

**DRAFT EIA & EMP FOR  
PROPOSED ROUGH STONE AND GRAVEL QUARRY  
CATEGORY – B1**

(Public Hearing Upgraded after Terms of Reference (ToR) as per the provisions  
of EIA Notification 2006 & amendments thereof)

**ToR Identification No. TO24B0108TN5397062N, dated 14.05.2024**

PROPOSED QUARRY LEASE DETAILS	
<b>SURVEY NOS</b>	<b>8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B</b>
<b>VILLAGE</b>	<b>SITHALAPAKKAM</b>
<b>TALUK</b>	<b>VEMBAKKAM</b>
<b>DISTRICT</b>	<b>TIRUVANNAMALAI</b>
<b>EXTENT</b>	<b>3.87.5 HA</b>
<b>PROPOSED PRODUCTION QUANTITY FOR FIVE YEARS</b>	<b>ROUGH STONE : 2,12,855 m<sup>3</sup> GRAVEL : 15,912 m<sup>3</sup></b>
<b>LAND</b>	<b>PATTA LAND</b>

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

Category of the Project: B1 Cluster Mining, Total Cluster Area – 10.33.5 Ha  
Baseline Monitoring Period – March 2024 to May 2024

**APPLICANT**

**THIRU.M.N. BALASUNDARAM,  
S/O.NATARAJAN,  
NO.72, MAIN ROAD, MANGADU,  
KUNDRATHUR TALUK, KANCHIPURAM DISTRICT**

**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  
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**OCTOBER - 2024**



## AMENDMENT PAGE

SL	Page No.	Section / Clause / Para / Line (as Applicable)	Date of Amendment	Amendment Made	Reasons of amendment	Signature of Person Authorizing Amendment
1						
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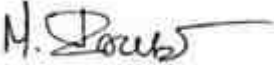
**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

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## **ACKNOWLEDGEMENT**

*M/s. Global Mining Solutions, Salem is very much thankful to Thiru.M.N.Balasundram S/o. Natarajan, Lessee for the confidence and trust placed on the organization for carrying out Environmental Impact Assessment (EIA) study for the proposed Rough Stone and Gravel quarry over a lease extent of 3.87.5 Ha, & Cluster extent of 10.33.5 Ha., located at Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State and formulating the Environmental Management Plan (EMP). We also gratefully acknowledge the cooperation and assistance provided by concerned government authorities for collection of secondary information for the preparation of Draft EIA/EMP report. Our sincere thanks to the local people of Sithalapakkam Village and the nearby villages for their whole hearted cooperation and constant involvement during the entire field study without which the study would not have been possible.*

*For: M/s. Global Mining Solutions*

  
(M. Prabu)

Managing Director

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## **UNDERTAKING**

*In line with MoEF OM No. J - 11013/41/2006-IA.II (I) dated 5<sup>th</sup> October 2011, we hereby give our undertaking for owning the content and information in the EIA/EMP report submitted for EC of the proposed Rough Stone and Gravel quarry over a lease extent of 3.87.5 Ha, & Cluster extent of 10.33.5 Ha, located at Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State.*

*For: M/s. Global Mining Solutions*



*Name: Manikandan*

*EIA Coordinator - Mining*



**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

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## **UNDERTAKING**


*In Line with OM no. J-11013/41/2006-IA.II (1) dated 4th Aug 2009 and its Amendments, we hereby confirm that all Terms of Reference issued by Ministry of Environment, Forest and Climate Change vide ToR Identification No. TO24B0108TN5397062N, dated 14.05.2024 of Draft EIA/EMP report for the proposed Rough Stone and Gravel Quarry over a lease extent of 3.87.5 Ha, & Cluster extent of 10.33.5 Ha., located at Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State for the production of 2,12,855 m<sup>3</sup> of Rough Stone and 15,912 m<sup>3</sup> of Gravel formation from the proposed lease area and the details has been complied in the Draft EIA/EMP report is factually correct.*



*The EIA/EMP report has been prepared by M/s. Global Mining Solutions (GMS), Salem. GMS is a NABET accredited consultant for preparation of EIA/EMP report of Mining of Minerals (Opencast only) vide certificate No. NABET/EIA/2326/IA 0110, valid till 04.01.2026.*

*For: M/s. Global Mining Solutions*

*Name: Manikandan  
EIA Coordinator – Mining*

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**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.  
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### **Declaration by Experts**

*Declaration by Experts contributing to the proposed Rough Stone and Gravel Quarry over a lease extent of 3.87.5 Ha, & Cluster extent of 10.33.5 Ha., located at Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State.*

*I, hereby, certify that I was a part of the EIA team that developed the above EIA.*

*EIA Coordinator Name: M. Manikandan*

  
*Signature & Date*

*Period of involvement: March 2024 to May 2024.*

**Contact information:**


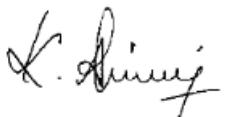



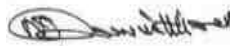
**M/s Global Mining Solutions**

**Plot No.6, SF No. 13/2, A2, VS City, RC Chetty Patty,**

**Kottamettupatty, Omalur,**

**Salem, Tamil Nadu – 636 455**

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<b>S. No.</b>	<b>Functional areas</b>	<b>Name of the expert/s</b>	<b>Involvement (period and task**)</b>	<b>Signature and Date</b>
1	AP	Dhanalakshmi Ramanathan	Assessment of existing air quality, Impact of the project on ambient air and suggested mitigation measures for air pollution. <u>Period: March 2024 to May 2024.</u>	
2	WP	Abirami Kaliaperumal	Assessment of existing water quality, impact of the project on surface and ground water quality, suggested mitigation measures for minimizing the impact. <u>Period: March 2024 to May 2024.</u>	
3	SHW	Ramadoss N	Assessment of waste generated from the project, suggested waste management practices. <u>Period: March 2024 to May 2024.</u>	
4	SE	Sarasvathy K	Baseline SE studies. Data compilation and assessment. Impact of the project on SE status of the area. Formulation of CER plan. <u>Period: March 2024 to May 2024.</u>	
5	EB	Saravanan S	Baseline data collection of related to ecology of the area. <u>Period: March 2024 to May 2024.</u>	
6	HG	Ravinthiran N	Hydrogeological feature of the area. Ground water depth and impact of project on ground water of the area. <u>Period: March 2024 to May 2024.</u>	

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7	AQ	Srilatha Thiruveedhula	Air quality modeling utilizing the area source model. Predication of the ground level concentration of the dust. Suggesting suitable mitigation measures. <u>Period: March 2024 to May 2024.</u>	T. Srilatha
8	NV	Dhanalakshmi Ramanathan	Ambient noise study of the area. Incremental noise generation due to quarry operation and impact of the noise due to the project. <u>Period: March 2024 to May 2024.</u>	R. Dharmaj
9	LU	Dhanalakshmi Ramanathan	Preparation of land use map based on satellite imagery. Land use classification and analysis. Impact prediction of the project on the surrounding land environment. <u>Period: March 2024 to May 2024.</u>	R. Dharmaj
10	RH	S.V. Prashant	Identification of the Risk related to the mining activities. Preparation of emergency disaster management plan. Plan for supply of safety equipment for the worker. <u>Period: March 2024 to May 2024.</u>	S. Prashant
11	SC	Shisupal Sing	Soil monitoring, secondary data collection on soil type, soil management practices, utilization of topsoil. <u>Period: March 2024 to May 2024.</u>	Shisupal Sing
12	GEO	Valliappan Meyyappan	Geological map, stability of quarry and dump, management plan for mine stability, after use of mining quarry and geological feature of the area. <u>Period: March 2024 to May 2024.</u>	Valliappan

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# **COMPLIANCE TO**

# **TERMS OF REFERENCE**

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

<b>S.No</b>	<b>ToR Points</b>	<b>Reply</b>	<b>Pg. No</b>
1	<p>For the existing quarry, the PP shall obtain a letter from the concerned AD (Mines) which shall also stipulate the following information:</p> <ul style="list-style-type: none"> <li>i. Original pit dimension of the existing quarry</li> <li>ii. Quantity achieved Vs EC Approved Quantity</li> <li>iii. Balance Quantity as per Mineable Reserve calculated.</li> <li>iv. iv. Month wise Production details</li> <li>v. Mined out Depth as on date Vs EC Permitted depth.</li> <li>vi. Details of illegal/illicit mining carried out, if any</li> <li>vii. Non-compliance/Violation in the quarry during the past working.</li> <li>viii. Quantity of material mined out outside the mine lease area (or) in the adjacent quarry/land.</li> <li>ix. Existing condition of Safety zone/benches</li> <li>x. Details of any penalties levied on the PP for any violation in the quarry operation by the Department of Geology and Mining.</li> </ul>	<p>AD/DD mines letter enclosed as annexure -13.</p> <p>Existing pit dimension of existing quarry: Length 134mX Width 97m X27m BGL. Chapter-2</p>	77
2	<p>The PP shall submit the Certified Compliance Report (CCR) obtained from IRO(SZ), MoEF &amp; CC with the status of non-compliance, and to furnish mitigation measures/remedial action plan with the budget allocation for the non-compliance stated in the CCR.</p>	<p>Certified compliance report obtained from IRO is enclosed as Annexure-15.</p>	
3	<p>The PP shall complete the fencing, tree plantation and photographs, videos of the same shall be furnished.</p>	<p>There are no trees within ML area. Fencing and plantations are under process.</p> <p>Greenbelt / Plantation will be 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 1.57.5 Ha will be under greenbelt and plantation.</p>	-

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

4	The PP shall mark the DGPS reference pillars painted with blue & white colour indicating the safety barrier of 7.5 m to be left under the Rule 13 (1) of MCDR, 1988 within the lease boundary and protective bunds, and provide the details during the EIA appraisal	Agreed	-
5	The Proponent shall complete the garland drainage around the boundary of the proposed quarry and the photographs indicating the same shall be shown during the EIA appraisal.	Agreed.	-
6	The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc located within 1 km of the proposed quarry.	The hydrogeological study from a reputed institute is in progress; however, the final EIA submission report will be incorporated into Chapter 3	129
7	The Proponent shall justify the selection of the site for carrying out the stone quarrying with the total volume arrived for the excavation & production adequate details such as lithology of the deposit, reserve estimation, place for waste dump/mined mineral storage, end-use of mined materials, identified potential customers/end-users and travel path.	Agreed	-
8	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 with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, Schools/Colleges 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.	Complied.	Complied. Enclosed as Annexure 4.
9	The proponent shall furnish photographs and video showing the adequate fencing, green belt along the periphery including replantation	There are no trees within ML area. Fencing and plantations are under process.	-

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

	of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan	Greenbelt / Plantation will be 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 1.57.5 Ha will be under greenbelt and plantation.	
10	During the EIA appraisal, the PP shall furnish the affidavit stating that he will not employ any external agency for carrying out the blasting operation in the proposed quarry and he shall also install the temporary (or) permanent magazine approved by the concerned licensing authority before the execution of the lease, for storing the authorized explosives & detonators separately in accordance with the Explosive Rules, 2008.	Agreed. Will be complied.	-
11	During the EIA appraisal, the PP shall furnish the affidavit stating that he will appoint a First Class/Second Class Mine Manager for managing the quarrying operations before obtaining the CTO from the TNPCB. Further, the PP will also send the 'Notice of Opening' indicating the appointment of such Statutory officials and the proposed usage of HEMM shall be sent to the Director of Mines Safety, Chennai Region of the Mine under the provisions of MMR 1961 atleast 30 days before the commencement of the mining operation after the execution of lease, if the EC is granted	Agreed. Will be complied.	-
12	Since the structures including the houses are situated within a radial distance of 500 m, the PP shall carry out the scientific studies to design the controlled blast parameters for reducing the cumulative blast-induced ground/air- vibrations and eliminating the fly rock from the blasting operations carried out in the cluster of quarries located in the region, and subsequently with proper validation of the design through trial blasts in any of the existing &	Complied.	Enclosed as Annexure 4.



