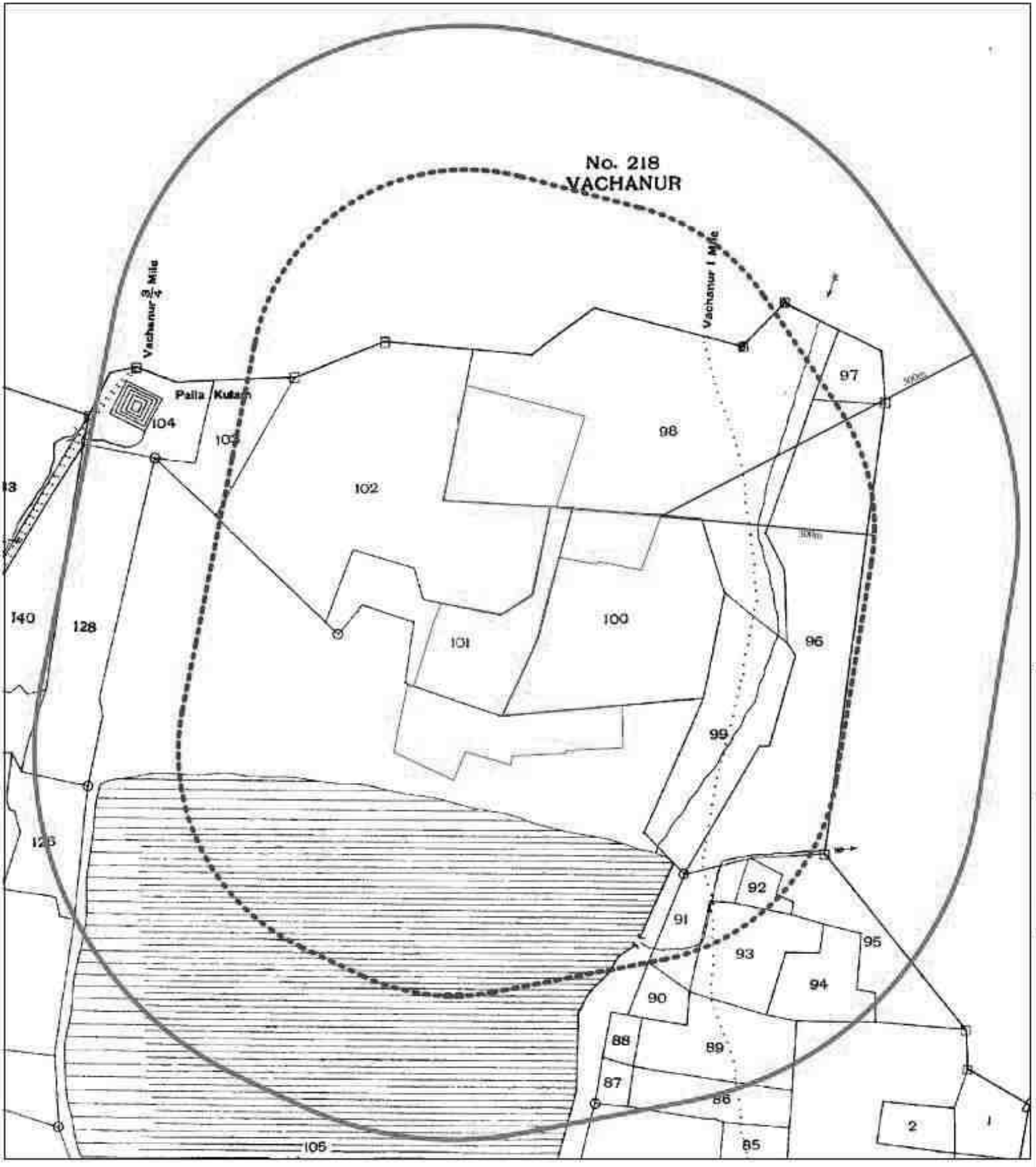
कानूनी चेतावनी : विस्फोटकों को गलत ढंग से बताने या उनका दुरुपयोग विधि के अधीन गंभीर दांडिक अपराध होगा।
Statutory Warning : Misbanding and misuse of explosives shall constitute serious criminal offence under the law.

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ANNEXURE-11



APPLICANT:

THIRU K.MANI,
THIRU.K.VETTRIVELAN (PARTNER),
No.782,MARIAMMAN KOVIL STREET,
JAMBODAI VILLAGE,
AZHIVIDAITHANGI POST,
VEMBAKKAM TALUK,
TIRUVANNAMALAI DISTRICT.

QUARRY LEASE APPLIED AREA:

S.F.NOs : 98/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7 ,105/8 &105/11
EXTENT : 7.44.0Hs.
VILLAGE : MELNARMA,
TALUK : CHEYYAR,
DISTRICT : TIRUVANNAMALAI.