**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

	<p>operating quarries to monitor the PPV produced from the blasting near the houses (280m) and village (520 m), after obtaining the prior permission from the DMS / Chennai Region in accordance with DGMS Circular No. 7 of 1997, by involving anyone of these reputed Research and Academic Institution such as CSIR-Central Institute of Mining &amp; Fuel Research / Dhanbad, NIRM/Bangalore, IIT (ISM)/Dhanbad, IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. A copy of such scientific study report shall be submitted to the SEIAA, MoEF as a part of EIA study during the appraisal and to the DMS/DGMS-Chennai Region while submitting the 'Notice of Opening', without any deviation.</p>		
13	<p>Since the quarrying operations are proposed in an existing pit possessing the quarry wall of 27 m depth without adequate bench formations in accordance with the provisions of MMR, 1961, the PP shall carry out the scientific studies to assess the slope stability of the existing quarry wall and working benches for spelling out the stabilization measures to ensure the safety of the persons to be employed in the proposed quarry, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining &amp; Fuel Research / Dhanbad, NIRM/Bangalore, IIT (ISM)/Dhanbad, Division of Geotechnical Engineering-IITMadras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. A copy of such scientific study report shall be submitted to the SEIAA, MoEF as a part of EIA study during the appraisal and to the DMS/DGMS-Chennai Region while submitting the 'Notice of Opening', without any deviation.</p>	-	-

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

14	The PP shall carry out a comprehensive study indicating the Travelling route as proposed pertaining to the traffic surveys and Axle load surveys and demand forecasting for the next 10 years in the cluster area including the Traffic Volume, Identification of possible improvements in the existing alignment and bypassing congested locations with alternatives, investigation of required sub-grade and sub-soil characteristics and strength for road and embankment design and sub soil investigation, identification of sources of construction material, etc. Further, the study shall also consider the local and slow traffic which may need segregation from the main traffic and provision of service roads (or) physical barrier including fencing, wherever necessary to improve efficiency and safety, particularly the trucks plying through the schools/hospitals/villages.	Agreed	-
15	The PP shall prepare the Standard Operating Procedures (SoP) for carrying out the 'Best Mining Practices' in the areas of drilling, blasting excavation, transportation and green belt development and provide the same during the EIA appraisal.	Agreed	-
16	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	-	-
<b>Standard Terms of Reference for (Mining of minerals)</b>			
2.1	The Annual peak RoM production not exceeding 43440 cu.m of Rough stone and 15912 cu.m of Gravel to an ultimate depth of 47m BGL.	Agreed	-
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.	Complied.	-

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

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 modeling 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.	Anticipated Environmental Impacts and Mitigation Measures is given in Chapter 4.	137
1.3	Proper KML file with pin drop and coordinate of mine at 500-1000 m interval be provided.	Agreed	-
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	Land Use Pattern of 10 km Radial Buffer Area of Project Site is given page chapter-3.	112

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

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.	Land Use Pattern of 10 km Radial Buffer Area of Project Site is given page chapter-3.	112
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.	Contour map, Physiography and Drainage is given Chapter-3.	129
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/ river let 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 elaboration in form of long the, quantity and quality of water to be diverted.	Drainage map is given Chapter-3.	129
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.	Mineral reserves, geological status of the study area is given chapter-11.	193

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

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.	Method of mining Details is Given Chapter-2.	51
1.10	Impact of mining on hydrology, modification of natural drainage, diversion and channeling of the existing rivers/water courses flowing through the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.	Details given chapter-11	199
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-channeling of the water courses, etc., approach roads, major haul roads, etc should be indicated.	Land Use Pattern of 10 km Radial Buffer Area of Project Site is given page chapter-3.	112
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	Land Use Pattern of 10 km Radial Buffer Area of Project Site is given page chapter-3.	112

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

	<p>should be analyzed. Extent of area under surface rights and under mining rights should be specified. Area under Surface Rights Area under Surface Area Under Mining Rights(ha) S.N ML/Project Land use Rights(ha) (ha) Area under Both (ha)</p> <p>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</p>		
1.13	<p>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 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.</p>	<p>Flora &amp; fauna of 10 km Radial Buffer Area of Project Site is given page chapter-3.</p>	110
1.14	<p>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</p>	<p>Details given under description of the environment chapter-3.</p>	86

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

	coinciding with the same season for AAQ collection period should be provided. The detail of NABL/MoEF&CC certification of the respective laboratory and NABET accreditation of the consultant to be provided.		
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.	Details given under description of the environment chapter-3.	63
1.16	For proper baseline air quality assessment, Wind rose pattern in the area should be reviewed and accordingly location of AAQMS 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	Details given under description of the environment chapter-3.	93

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

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	Details given under chapter-7.	179
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.	Socioeconomic Environment Details Given Chapter-3.	121
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.	Biological Environment Details Given Chapter-3.	110



**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

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.	Health Details Given Chapter-3.	125
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 from a reputed institute is in progress; however, the final EIA submission report will be incorporated into Chapter 3.	128
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.	Abstraction from the mine on the hydrogeology and groundwater regime details is given chapter-3	128
1.23	Study on land subsidence including modeling for prediction, mitigation/prevention of subsidence, continuous monitoring measures, and safety issues should be carried out.	Land subsidence is given chapter-4	130
1.24	Detailed water balance should be provided. The breakup 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.	Impact due to Water use in Mines and water balance given chapter-4.	140
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-10	182

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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	Noted	-
1.27	PP to evaluate the greenhouse emission gases from the mine operation and corresponding carbon absorption plan.	greenhouse emission gases details given chapter-10	182
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.	181
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-1.	73
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.	Mineral transportation details given chapter-2.	74

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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.	Parking, rest areas and canteen, and effluents/pollution load details given chapter -4	152
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.	76
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 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.	Final Mine Closure Plan and post mining land use details given in chapter-7	181
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.	Agreed	-
1.35	Cost of EMP (capital and recurring) should be included in the project cost and for progressive and final mine closure plan.	EMP cost details given chapter-10	191
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,	Not applicable.	-

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	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.		
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 chapter-11	191
1.38	Corporate Environment Responsibility:	CSR details given chapter-11	191
1.39	a) The Company must have a well laid down Environment Policy approved by the Board of Directors.	Environment policy details given chapter- 10.	189
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 chapter- 10.	189
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.	-	-
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.	-	-
1.43	e) Environment Management Cell and its responsibilities to be clearly spell out in EIA/ EMP report	EMP cell details given Chapter-12	189

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1.44	f) In built mechanism of self-monitoring of compliance of environmental regulations should be indicated.	Agreed	-
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.	Noted	-
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.	Noted	-
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	Noted	-
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	Noted	-
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. If the Public Hearing is in the regional language, an authenticated English Translation of the same should be provided.	Noted	-
1.51	PP shall carry out survey through drone highlighting the ground reality for atleast 10 minutes	Noted	-

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1.52	Detailed Chronology of the project starting from the first lease deed allotted/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	-
1.53	The first page of the EIA/ EMP report must mention the peak capacity production, area, detail of PP, Consultant (NABET accreditation) and Laboratory (NABL / MoEF & CC certification)	Noted	-
1.57	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	Noted	-
<b>SEAC SPECIFIC CONDITIONS:</b>			
1	The PP shall furnish the letter obtained from the AD (Mines) indicating the existing pit dimensions and pit conditions showing the details on mine having worked during the earlier lease period	Agreed. The list of members of the committee formed will be submitted to AD/mines after obtaining Environmental Clearance.	-
2	The PP shall furnish DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site	Noted	-
3	The PP shall provide individual notice regarding the Public Hearing to the nearby house owners located in the vicinity of the project site.	Noted	-
4	The Proponent shall justify the selection of the site for carrying out the stone quarrying with the total volume arrived for the excavation & production adequate details such as lithology of the deposit, reserve	The geological reserves are estimated to be rough stone 13,79,140 m <sup>3</sup> and Gravel 48,088 m <sup>3</sup> .	51

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	estimation, place for waste dump/mined mineral storage, end-use of mined materials, identified potential customers/end-users and travel path.	The mineable reserves of rough stone 2,12,855 m <sup>3</sup> and Gravel 15,912 m <sup>3</sup> .	
5	The PP shall also justify the selection of mining methodology (conventional or non-conventional) adopting blasting techniques/non-explosive techniques with proper ground reality & laboratory testing.	Method of mining Details is Given Chapter-2.	71
6	The proponent shall submit the "Blast Design Parameters for controlling the vibration and fly rock from the quarry blasting" considering the existence of sensitive structures including habitations within 500 m from the lease boundary.	Agreed	-
7	The PP shall justify the estimation of HEMM population for excavation and transportation in the proposed quarries with proper calculation methodology adopted	Mineral transportation details given chapter-2.	74
8	The PP shall enumerate the environmental settings situated within a radial distance of 1 km such rivers/water bodies/reserve forests/grazing land/existence of the hospitals and educational institutions/structures.	Enumerate the environmental settings details given chapter-3	90
9	The PP shall provide the details of the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.	The geological reserves are estimated to be rough stone 13,79,140 m <sup>3</sup> and Gravel 48,088 m <sup>3</sup> .  The mineable reserves of rough stone 2,12,855 m <sup>3</sup> and Gravel 15,912 m <sup>3</sup> .	51
10	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 with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship,	Complied.	Enclosed as Annexure 4.

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	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.		
11	The PP shall submit a 'Slope Stability Action Plan' for the proposed quarry where the proposed depth exceeds 30 m and it shall cover the aspects of stability of quarry walls including the access ramp keeping the benches intact.	It will be complied at the timing of EC appraisal.	-
12	If the blasting operation is to be carried out, the PP shall present a conceptual design for carrying out the NONEL initiation based controlled blasting operation including the line drilling & muffle blasting techniques and a Simulation Model indicating the anticipated Blast-induced Ground Vibration levels in the proposed quarry as stipulated by the DGMS Circular No.7 of 1997, during the EIA Proposal.	Proponent undertaking agreement enclosed as Annexure-12	-
13	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.	Proponent undertaking agreement enclosed as Annexure-12	-
14	The PP shall give an affidavit stating that no contractual persons provided by the explosive suppliers will be employed for carrying out the blasting operations in the proposed quarry	Proponent undertaking agreement enclosed as Annexure-12	-
15	The PP shall also give an affidavit that no highly sensitive structure such as fire-cracker manufacturing units, Gas godown/explosive Magazine, LPG Bottling Units, etc are located within a radial distance of 300 m from the lease boundary of the proposed quarry	Agreed	-



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16	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 20 m from the blast site.	Agreed. Will be complied.	-
17	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 details to be incorporated at the time of final EIA Submission.	-
18	The PP shall provide the environmental mitigation measures implemented for the crusher(s) located within the mining lease.	Agreed	-
19	If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines, a. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines? b. Quantity of minerals mined out. c. Highest production achieved in any one year d. Detail of approved depth of mining. e. Actual depth of the mining achieved earlier. f. Name of the person already mined in that leases area. g. If EC and CTO already obtained, the copy of the same shall be submitted. h. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.	AD/DD mines letter enclosed as annexure -13.  Existing pit dimation of existing quarry: Length 134mX Width 97m X27m BGL. Chapter-2	77
20	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	Agreed	-

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	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		
21	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).	All corner coordinates of the mine lease area, superimposed details given Chapter-2	59
22	The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,	Agreed	-
23	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.	There are no trees within ML area. Fencing and plantations are under process. Greenbelt / Plantation will be 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 1.57.5 Ha will be under greenbelt and plantation.	-
24	The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment	Complied. Please refer Fig. 10.1	189
25	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	The hydrogeological study from a reputed institute is in progress; however, the final EIA submission report will be incorporated into Chapter 3.	129

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	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.		
26	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 summer season (March to May 2024).	86
27	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.	Detailed cumulative impact study has been carried and the same is incorporated in the Chapter 4.  Accordingly, a detailed Environment Management Plan is prepared considering air, water, noise and soil environment and the details are given in Chapter 7.	176
28	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	Rain water harvesting Plan is given in chapter 4.	144
29	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.	Satellite imagery has been used to study the lease area and the details of land use is given in Chapter 3.	113

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30	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.	Not applicable. There is no generation of the OB & waste.	-
31	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.	144
32	If the Village Road/State highway/National highway are located within a radial distance of 500 m from the lease boundary of the quarry proposal, the PP shall carry out traffic studies to indicate impact on local transport infrastructure due to the Project and mitigation measures.	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.	-
33	A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.	There are no trees within 300m buffer zone of the project area.	-
34	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.	181
35	Public Hearing points raised and commitments of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.	Agreed	-
36	The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.	Agreed	-

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37	The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.	Agreed	-
38	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.	Accepted. It will be done.	-
39	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 1.57.5 ha. Green belt development plan provided.	203
	Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site-specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner	Accepted. The photographs showing green belt will be provided once it is completed.	-
40	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.	181

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41	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.	168
42	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.	126
43	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	-
44	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.	Socio economic study is conducted both by visits and secondary data collection.  Details are given in Chapter 3	126
45	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	-
46	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	182
47	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	AD/DD mines letter enclosed as annexure -13.	-

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

	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.		
48	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.	Agreed	-
49	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.	Agreed	-

**In addition to the above, the following shall be furnished: - The Executive summary of the EIA/EMP report in about 8-10 pages should be prepared incorporating the information on following points:**

1	Project name and location (Village, District, State, Industrial Estate (if applicable))	Agreed	-
2	Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.	Agreed	-
3	Measures for mitigating the impact on the environment and mode of discharge or disposal.	Agreed	-
4	Capital cost of the project, estimated time of completion.	Agreed	-
5	The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.	Agreed	-
6	A detailed study of the lithology of the mining lease area shall be furnished.	Agreed	-
7	Details of village map, "A" register and FMB sketch shall be furnished.	Agreed	-