INDEX

Q. L. A. AREA :

TOPO SHEET NO: 57 P / 10

LATITUDE :12°34'46.23"N to 12°35'04.08"N

LONGITUDE :79°39'39.29"E to 79°39'30.78"E

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Global Mining Solutions

ANNEXURE-12

விடுநர்:

திரு. ப. சிவாஜி கணேசன்
தலைமை ஆசிரியர் (பொ)
ஊராட்சி ஒன்றிய நடுநிலைப்பள்ளி
மேல்நர்மா கிராமம்
திருவண்ணாமலை மாவட்டம்

பெறுநர்

JCK Mines
திரு. J. K வெற்றிவேலன் த/பெ கண்ணன்
782, மாரியம்மன் கோயில் தெரு
ஜம்போடை அழிவிடைதாங்கி
திருவண்ணாமலை மாவட்டம்

அன்புடையீர் வணக்கம்

பொருள் :

மேல்நர்மா ஊராட்சி ஒன்றிய நடுநிலைப்பள்ளி
பையூர்- பள்ளி வளர்ச்சிக்காக நிதி கோருதல் சார்பு

திருவண்ணாமலை மாவட்டம் செய்யார் மேல்நர்மா புதியதாக கல்குவாரி அமைய உள்ளதாக அறிகிறோம் மேற்படி ஊராட்சி ஒன்றிய நடுநிலைப்பள்ளி பையூர் (மேல்நர்மா) சீரும் சிறப்புமாக இயங்கி வருகிறது இப்பள்ளி 1 வகுப்பு முதல் 8 வகுப்பு வரை மாணவ மாணவியர்கள் பயின்று வருகிறார்கள்

தேவை விவரம் கீழ்வறுமாறு

1. Computer And Printer - 1no
2. Black Board - 5nos
3. Light And Fan - 10nos
4. Table And Chair - 2nos
5. RO Water - 1no
6. Water Motor - 1no
7. Student Writing Table And sitting Table - 20 nos
8. Sports Thinks
9. Biro - 2nos

இப்படிக்கு

தலைமை ஆசிரியர் (பொ)
ஊராட்சி ஒன்றிய நடுநிலைப்பள்ளி
பையூர் - 604 408
செங்கம் ஒன்றியம், திருவண்ணாமலை மாவட்டம்

இடம் : பையூர்

தேதி : 01.10.2024.

ANNEXURE-13

भारतीय गैर न्यायिक

एक सौ रुपये Rs. 100

रु. 100 ONE HUNDRED RUPEES

भारत INDIA

INDIA NON JUDICIAL

தமிழ்நாடு तमिलनाडु TAMILNADU Rs. 100/- 14-10-2024 DR 539892

Tvl. JCK Mines
Thiru. J.K.V. Vettrivelan
(Partner)
Tiruvannamalai

M. JCK

AFFIDAVIT TO SEIAA - TAMIL NADU

I, Thiru.J.K. Vettrivelan, Partner of Tvl. JCK Mines office at No.782, Mariamman Kovil Street, Jambodai village, Azhividaithangi post, Vembakkam Taluk, Tiruvannamalai District, Pincode- 604 402 have applying for Terms of Reference to SEIAA - Tamil Nadu for our proposed Rough Stone and Gravel Quarry lease over an extent of 7.44.00 Ha of Patta land in the S.F.Nos. 98/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7, 105/8 and 105/11 of Melnarma Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu, do hereby solemnly declare and sincerely affirm that;

1. There are no Protected areas notified under the Wildlife (Protection) Act, 1972 (NBWL) located within the 10km radius of the proposed quarry site.
2. There are no Critically polluted areas as notified by the central pollution control board constituted under Water (Prevention and Control of Pollution) Act 1974.

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3. Revised proposal for Corporate Environment Responsibility (CER) activities is given as follows;

S. No.	PROPOSED CER ACTIVITIES	COST (LAKHS)
1	❑ Provision of Library with racks ❑ Plantations inside the school premises (50 Nos.) ❑ Providing computer & printer ❑ Providing black board, lights, fans, tables, chairs, writing tables, sitting tables & cupboards ❑ Providing RO water purifier, water motor & sports materials ❑ School Toilet maintenance for the entire lease period	8.00
Total CER Cost		**8.00**

The proposed CER Activities for the proposed cost will be implement in the Panchayat Union Middle School, Melnarma Village and I assure you that, I will complete the above proposed Corporate Environment Responsibility (CER) activities before the commencement of the quarrying operations.

4. Revised proposal for Environmental Management Plan (EMP) and its cost is given as follows;

S. No	Mitigation Measure	Capital cost	Recurring Cost per Annum
Air Environment			
1	Haul Road Maintenance	0.74	0.74
2	Water Sprinkler Arrangement	8.00	1.00
3	AAQ Monitoring	0.00	0.50
4	Control Blasting (Muffle blasting)	0.00	0.20
5	Wet Drilling	2.00	0.20
6	No overloading of trucks/tippers/tractors	0.00	0.05
7	Stone carrying trucks will be covered by tarpaulin	0.00	0.27
8	Enforcing speed limits of 20 km/hr within ML area	0.30	0.00
9	Regular monitoring of exhaust fumes as per RTO norms	0.00	0.09