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

8	Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be submitted along with EIA report.	Agreed	-
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.	Agreed	-
10	EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.	Agreed	-
11	Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.	Agreed	-
12	The EIA study report shall include the surrounding mining activity, if any.	Agreed	-
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.	Agreed	-
14	A study on the geological resources available shall be carried out and reported.	Agreed	-
15	A specific study on agriculture & livelihood shall be carried out and reported	Agreed	-
16	Impact of soil erosion, soil physical chemical and biological property changes may be assumed.	Agreed	-
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 -	Agreed	-



**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

	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	Agreed	-
19	Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.	Agreed	-
20	Likely impact of the project on air, water, land, flora-fauna and nearby population	Agreed	-
21	Emergency preparedness plan in case of natural or in plant emergencies	Agreed	-
22	Issues raised during public hearing (if applicable) and response given	Agreed	-
23	CER plan with proposed expenditure.	Agreed	-
24	Occupational Health Measures	Agreed	-
25	Post project monitoring plan	Agreed	-
26	The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.	Agreed	-
27	. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.	Agreed	-
28	The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.	Agreed	-
29	A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.	Agreed	-
30	Reserve funds should be earmarked for proper closure plan.	Agreed	-
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	Agreed	-

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

	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.		
<b>Besides the above, the below mentioned general points should also be followed:-</b>			
1	A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.	Agreed	-
2	All documents may be properly referenced with index, page numbers and continuous page numbering.	Agreed	-
3	Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.	Agreed	-
4	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.	Agreed	-
5	The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J - 11013/77/2004- IA-II(I) dated 2nd December, 2009, 18th March 2010, 28th May 2010, 28th June 2010, 31st December 2010 & 30th September 2011 posted on the Ministry's website <a href="http://www.moef.nic.in/">http://www.moef.nic.in/</a> may be referred.	Agreed	-

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

6	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.	Agreed	-
7	The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance	Agreed	-
8	The TORs with public hearing prescribed shall be valid for a period of three years from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.	Agreed	-

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## CHAPTER 1

### INTRODUCTION

#### 1.1 PURPOSE OF THE REPORT

Environmental Impact Assessment (EIA) as a tool used to identify the environmental, social and economic impacts of a project prior to decision-making. It aims to predict environmental impacts at an early stage in project planning and design, find ways and means to reduce adverse impacts, shape projects to suit the local environment and present the predictions and options to decision-makers.

Thiru.M.N.Balasundaram, S/o.Natarajan, Lessee, has obtained Precise Area communication letter from the Deputy Director, Department of Geology and Mining, Tiruvannamalai to quarry out 2,12,855 m<sup>3</sup> of Rough Stone and 15,912 m<sup>3</sup> of Gravel. Over an extent of 3.87.5 Ha., located at the Survey Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B over an extent of 3.87.5 Ha in Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State. Hence, this proposed quarry falls under the cluster situation due to the following proposed, existing and abandoned quarries located within 500m radius. The details are given below.

<b>Table 1.1 Cluster Mines Details</b>					
<b>Sl. No</b>	<b>Name of the owner (Tvl.)</b>	<b>Village &amp; S. F. Nos.</b>	<b>Extent (Ha)</b>	<b>Lease Period</b>	<b>Lease Status</b>
<b>Existing Quarries</b>					
1	Thiru.R.Elumalai, S/o.Rajagopal, No.20, Pillaiyar Koil Street, Arasanipalai Village, Vembakkam Taluk.	Ezhacheri & 62/1A, 1B, 2C, 2D, 4, 5, 6, 7, 9, 10, 11	1.24.0	02.11.2021 to 01.11.2031	Existing Quarry
2	Thiru.P.Sanker, S/o.Ponnappan, No.1/63, Pillaiyar koil street, Eruamiyur Village, Thirumudivakkam, Chennai.	Ezhacheri & 21/2F, 2G, 2H, 2I, 2J & 2K	2.09.5	02.11.2021 to 01.11.2031	Existing Quarry

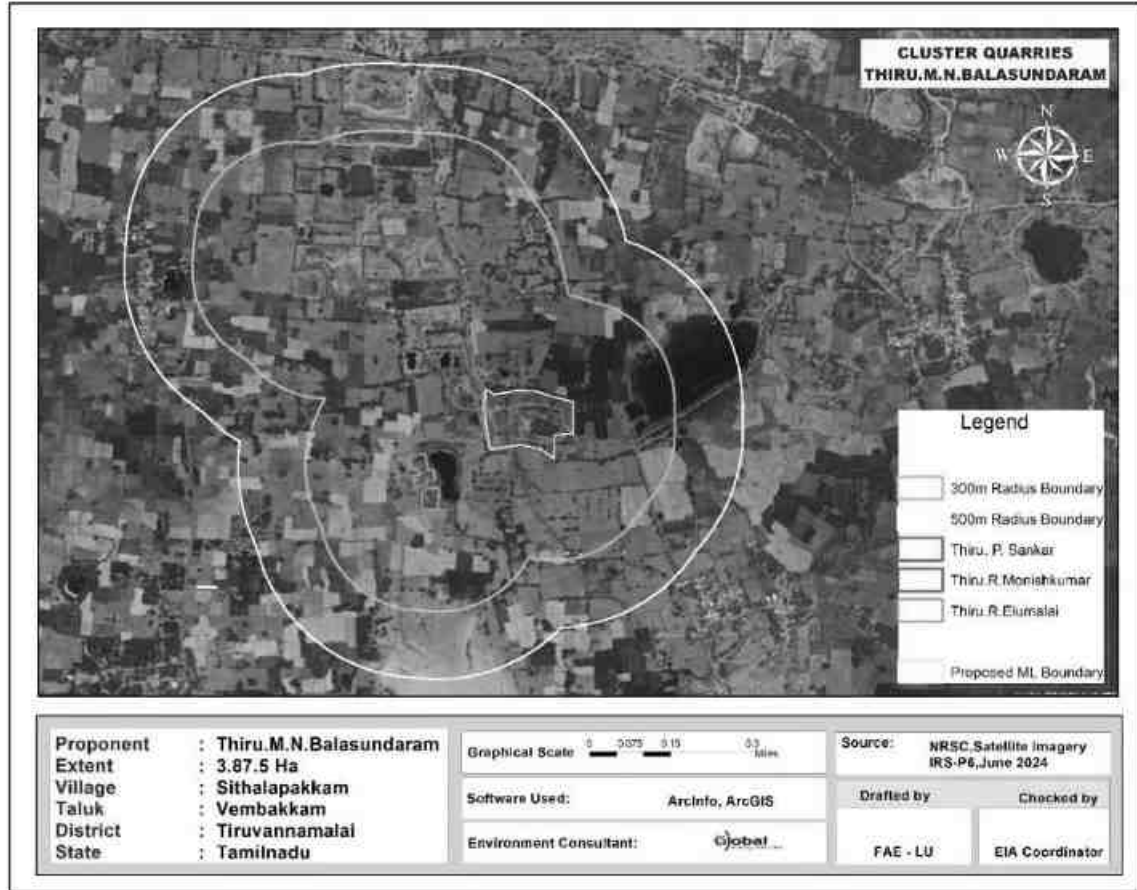
**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

3	Thiru.R.Monishkumar, S/o.Rajendiran, No.35/58, Rajaji Street, Chengalpattu.	Ezhacheri & 16/5A, 16/5B, 19/1B3, 4A1, 4B1, 4C1, 4D1, 5A, 5B1, 21/1C, 1D, 1E, 1F, 22/2B	3.12.5	02.11.2021 to 01.11.2031	Existing Quarry
<b>Abandoned Quarries</b>					
1	B.Deenan, No.79, Gajapathi Street, Sanai Nagar, Chennai.	Ezhacheri & 25/2	1.00.5	19.3.2010 to 18.3.2015	Expired Quarry
2	R.Seenuvasan, Road Street, Arasanipalai village, Vembakkam Taluk.	Ezhacheri & 65/4, 5, 7, 8A, 66/4	3.42.0	27.06.2014 to 26.06.2019	Expired Quarry
3	B.Deenan, No.79, Gajapathi Street, Sanai Nagar, Chennai.	Ezhacheri & 65/6	0.95.5	20.07.2018 to 01.03.2021	Expired Quarry
<b>Present Proposed Quarries</b>					
1	Thiru.M.N.Balasundaram, S/o.Natarajan, No.72, Main Road, Mangadu, Kundrathur Taluk, Kanchipuram District.	Chithalapakkam 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A & 8/3B	3.87.5	-	-
<b>Future Proposed quarries</b>					
Nil					
<b>Total Extent = 10.33.5 Ha</b>					

As per EIA notification, 2006 and its subsequent amendments the proposed Tmt.K. Rajamani, W/o. Kuppusamy Rough Stone & Gravel Quarry, cluster is falls under Schedule 1(a) Mining of Minerals. It is further classified under Category B1 due to the overall extent of cluster area is 9.02.5 Ha which is >5 Ha. Satellite image of Quarries in Cluster is shown in Fig 1.1.

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

**Figure.1.1 Satellite Image showing cluster quarries**



The ToR for preparation of EIA/EMP was approved vide ToR Identification No. TO24B0108TN5397062N, dated 14.05.2024. This report has been prepared in line with the approved TOR for production of maximum excavation of 2,12,855 m<sup>3</sup> of Rough Stone and 15,912 m<sup>3</sup> of Gravel for a period of five years.

## **1.2 IDENTIFICATION OF PROJECT & PROJECT PROPONENT**

The proposed project is for mining of Rough Stone and gravel (under cluster) from the S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B over an extent of 3.87.5 Ha in Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State. As per EIA notification, 2006 and its subsequent amendments the project comes under Schedule 1 (a) under Category B1 (Lease area >5 to 250 Ha). The proposed project details are given below.

**(a) Proposed project details**

<b>Sl. No.</b>	<b>Description</b>	<b>Status/Remarks</b>
1.	Sector	Non-coal mining
2.	Category of the project	B1
3.	Proposed mineral	Rough Stone and Gravel quarry
4.	Type of Lease	New Project
5.	Extent of the lease	3.87.5 Ha
6.	Proposed depth of mining	47m BGL
7.	Method of mining	Opencast-Mechanized
8.	Proposed lease period	5 Years
9.	Proposed Environmental Clearance	5 Years
10.	Proposed production quantity for five years	Rough Stone: 2,12,855 m <sup>3</sup> Gravel: 15,912 m <sup>3</sup>

**(b) Profile of the project proponent**

The proposed lessee Thiru.M.N.Balasundaram, S/o.Natarajan is an individual with sound experience in the identification of quarry, operation and marketing in the field of Rough Stone and gravel quarry. The proposed land is a Patta land jointly registered in the name of applicant Thiru.Balasundram, Thiru.Sankar, Thiru.Baskar, and Thiru.Dinesh, vide Patta nos.159 and 108, the applicant has obtained consent from the other Pattadars, please refer Annexure no -6.

**(c) Project proponent details**

Name of the proponent : Thiru.M.N.Balasundaram,  
 Status of the Proponent : Individual  
 Address : Thiru.M.N.Balasundaram,  
 S/o.Natarajan,  
 Main Road, Mangadu,  
 Kundrathur Taluk,  
 Kanchipuram District.

### 1.3 BRIEF DESCRIPTION OF NATURE, SIZE, LOCATION OF THE PROJECT AND ITS IMPORTANCE TO THE COUNTRY, REGION:

The proposed quarrying operation Opencast-Mechanized method with 5m bench height, 5m bench width and overall bench slope is less than 80°. The quarry operation involves shallow jackhammer drilling, slurry blasting, excavation, loading and transportation.

#### 1.3.1 SIZE AND LOCATION OF THE PROJECT

##### (a) Size of the project

Table1.2 Proposed project details		
Sl. No.	Feature	Description
1	Type of land	Consent Patta land
2	Extent of lease area	3.87.5 Ha
3	Type of lease	New Project
4	Geological Resource	Rough Stone – 13,79,140 m <sup>3</sup> Gravel – 48,088 m <sup>3</sup>
5	Mineable Resource	Rough Stone – 2,12,855 m <sup>3</sup> Gravel – 15,912 m <sup>3</sup>
6	Proposed production quantity for five years	Rough Stone – 2,12,855 m <sup>3</sup> Gravel – 15,912 m <sup>3</sup>
6	Proposed depth of mining	47 m BGL

##### Location of the project

The proposed project site is located Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State and its Latitude 12°42'45.97"N to 12°42'52.67"N and Longitude 79°43'25.08"E to 79°43'33.64"E with Survey of India Topo Sheet No. 57- P/10.

#### 1.3.2 IMPORTANCE OF THE PROJECT TO THE COUNTRY AND REGION

There is an increasing demand for rough stone in India and other countries. Since the construction industry is rapidly growing now, there is an increasing demand for rough stone. Thus, this project will contribute not only to the demand of Rough Stone, but also provide employment opportunities to the nearby villages.



#### **1.4 SCOPE OF THE STUDY -DETAILS OF REGULATORY SCOPING CARRIED OUT (AS PER TERMS OF REFERENCE):**

Any mining project may cause environmental impacts near the project site during its operation. The type and intensity of impacts on various components of the environment may vary depending on the nature of the project, as well as its geographical location. The net impacts of the project can be quantified through Environment Impact Assessment (EIA) studies on Physical, Biological and Socio-economic environment. The EIA studies give a basis for preparing an Environmental Management Plan (EMP) to conserve the environment of the area.

For the purpose of preparing EIA/EMP the SEIAA, Tamil Nadu has issued a Terms of Reference ToR Identification No. TO24B0108TN5397062N, dated 14.05.2024 in accordance with the provisions of EIA Notification 2006 and its subsequent amendments. This EIA study includes both Core and Buffer zone i.e., the lease area and 10km radius of the project area respectively. This EIA report prepared based on the data generated from the summer season 2024 (March 2024 to May 2024) and all individual components of environment are described in detail. An in-depth analysis of available information has been made for working out an effective Environmental Management Plan.

##### **1.4.1 PRESENT STUDY**

The Project Proponent has assigned M/s. Global Mining Solutions, Salem for conducting Environment Impact Assessment / Environmental Management Plan (EIA/EMP) for this project. The Environmental Impact Assessment and Environmental Management Plan of this cluster quarry addressing all the environmental related impacts and mitigation measures. The EMP report is based on the data generated from March 2024 to May 2024 by M/s. Shrient Analytical & Research Labs Private Limited, Chennai and the data generated by the FAE of the M/s. Global Mining Solutions, Salem. The study evaluates the prevailing baseline environmental conditions. The objectives of the present study are given below.

- ✚ To prepare the present baseline scenario through primary field monitoring and secondary data for different environmental descriptors such as air, water, noise, traffic, biodiversity, socio-economic etc.
- ✚ To identify the activities of mining that have bearing on the environment
- ✚ To Assess the impact of proposed project activity
- ✚ To suggest preventive mitigation measures
- ✚ To prepare an Environmental Management Plan (EMP) including environmental monitoring.
- ✚ To Prepare Disaster Management Plan.

#### **1.4.2 STATUS OF LITIGATIONS**

This is a Rough Stone and Gravel Quarry project. There is no litigation/court case pending against this project.

##### **a. Precise Area Communication:**

The Project Proponent has obtained Precise Area Communication from the Deputy Director, Department of Geology and Mining, Tiruvannamalai vide Rc.No.429/Kanimam/2022 dated 08.11.2023. The letter copy enclosed as Annexure - 2.

##### **b. Mining Plan Approval Letter:**

The project proponent has prepared mining plan under rule 41 & 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 and the same has been approved by the Deputy Director, Department of Geology and Mining, Tiruvannamalai vide Rc.No.429/Kanimam/2023 dated 29.11.2023. The approval letter along with approved plan is enclosed as Annexure - 3.

**c. 500m radius quarry features:**

The project proponent has obtained an official letter from the Deputy Director, Department of Geology and Mining, Tiruvannamalai vide Rc.No.429/Kanimam/2023 dated 29.11.2023. The letter copy enclosed as Annexure – 4.

**d. Project Proponent undertaking affidavit:**

The project proponent has issued an affidavit under MoEF & CC O.M. No. 3-50/2017-IA.III(Pt.) dated 30.05.2018 to comply with the direction of the Hon'ble SC made on 2.08.2017 in W.P. (C) 114 of 2014 in matter of Common Cause vs Union of India & Ors. The Affidavit copy is enclosed as Annexure – 12.

**e. Land document of the proposed lease area:**

It is a Patta land jointly registered in the name of applicant Thiru.Balasundram, Thiru.Sankar, Thiru.Baskar, and Thiru.Dinesh, vide Patta nos.159 and 108, the applicant has obtained consent from the other Pattadars. The copy of the Patta, Adangal, A-Register and Consent Registered Documents are enclosed as Annexure - 6.

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## CHAPTER 2

### PROJECT DESCRIPTION

#### 2.1 TYPE OF PROJECT

The type of the project is Rough Stone and Gravel Quarry with Opencast-Mechanized mining method to excavate Rough Stone and Gravel within the proposed Mine Lease area with drilling, blasting, loading and transportation. This project is located at S.F. Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B over an extent of 3.87.5 Ha in Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State.

As per EIA notification, 2006 and its subsequent amendments the project comes under Schedule 1 (a) under Category B1 (Lease area >5 to 250 Ha), considering cluster situation and the total cluster area is 10.33.5 Ha. The details of mines located in the cluster area is certified by Deputy Director, Department of Geology and Mining, Tiruvannamalai vide Rc.No.429/Kanimam/2023 dated 29.11.2023.

**Table 2.1 500m Radius Cluster Mines Details**

Sl. No	Name of the owner (Tvl.)	Village & S. F. Nos.	Extent (Ha)	Lease Period	Lease Status
<b>Existing Quarries</b>					
1	Thiru.R.Elumalai, S/o.Rajagopal, No.20, Pillaiyar Koil Street, Arasanipalai Village, Vembakkam Taluk.	Ezhacheri & 62/1A, 1B, 2C, 2D, 4, 5, 6, 7, 9, 10, 11	1.24.0	02.11.2021 to 01.11.2031	Existing Quarry
2	Thiru.P.Sanker, S/o.Ponnappan, No.1/63, Pillaiyar koil street, Eruamiyur Village,	Ezhacheri & 21/2F, 2G, 2H, 2I, 2J & 2K	2.09.5	02.11.2021 to 01.11.2031	Existing Quarry

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

	Thirumudivakkam, Chennai.				
3	Thiru.R.Monishkumar, S/o.Rajendiran, No.35/58, Rajaji Street, Chengalpattu.	Ezhacheri & 16/5A, 16/5B, 19/1B3, 4A1, 4B1, 4C1, 4D1, 5A, 5B1, 21/1C, 1D, 1E, 1F, 22/2B	3.12.5	02.11.2021 to 01.11.2031	Existing Quarry
<b>Abandoned Quarries</b>					
1	B.Deenan, No.79, Gajapathi Street, Sanai Nagar, Chennai.	Ezhacheri & 25/2	1.00.5	19.3.2010 to 18.3.2015	Expired Quarry
2	R.Seenuvasan, Road Street, Arasanipalai village, Vembakkam Taluk.	Ezhacheri & 65/4, 5, 7, 8A, 66/4	3.42.0	27.06.2014 to 26.06.2019	Expired Quarry
3	B.Deenan, No.79, Gajapathi Street, Sanai Nagar, Chennai.	Ezhacheri & 65/6	0.95.5	20.07.2018 to 01.03.2021	Expired Quarry
<b>Present Proposed Quarries</b>					
1	Thiru.M.N.Balasundaram, S/o.Natarajan, No.72, Main Road, Mangadu, Kundrathur Taluk, Kanchipuram District.	Chithalapakkam 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A & 8/3B	3.87.5	-	-
<b>Future Proposed quarries</b>					
Nil					
<b>Total Extent = 10.33.5 Ha</b>					

The proposed production is 2,12,855 m<sup>3</sup> of Rough Stone and 15,912 m<sup>3</sup> of Gravel by open cast mechanized mining method.

## **2.2 NEED FOR THE PROJECT**

The salient features of the proposed Rough Stone and Gravel quarry of Thiru.M.N.Balasundaram.

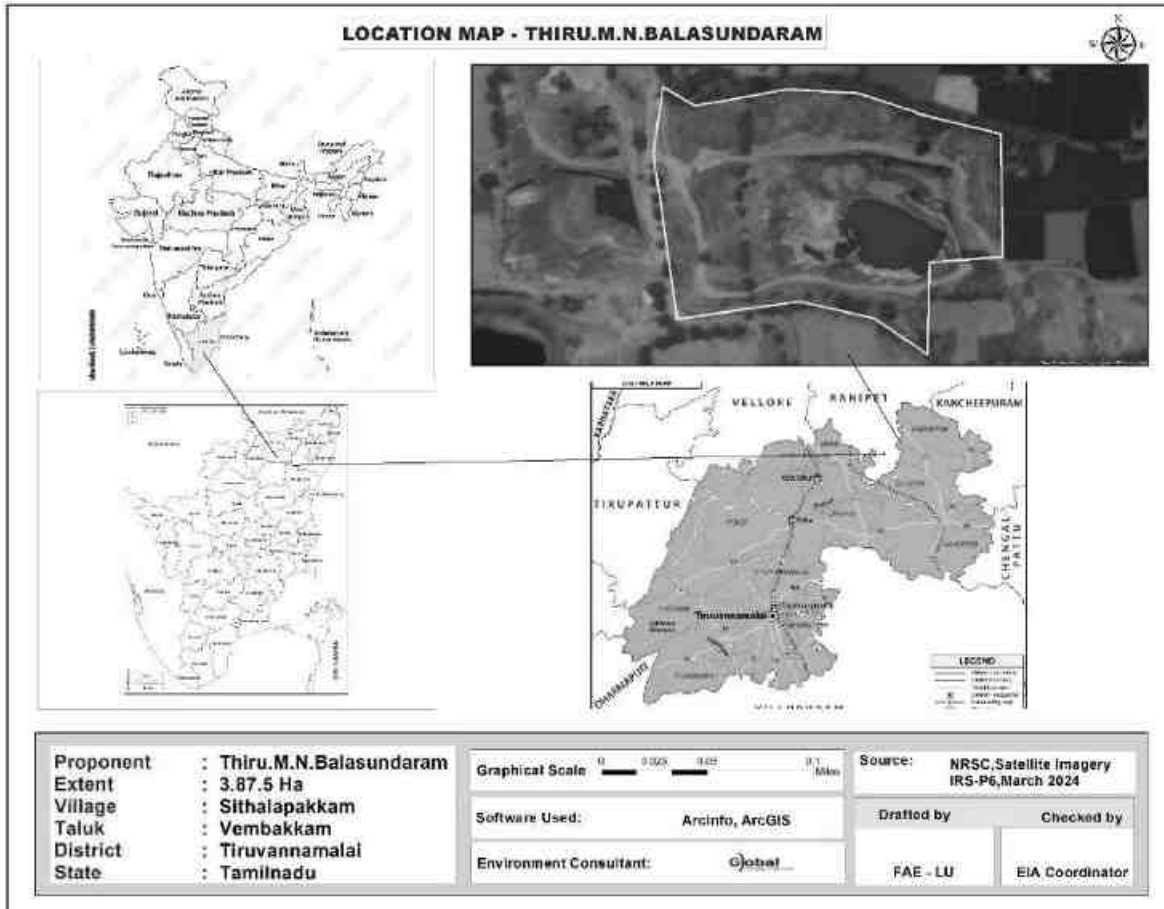
<b>S.No.</b>	<b>Type of Detail</b>	<b>Description</b>
1	Sector	1(a) Non coal mining
2	Fresh/Existing project	New Project
3	Category	B1
4	Nature of mineral	Minor Mineral
5	Life of the mine	5 years
6	Production Quantity for five years	Rough Stone - 2,12,855 m <sup>3</sup> Gravel - 15,912 m <sup>3</sup>
7	Waste generation and management	Nil
8	Bench height and width	Proposed bench height & width is 5.0m respectively and number of proposed benches is 10 Nos (1+9).
9	Ultimate pit depth	47 m BGL
10	End use	The excavated Rough Stone and Gravel is used for construction industries for Government & Public sector projects besides catering domestic housing and infrastructure projects in and around the district.

## **2.3 LOCATION (MAPS SHOWING GENERAL LOCATION, SPECIFIC LOCATION, PROJECT BOUNDARY & PROJECT SITE LAYOUT):**

This project site is located in Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State. There is an existing road from the area leads to Bagavandapuram – Arasanipalai road on western side of the area. The Nearest Railway line is Kancheepuram – Chengalpattu line which is about 12.5Km on the Northeastern side of the area. The National Highway (NH-132B) Kancheepuram – Chengalpattu about 11Km on northeastern side of the area. The State Highway (SH-118A) Kancheepuram – Uthiramerur is about 3Km on eastern side of the area. The general location is given in Figure 2.1. The specific location is given in Figure 2.2.