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10	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	0.00	17.86
11	Installing wheel wash system near gate of quarry	0.50	0.20
Sub-Total (A)		**11.54**	**21.11**
Noise Environment			
12	Provision for Portable blaster shed	0.50	00.04
13	NONEL Blasting will be practiced to control Ground vibration and fly rocks	0.00	22.84
Sub-Total (B)		**0.50**	**22.88**
Water Environment			
14	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	0.74	0.05
15	Installation of Bio toilet (Portable)	2.00	0.20
16	Sump Maintenance	0.00	0.20
17	Dewatering Cost	0.00	2.00
Sub-Total (C)		**2.74**	**2.45**
Implementation of EC, Mining Plan & DGMS Condition			
18	Waste management (Spent Oil, Grease etc.,)	0.35	0.23
19	Environmental Parameters Display Board	0.20	0.02
20	Issue of PPE's	1.40	0.35
21	IME & PME Checkup	0.00	0.35
22	First Aid facility Provision	0.00	0.30
23	Signage & boards for safety precautions	0.10	0.02
24	Barbed Wire Fencing to quarry area	14.88	0.10
25	Parking yard Management	3.72	0.10
26	Installation of CCTV cameras in the mines and mine entrance	0.30	0.05
27	Implementation as per Mining Plan and ensure safe quarry working (Statutory)	0.00	10.80
28	**Slope Stability Analysis**	**5.00**	**0.50**
Sub-Total (D)		**25.95**	**12.82**
Green Belt			

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29	Plantation inside ML area (3000 Nos.)	6.00	0.90
30	Plantation outside ML area (1000 Nos.)	3.00	0.30
Sub-Total (E)		**9.00**	**1.20**

Additional Key EMP Expenses			
31	Constructing Rainwater Harvesting Structure	5.00	0.10
32	Mine Closure Plan	5.00	0.00
33	Environmental Awareness Programme	0.50	0.00
34	District Green Fund	83.75	0.00
Sub-Total (F)		**94.25**	**0.10**
Grand Total (A+B+C+D+E+F)		**143.98**	**60.56**
Total EMP Cost for 5 years is 478.62 lakhs i.e., Rs. 143.98 Lakhs of Capital Cost + Rs. 334.64 Lakhs of Recurring cost (For 5 Years)			

5. Details of quarries located within a 500m radius from the applied mine lease area:

Sl. No	Name of the Lessee	Village & S. F. No.	Extent (Ha)	Lease Status
a. Abandoned Quarries				
Nil				
b. Existing Quarries				
1	Tvl. JCK Mines No. 782, Manyamman Koil Street, Jambodai Village, Azhividaithangal Post, Vembakkam Taluk	Melnarma Village, S.F.Nos. 100/3, 100/5, 100/6, 100/7, 100/8, 100/9, 100/10, 100/11, 100/12 & 100/13	4.47.00 Ha	15.07.2020 to 14.07.2025
c. Proposed Quarries				
1	Tvl. JCK Mines Partner Thiru.J.K. Vettrivelan No. 782 Mariamman Kovil Street, Jambodai Village, Azhividaithangi	Melnarma Village, S.F.Nos. 98/2, 98/3, 98/4, 98/7, 100/1, 100/2, 101/2, 101/3, 101/4, 105/1, 105/3, 105/7, 105/8 and 105/11	7.44.00 Ha	Proposed Area

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	Post, Tiruvannamalai District			

The total lease within the 500m radius (Proposed + Existing) (1 no + 1 no) works out to 11.91.00 Ha including this lease area.

6. There will be no hindrance/disturbance due to the proposed quarrying activities to the people living nearby my proposed quarry site.

7. There are no approved habitations within a 300m radius from the periphery of my proposed quarry lease.

8. I assure you that the greenbelt will be developed and maintained before commencing the quarrying operations as proposed in this ToR application.

9. I assure you that the required life insurance policy for the employees engaged in the quarrying operations will be taken without fail.

10. The existing main road connecting the quarry road will be maintained in good condition and it will be utilized for the mineral transportation.

11. I assure you that I will not engage any child for labor in the quarrying operations and I am aware that engaging child labor is punishable under the law.

12. Personnel Protective Equipment (PPE) will be provided to all the employees engaged in the quarrying operations.

13. No permanent structures are located within a 300-meter radius of the periphery of our quarry.

14. I will erect the wire fence with barbed wires all around the periphery of the quarry lease before the commencement of mining activities.

15. The mining operations will be carried out in a systematic and scientific

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manner by employing a qualified statutory person as per the requirement of the Mines Act, Mines Rules, and other Guidelines issued by Govt.

16. I will inform DGMS before the commencement of mining activities.

17. To the best of our knowledge, I ensure to do the social and environmental commitments as mentioned in the mining plan.

Notary Sign & Seal

Lessee Sign & Seal

Tvl. JCK Mines,

Thiru.J.K. Vettrivelan (Partner)

NOTARY K.SITHESWARAN, B.L., ADVOCATE Salem-Dt-636 455 Regn. No. 10987/2015 Cell: 94435 16211 GOVT. OF INDIA

15/10/2015

K.SITHESWARAN, BL.,
Advocate & Notary Public
Opp. BDO Office, Omalur (Tk),
SALEM (Dt)-636 455.
Regn. No: 10987/2015.
Cell: 94435 16211

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