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDARAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

**FIGURE 2.1 LOCATION MAP**

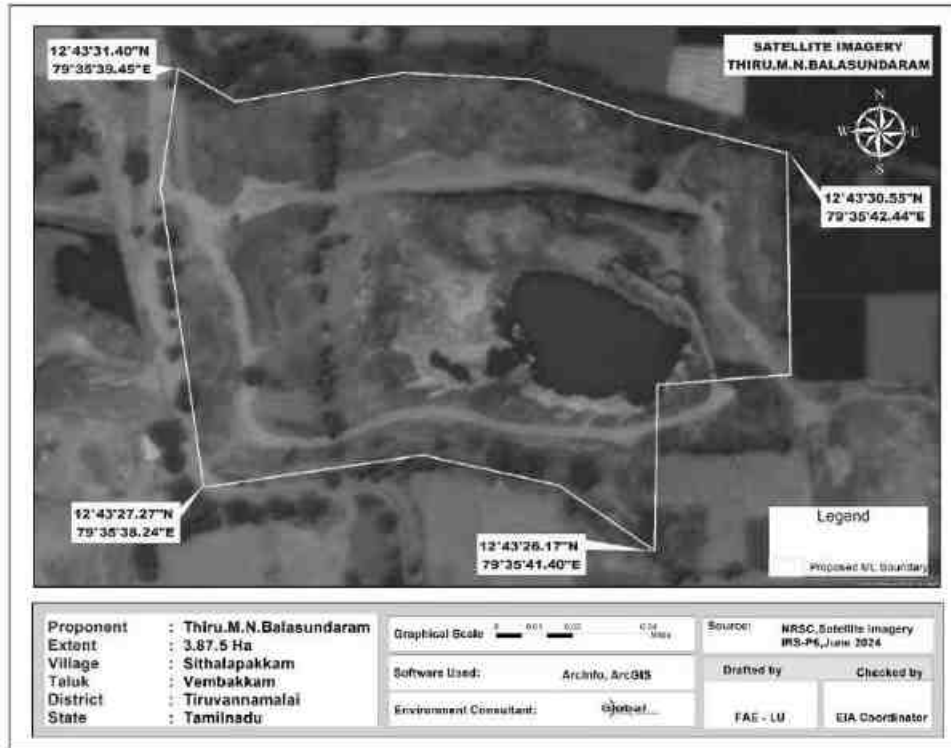


**Table 2.2 Co-Ordinates of the Project Site**

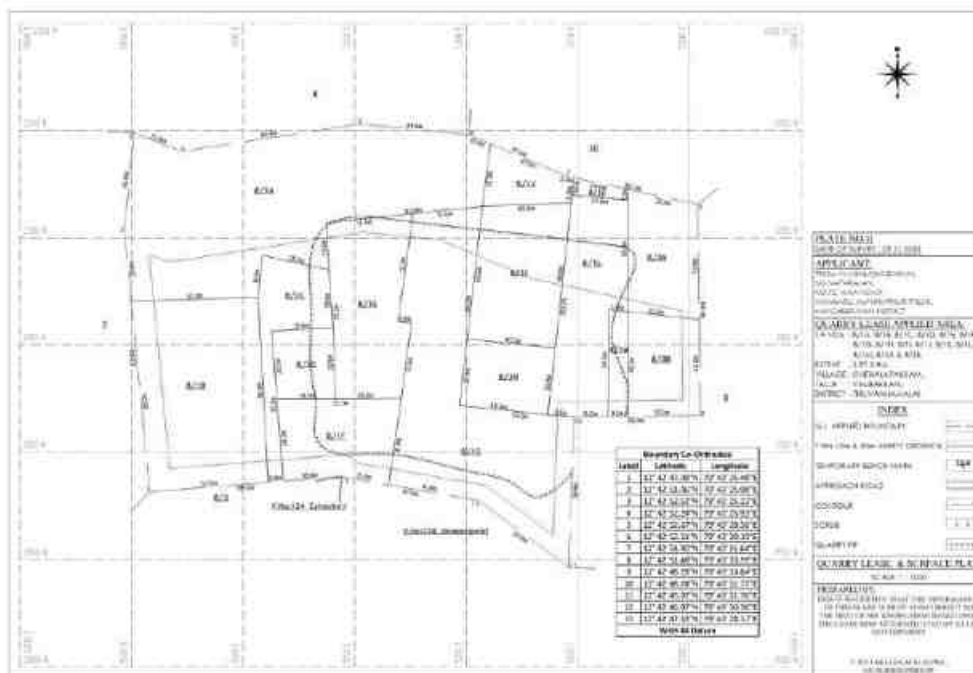
Corners	Co- ordinates		Distance between the corners
	Latitude	Longitude	
1	12° 42' 47.08"N	79° 43' 25.48"E	1-2 = 122.8m
2	12° 42' 51.06"N	79° 43' 25.08"E	2-3 = 45.0m
3	12° 42' 52.52"N	79° 43' 25.22"E	3-4 = 23.0m
4	12° 42' 52.24"N	79° 43' 25.93"E	4-5 = 80.4m
5	12° 42' 52.67"N	79° 43' 28.56"E	5-6 = 49.6m
6	12° 42' 52.51"N	79° 43' 30.19"E	6-7 = 47.6m
7	12° 42' 51.90"N	79° 43' 31.64"E	7-8 = 60.2m
8	12° 42' 51.48"N	79° 43' 33.59"E	8-9 = 98.4m
9	12° 42' 48.28"N	79° 43' 33.64"E	9-10 = 56.4m
10	12° 42' 48.24"N	79° 43' 31.77"E	10-11 = 69.8m
11	12° 42' 45.97"N	79° 43' 31.70"E	11-12 = 50.8m
12	12° 42' 46.97"N	79° 43' 30.36"E	12-13 = 62.6m
13	12° 42' 47.33"N	79° 43' 28.32"E	13-1 = 86.0m

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDARAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

**FIGURE 2.2 GOOGLE IMAGE SHOWING PROJECT SITE**



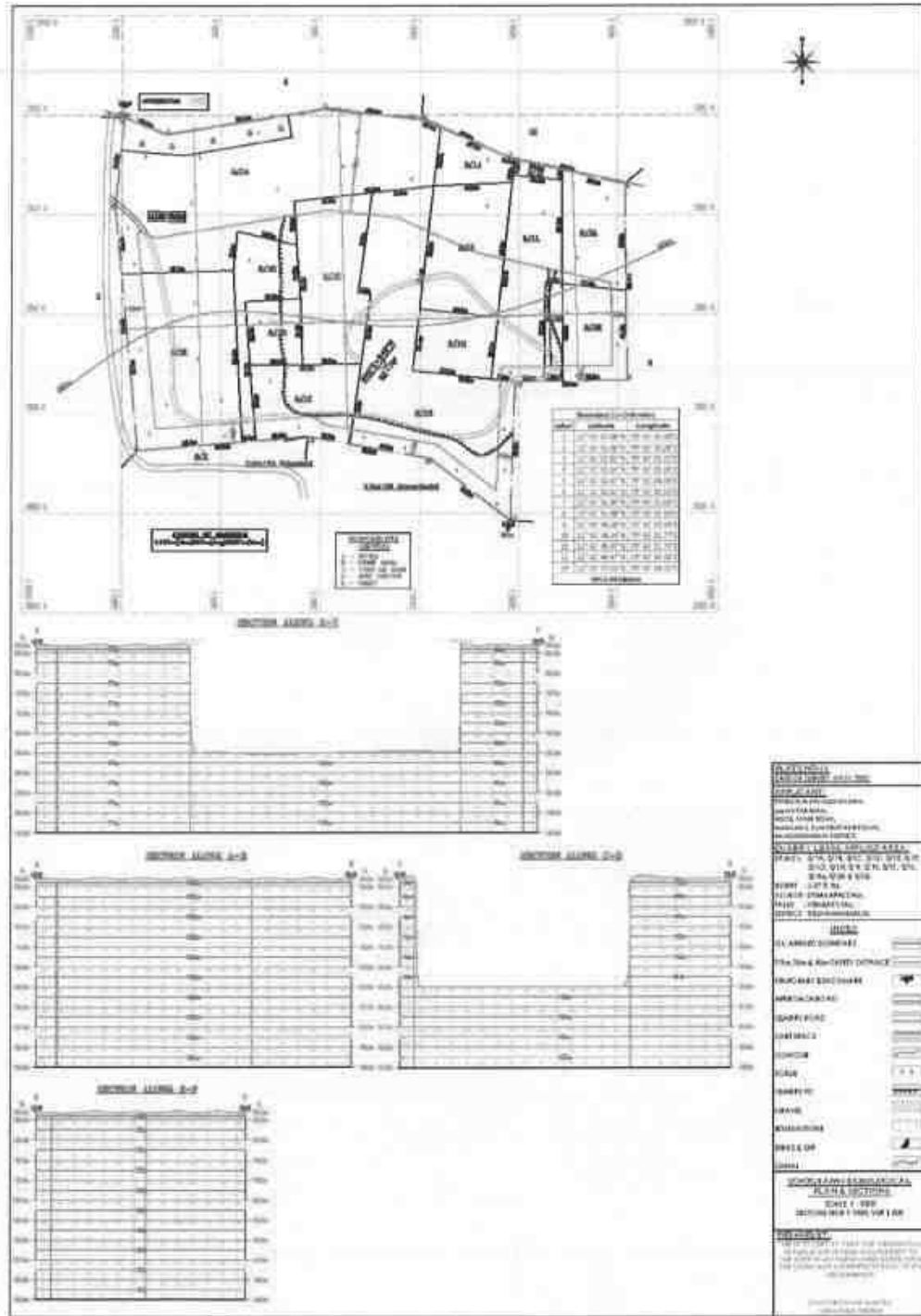
**FIGURE 2.3 SURFACE PLAN PROJECT SITE**





DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.

**FIGURE - 2.4 GEOLOGY MAP OF PROJECT AREA**



### **2.3.1 PROJECT SITE LAYOUT**

The proposed Mine Lease area is Consent Patta Land and the Land use pattern of the project site is given below Table 2.3.

<b>Table 2.3 Current Land Use Pattern</b>			
<b>S. No.</b>	<b>Land Use</b>	<b>Present Area (Hect)</b>	<b>Area in use during the quarrying period (Hect)</b>
1	Quarrying Pit	1.33.0	2.27.0
2	Infrastructure	Nil	0.01.0
3	Roads	0.01.0	0.02.0
4	Green Belt	0.02.0	1.57.5
5	Unutilized	2.51.5	Nil
	<b>Total</b>	<b>3.87.5</b>	<b>3.87.5</b>

### **2.3.2 LAND USE AT MINE CLOSURE STAGE**

<b>Table 2.4 Land Use at Mine Closure Stage</b>		
<b>S. No.</b>	<b>Land Use</b>	<b>Area in use during the quarrying period (Hect)</b>
1	Area left for water body	2.27.0
2	Green Belt	1.57.5
3	Remaining area	0.03.0
	<b>Total</b>	<b>3.87.5</b>

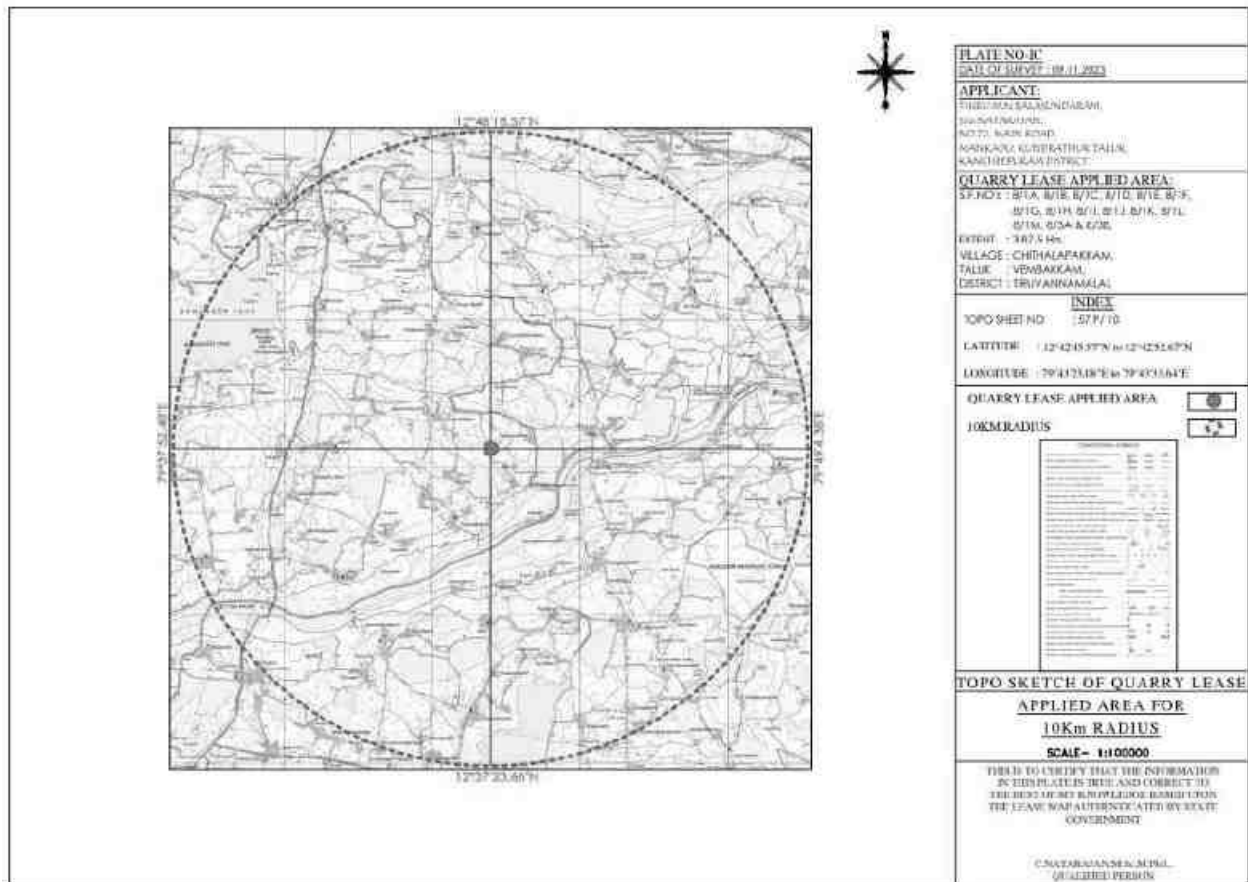
### **2.3.3 SALIENT FEATURES OF THE LEASE AREA**

<b>Sr.No</b>	<b>Salient Features</b>	<b>Description</b>
1	Nearest Roadway	<ul style="list-style-type: none"> <li>• There is an existing road from the area leads to Bagavandapuram – Arasanipalai road on western side of the area.</li> <li>• The Nearest Railway line is Kancheepuram – Chengalpattu line which is about 12.5Km on the Northeastern side of the area.</li> <li>• The National Highway (NH-132B) Kancheepuram – Chengalpattu about 11Km on northeastern side of the area.</li> </ul>

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

		•The State Highway (SH-118A) Kancheepuram – Uthiramerur is about 3Km on eastern side of the area.
2	Nearest Village	Arasanipalayam - 0.54Km - SE
3	Nearest Railway station	Walajabad - 13.56 km – NE
4	Nearest Airport	Chennai – 55.48km – ENE

**Figure 2.5 Topo Map showing existing site features**



## 2.6 PROJECT SITE PHOTOGRAPHS



**2.4 SIZE OR MAGNITUDE OF OPERATION(INCL.ASSOCIATED ACTIVITIES REQUIRED BY OR FOR THE PROJECT):**

The proposed production is rough stone 2,12,855 m<sup>3</sup> and 15,912 m<sup>3</sup> Gravel by Opencast Mechanized mining method. Available Geological Resources of Rough stone 13,79,140 m<sup>3</sup> and Gravel 48,088 m<sup>3</sup>. Cost of the project is Rs. 306.44 lakhs including land cost. Capital cost for EMP is Rs. 39.27 lakhs and recurring cost for the EMP is Rs. 32.38 Lakh/Annum.

**2.4.1 STATUS OF STATUTORY CLEARANCES, PERMISSIONS, NO OBJECTION CERTIFICATES, CONSENTS:**

The mining project will be implemented after getting all the Statutory Clearances, Permissions, No Objection Certificates, consents etc. which are required/necessary for this project under various Acts, Rules and Regulations is as given in table below:

**Table - 2.5 Status of Statutory Clearances, Permissions, NOC, Consents**

S.No	Particular	Status
1	Mining Plan Approval Status	The project proponent has prepared mining plan under rule 41 & 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 and the same has been approved by the Deputy Director, Department of Geology and Mining, Tiruvannamalai vide Rc.No.429/Kanimam/2023 dated 29.11.2023.
2	Environment Clearance Status	ToR Letter Received vide file no TO24B0108TN5397062N, dated 14.05.2024.
3	Grant of Consent to Establish (CTE)	After 30 days from grant of EC (Duration as per TNPCB)
4	Grant of Consent to Operate (CTO)	After 30 days from grant of EC (Duration as per TNPCB)

## **2.5 PROPOSED SCHEDULE FOR APPROVAL & IMPLEMENTATION**

Proposed schedule for approval of the proposed mining project is given as under:

**Table - 2.6 Proposed Schedule for Approval**

S.N	Activity Description	Oct 2024	Nov 2024	Dec 2024	Jan 2025
1	Submission of Final EIA/EMP Report to SEIAA-TN				
2	Consideration for EC by SEAC				
3	Recommendation of SEAC to SEIAA				
4	Grant of EC by SEIAA				

*Proposed schedule has been prepared as per EIA Notification, 2006*

Note: Application was submitted to Parivesh Portal on 13.02.2024, ToR was granted on 14.05.2024. Baseline data Collection during Summer Season (March to May 2024). After obtaining EC from SEIAA-TN, CTE and CTO under section 21 of the Air (Prevention and Control Act) 1981 and section 25/26 Water (Prevention and Control of Pollution Act) 1974 will be obtained from Tamil Nadu State Pollution Control Board (TNPCB).

### **2.5.1 IMPLEMENTATION**

Implementation of the proposed mining project will be done in accordance with the existing Acts and Rules applicable on mining operations as well as in accordance with any Act/Rule/Guidelines issued by Central or State Government from time to time and as per Mining Plan and Progressive Mine Closure Plan approved by Assistant Deputy Director, Department of Geology and Mining, Tiruvannamalai vide Rc.No.429/Kanimam/2023 dated 29.11.2023.

## **2.6 TECHNOLOGY & PROCESS DESCRIPTION**

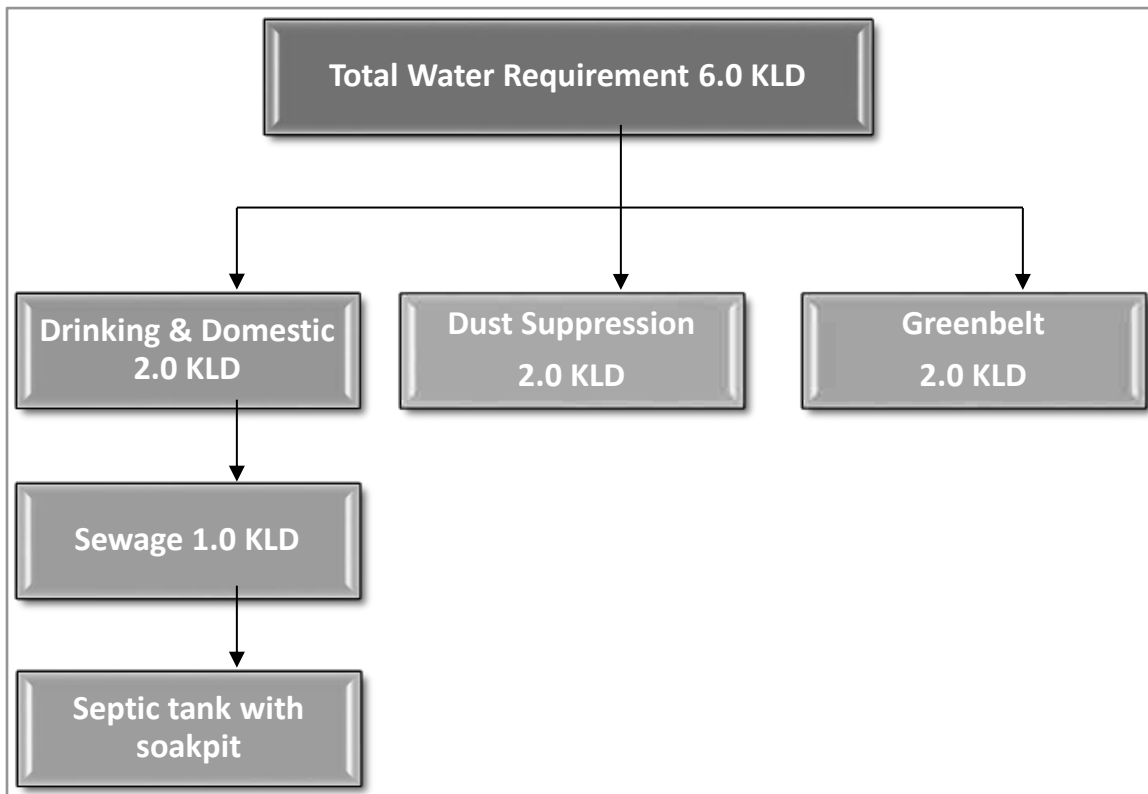
### **2.6.1 BASIC REQUIREMENTS FOR THE PROJECT**

The project requirements such as water, power, man-power, fuel, machinery with source of supply is described in the sections below.

### **2.6.2 WATER REQUIREMENTS**

In the proposed mines water will be mainly used for domestic purpose, dust suppression & plantation. Total water requirement for the project is 6.0 KLD which will be sourced from outside agencies. Negligible sewage of 1.0 KLD will be generated, for which a septic tank with soak pit will be set up. The water balance diagram is given below.

**FIG 2.7 WATER BALANCE DIAGRAM**



**Table - 2.7 Water Requirement**

S. No	Particular	Water Requirement (KLD)
1	Dust suppression	2.0
2	Drinking/Domestic	2.0
3	Greenbelt/Plantation	2.0
Total		6.0

### **2.6.3 POWER REQUIREMENT**

Total Fuel requirement is 172.936 KL for entire life of the project. Power will be used only in the office building

### **2.6.4 MAN POWER REQUIREMENT**

Total Manpower requirement will be 25 persons which out of which 10 persons (Mines manager, Foreman, Mining Mate, etc.,) and other are drivers and workman's categories. Beside this, 15 workmen will be drivers and workmen. Preference will be given to the locals as per their eligibility.

S.No	Description	Employment potential
1	Mines Manager	1 No.
2	Foreman / Mate	2 Nos.
3	Operator	6 Nos.
4	Mechanic	1 No.
5	Driver	3 Nos.
6	Labours	12 Nos
<b>Total</b>		<b>25 Nos</b>



## **2.6.5 EXTENT OF MECHANIZATION**

<b>Table 2.8 Machineries involved in the project</b>				
<b>S.No.</b>	<b>Particulars</b>	<b>capacity</b>	<b>Motive Power</b>	<b>Nos</b>
1.	Jack hammer	32mm dia	Compressed air	4
2.	Compressor	1 psi	Diesel drive	1
3.	Excavator with Bucket and Rock Breaker	0.90 m <sup>3</sup>	Diesel drive	1
4.	Tipppers	5/10 Ts	Diesel drive	3

Source: Approved Mining Plan

Note: The mining equipment's of the above capacities are adequate for total material handling requirements for the proposed production of Rough stone in the ML area.

## **2.6.6 GEOLOGY AND TOPOGRAPHY**

### **Topography**

The mine lease area of 3.87.5 Ha is covered in the Survey of India Toposheet 57 P/10 and is bounded by Latitude: 12°42'45.97"N to 12°42'52.67"N and Longitude 79°43'25.08"E to 79°43'33.64"E. No major river is found nearby the lease applied area. Water table is found at a depth of 64m. Temperature of the area is reported to be 17°C to a maximum of 45°C during summer. Rainfall of this area is about 800 mm to 900 mm during the both NE & SW monsoons.

The topo map showing the lease area of the proposed quarry is given in Figure 2.1 and Satellite map showing proposed lease area is given in Figure 2.2.

The elevation of the proposed quarry is 90 m (maximum) from MSL. There is no forest land in the mine lease area. The project site is dry land which is not fit for any cropping.

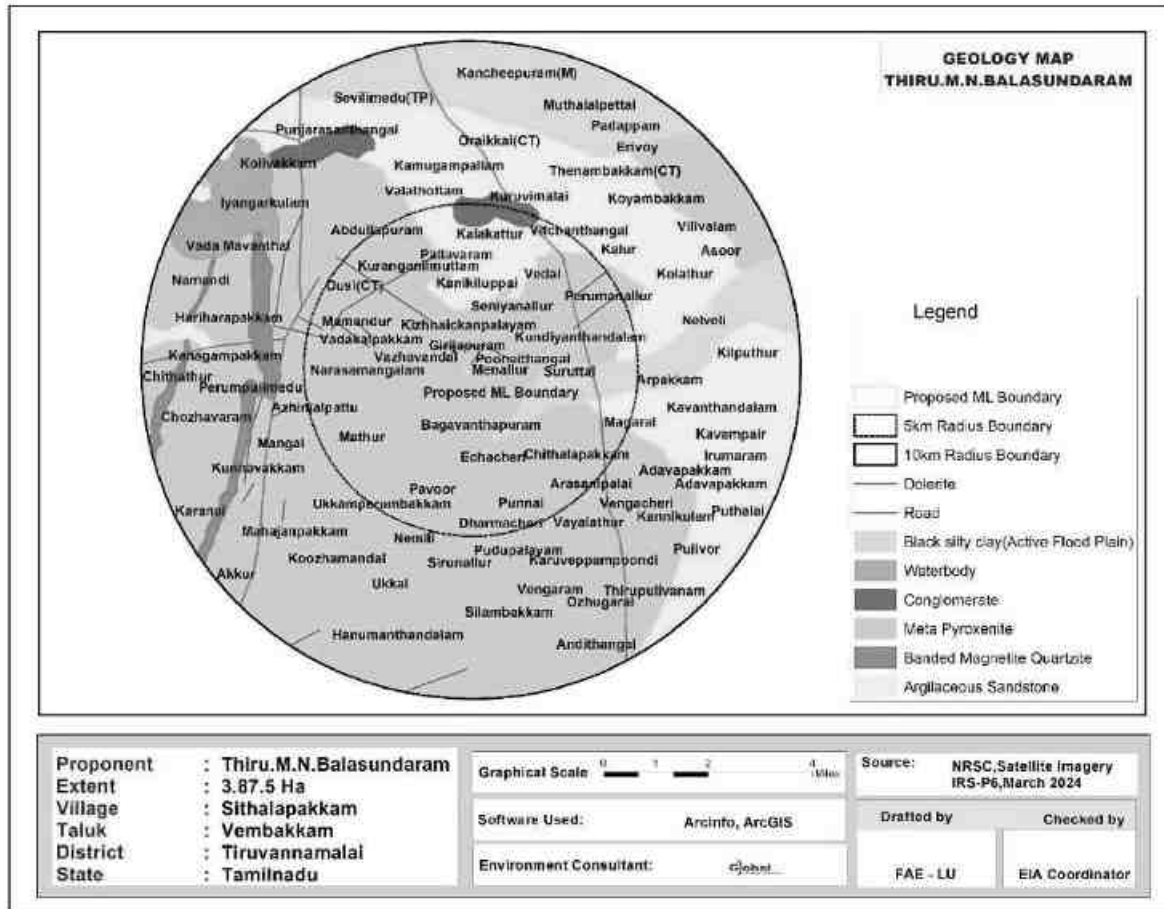
### **2.6.7 Regional Geology**

Geologically Tiruvannamalai District is mostly underlain by the Archaean crystalline and metamorphic complex. The geology of the district is complicated due to recurring tectonic and magmatic activities occurred during. Pre-Cambrian period. Hornblende Biotite Gneisses are the oldest rocks of the district. It is very fissile and present widely in plains. The gneisses are highly weathered upto 30 m at some places.

The Charnockites are coarse grained, massive and foliated at places and their colour is bluish dark to grey. They are the second largest rock type present in the district. They are massive and less weathered than the gneisses. They exhibit 2 to 3 distinct set of joints and most of them are vertical with steep dips. Iron ore deposits associated with quartz feldspathic gneiss and garnetiferous quartz gneisses are present in some areas. These rocks are highly folded and jointed and less weathered. Quartzite and crystalline lime stones are exposed in patches in north and central parts of the district. The thickness of these bands varies from a few meters to ten meters and the length extends to few kilometers. Numerous lenses of dunite with magnesite veins of various dimension are exposed within gneiss .There are number of basic dykes present in the study area. Granites are found in some parts of the district. They are massive and jointed poorly. Several faults and shears are occurring mostly with north east-southwest trend. They are expected to influence the course of groundwater movement, its storage and developmental potentials in the district. Regional Geology map for the 10 Km radius from the proposed project site is given as Figure 2.4.

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**FIGURE 2.8 REGIONAL GEOLOGY MAP -10Km RADIUS FROM PROJECT AREA**



### 2.6.8 Local Geology

#### Geological Resources

The area is underlain by the wide range of charnorokite group, Migmatite complex, Alkali complex, upper Gondwana and Quaternary alluvium. charnorokite group of rocks occupy major part of the area and comprise charnorokite, metaphyroxenites, pyroxene granulites and magnetite quartzite. The migmatic rocks derived from granulites comprise variants of gneisses viz. garnet gneiss, biotite gneiss, hornblende biotite gneiss and pink migmatites.

Granite and granulite are also seen in large areas around west cheyyar. Edidote hornblende gneiss forming part of alkali complex is seen NW of cheyyar bordering Tiruvannamali District. The strike of the Charnockite formation is N40°E – S40°W with dipping towards SE70°. The general geological succession of the area is given as under.

↑	<p><b>Age</b> Recent Unconformity Archaean</p>	-	<p><b>Rock Type</b> Reddish and gravelly soil  Dolerite dyke Charnockite Peninsular Gneissic complex and Calc Gneiss</p>
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**2.7 PROJECT DESCRIPTION INCLUDING DRAWING SHOWING PROJECT LAY OUT COMPONENTS OF PROJECT ETC., SCHEMATIC REPRESENTATION OF THE FEASIBILITY DRAWING WHICH GIVE INFORMATION IMPORTANT For EIA PURPOSE.**

**2.7.1 PROCESS DESCRIPTION**

**PROPOSED METHOD OF MINING**

Opencast-Mechanized method with 5.0 m height 5.0m width and overall, 80° slope of the bench. It is proposed to excavate 2,12,855 m<sup>3</sup> of Rough Stone and 15,912 m<sup>3</sup> Gravel. No wastage is envisaged as the entire material available is Rough Stone and Gravel only.

**TIMING**

Mining will be done on single shift basis. Timing will be 8 hours from 8 AM to 1 Noon and 2 PM to 5 PM. Lunch time will be provided between 1 Noon and 2 PM. Timing may be variable from season to season depending upon the sunrise and sunset. Weekly one day will be declared as holiday.

## **BENCH GEOMETRY**

Height (max) and Width (max) of the benches will be maintained as 5m each and overall slope angle will be at around  $80^{\circ}$  with the horizontal.

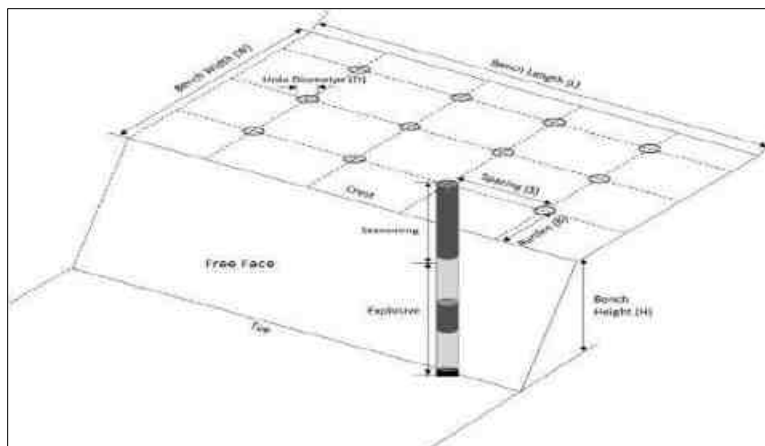
## **DEVELOPMENT OF MINING FACES**

The proposed mining method is Opencast Mechanized mining. Site preparation as such bush cleaning, approach road, office and sanitary facilities will be done after obtaining all the statutory clearances as such Environmental Clearance, Consent to Operate, Lease Deed, etc., Once site is ready will start the quarrying operation and it is anticipated in the month of March 2025.

## **DRILLING & BLASTING**

Drilling will be done upto maximum depth of 47m BGL (Drilling diameter will be 32 mm). Jackhammer will be used for drilling with water spray. Powder factor of explosives for breaking such hard rock shall be in the order of 6 Tonnes per Kg of explosives and dia 32 mm explosive is proposed to be used for shattering and heaving effect for removal of Rough Stone and Gravel. The proposed blasting pattern is given as Figure 2.9.

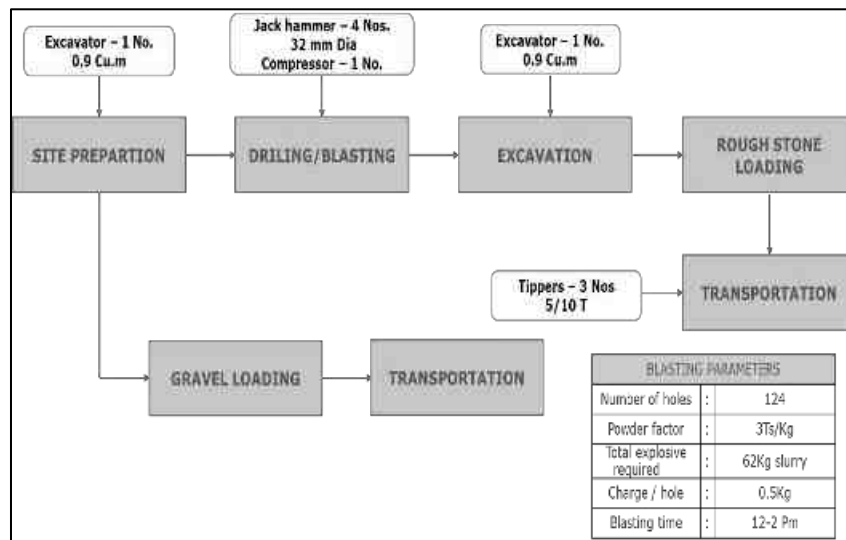
**FIGURE 2.9 BLASTING PATTERN**



### **LOADING & TRANSPORTATION OF ROUGH STONE AND GRAVEL**

Hydraulic excavator will be used for lifting and loading of the rough stone and Gravel. This excavator in combination with Tippers (5/10T) capacity of 1 nos will be used.

**FIGURE 2.10 FLOW CHART OF THE QUARRY OPERATION**



**TABLE - 2.9 MINING DETAILS**

Sl. No	Description	Details	Remarks
1.	Method of Mining	Opencast method of mechanized mining with 5.0 m height 5.0 m width and overall, 80° slope of the bench.  Hydraulic excavator will be used for the excavation and 5/10T tippers will be used for the Hauling.	Excavator – 1 No. Tippers - 3 Nos.
2.	Mineral Use	The excavated Rough Stone and Gravel, will be used for construction industries for Government & Public sector projects besides catering domestic housing and infrastructure projects in and around the district	-

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

3.	Proposed Depth	47m BGL	Water table in the area is around 66m BGL
4.	Proposed Production quantity	2,12,855m <sup>3</sup> of Rough Stone 15,912m <sup>3</sup> of Gravel	Five years
5.	Safety Zone	Out of 3.87.5 Ha, 1.57.5 Ha will be maintained as safety zone during mining operation as well as at the conceptual stage of the project.	Around 2000 nos. of saplings will be planted in this safety
6.	Water requirement	6.0 KLD	Procured from the outside watervendors
7.	Energy requirement	172938 liters of HSD (Entire Project Life)	All the equipment will be diesel operated. No electricity is needed for mining operation
8.	Manpower	25 Nos	
9.	Shift	General Shift	8.00 AM – 5.00 PM
10.	Project Cost	306.44 Lakhs	(Including Fixed Asset + Operational & EMP cost)
11.	EMP Cost	218.19 Lakhs	-
12.	CER Cost	10.0 Lakhs.	The amount will beutilized for the development of nearby Government Schools.

**2.7.2 YEAR WISE PRODUCTION & EXCAVATION DETAILS**

Year wise Production of Rough stone and Gravel from the area will be upto maximum capacity. The recovery factor is up to 100% hence no waste expected to be generated. All excavated quantity is saleable. The summary of proposed development and production during the mine plan period is given in Table 10.

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

**Table 2.10 Summary of production for 5 Years**

Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m <sup>3</sup>	Gravel in m <sup>3</sup>	Mineable reserve of Rough stone in m <sup>3</sup>
I	XY-EF	I	31	47	2	2914	2914	
		II	28	41	5	5740		5740
		III	22	28	5	3080		3080
		IV	15	15	5	1125		1125
	XY-AB	I	67	97	2	12998	12998	
		II	64	91	5	29120		29120
		III	10	78	5	3900		3900
<b>Total</b>							<b>15912</b>	<b>42965</b>
II	XY-AB	III	47	78	5	18330		18330
		IV	51	65	5	16575		16575
		V	24	52	5	6240		6240
<b>Total</b>								<b>41145</b>
III	XY-AB	V	20	52	5	5200		5200
		VI	38	39	5	7410		7410
		VII	31	26	5	4030		4030
	XY-CD	VII	80	67	5	26800		26800
<b>Total</b>								<b>43440</b>
IV	XY-CD	VII	45	67	5	15075		15075
		VIII	100	54	5	27000		27000
<b>Total</b>								<b>42075</b>
V	XY-CD	VIII	19	54	5	5130		5130
		IX	111	41	5	22755		22755
		X	98	28	5	13720		13720
	XY-AB	VIII	25	13	5	1625		1625
<b>Total</b>								<b>43230</b>
<b>Grand Total</b>							<b>15912</b>	<b>212855</b>

**2.7.3 CONCEPTUAL PERIOD**

During conceptual stage the mined-out area will be converted into water reservoir and safety zone as well as upper benches will be used for plantation at the conceptual period. It will also serve the purpose as socio economic and corporate social responsibility of the lessee by way of supplying water for irrigation purpose or at will of the local people. This will help in ground water recharging as well. The conceptual plan and section of mine lease area is given in Figure 2.11. Ultimate extent and size of the quarry at the conceptual stage is given below as Table 2.9 and Land Use pattern is given as Table 2.10. The conceptual plan is given as Figure 2.11.

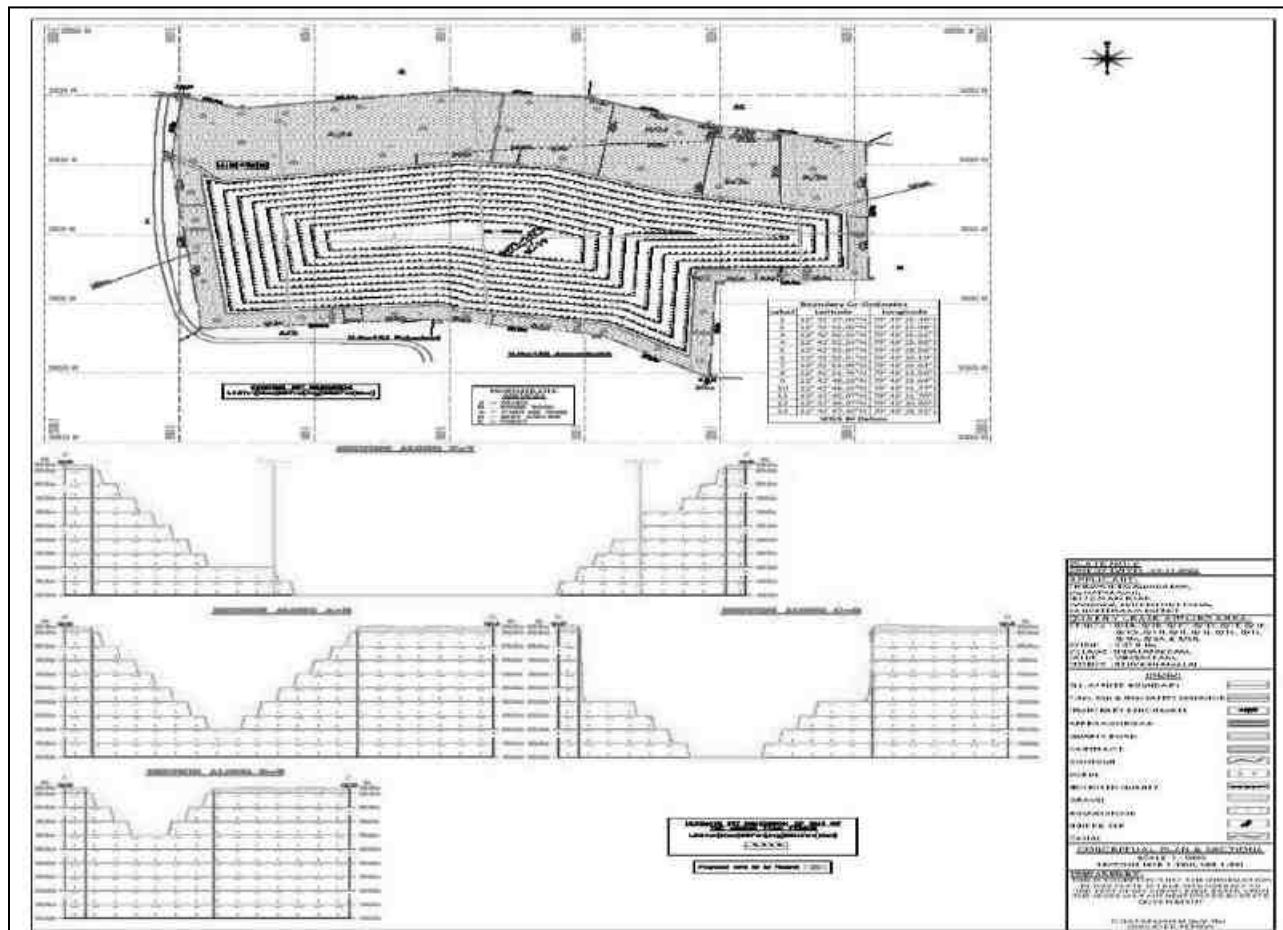


DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.

TABLE 2.11 Ultimate Pit Dimension			
Pit No.	Length (max) (m)	Width (Avg) (m)	Depth (max) (m)
I	234	97	47m BGL

TABLE 2.12 Land Use at Mine Closure Stage		
S. No.	Land Use	Area in use during the quarrying period (Ha)
1	Area left for water body	2.27.0
2	Green Belt	1.57.5
3	Remaining area	0.03.0
<b>Total</b>		<b>3.87.5</b>

**FIGURE 2.11 CONCEPTUAL PLAN**



## **2.8 DESCRIPTION OF MITIGATION MEASURES INCORPORATED INTO THE PROJECT TO MEET ENVIRONMENTAL STANDARDS ENVIRONMENTAL OPERATING CONDITIONS, OR OTHER EIA REQUIREMENTS (AS REQUIRED BY THE SCOPE)**

The mitigation measures given in this section are for management of the emissions (particulate or gaseous), Noise pollution, wastewater & surface run-off generated from the mining operations to meet the environmental standards and environmental operating conditions are as follows:

### **2.8.1 AIR QUALITY MANAGEMENT**

#### **Drilling**

Drilling machines are proposed to be equipped with wet drilling arrangements and cyclone dust collectors.

#### **Blasting**

- Controlled blasting is proposed to be adopted and optimum use of explosive energy will help in reducing the air pollution.
- Secondary blasting will be avoided.
- Rock breakers are proposed to be used for breaking over sized boulders in order to reduce the dust generation.
- Use of good quality of explosives having proper oxygen balance with regular monitoring.
- Ensuring proper stemming after charging of explosives. Proper stemming material will help in minimizing dust throw thereby lowering the spread of dust particles in ambient air pollution.
- Water spray on blasted muck pile before dozing/loading to control dust generation.

### **Loading & Transportation**

- Water spray on haulage roads, access roads, operating benches and proper maintenance of haul roads.
- Development of green belt/plantation around mine boundary, roads and other places will be carried out to control the air pollution.
- Proper maintenance of the HEMMs & transportation vehicles will be done.
- Vehicular emissions will be kept under norms.
- Personal Protective Equipment like dust masks will be provided to all employees. ➤ Regular air quality monitoring will be carried out.
- Compliance of conditions laid by MoEF&CC and TNPCB to minimize environmental impacts

### **2.8.2 NOISE MANAGEMENT**

#### **Drilling**

- Drilling with sharp drill bits to achieve optimum drilling performance and to reduce noise generation at source will be adopted.
- Personal protective equipments i.e. earplug in drilling & in high noise area shall be used.

#### **Blasting**

- As blasting will be done in accordance with standards prescribed by DGMS for controlled blasting; therefore, ground vibrations will not affect the structures in the vicinity of mine area.
- Explosives charge per hole and per delay will be maintained as per DGMS guidelines.
- Blasting will be carried out by use of non-electric detonators (NONEL) system and the impacts of noise generated due to blasting are momentary.
- Vibrations and noise generated by blasting will be monitored regularly

### **Transportation**

- Adequate silencers in HEMMs will be provided to reduce generation of noise.
- Proper and regular maintenance, oiling and greasing of machines at regular intervals will be done to reduce generation of noise.
- All HEMMs will be equipped with acoustic a/c closed cabins for operators.
- The workers employed at HEMMs will be provided with protective equipment, earmuffs and earplugs as protective measures from the high noise level generated at the mine site and wherever required.
- Development of green belt & plantation around the mining activity and other areas, will be carried out.
- Regular monitoring of noise will be carried out.

### **2.8.3 WATER MANAGEMENT**

#### **Waste Water**

Septic Tanks and soak pits will be provided for the disposal of effluent generated from mine office.

#### **Surface Run-off**

- Garland drains are proposed to be constructed around the temporary overburden soil dump to channelize the runoff water from dumps and also around the active pit to restrict rainy water from entering in to the working pit.
- Rain water falling directly into the mine pits will be stored and used for plantation & dust suppression.
- Regular monitoring of water quality will be carried out

### **GREENBELT/ PLANTATION**

The mine lease area is devoid of major plantation. Shrubs and bushes are majorly found within the lease area. The proponent has planned to develop green belt in an area of 1.57.5 Ha. Trees like Pungai, Vagai, Vembu, Manjal konrai, Naval, Puvarasu, etc., will be planted around the mine lease area. A total of 2000 trees are planned to be planted. Spacing will be 3m x 3m.

**2.9 ASSESSMENT OF NEW & TESTED TECHNOLOGY FOR THE RISK OF TECHNOLOGICAL FAILURE:**

From the nature and extent of the deposit, the reserves and the quality have been proved with adequate degree of reliability. Considering the type of mineralization, opencast mechanized method is the most feasible method for mining in the proposed mine lease. It is also a matter of fact that the mining machineries are upgrading with time and therefore the project proponent would act fast to adopt more advanced equipment and automation for safe and environment friendly mining technology in the years to come.

\*\*\*\*\*

## CHAPTER -3

### DESCRIPTION OF THE ENVIRONMENT

#### **3.1. STUDY AREA, PERIOD COMPONENTS AND METHODOLOGY**

The project area is located in Sithalappakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State over an extent of 3.87.5 Ha, The project area is considered as Core zone and the area in the surrounding 10km radius is considered as Buffer Zone. The baseline environmental monitoring was conducted by Shrient Analytical & Research Labs Private Limited, Chennai it is an NABL and MOEF recognized laboratory for various components of environment, viz. Air, Noise, Water, Land was carried out during Summer Season i.e. March 2024 to May 2024 in the study area covering 10 km radial distance from the rough stone and Gravel mine. Other environmental data on flora and fauna, land-use pattern, forest etc. were also generated through field surveys and secondary information collected from different State Govt. departments. Sampling methods and analysis. Socio-economic survey was conducted, through interaction with the people, sarpanch and medical officers by floating questionnaires and collection of information are supported by census data for demographic structures, amenities, and infrastructure availability within the study area. Baseline values for various environmental components are discussed in this Chapter.

#### **ENVIRONMENTAL SETTING OF THE STUDY AREA**

<b>Table 3.1 Description of the lease area</b>		
<b>S.No.</b>	<b>Areas</b>	<b>Distance from project site</b>
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	Nil within 15km radius

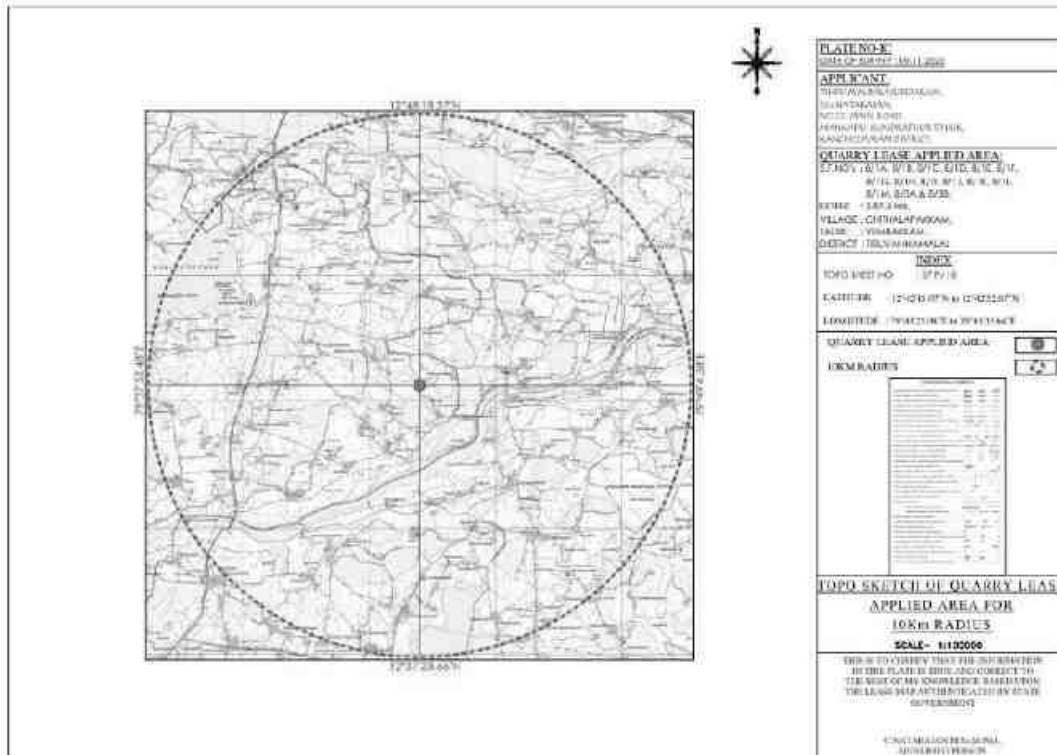
**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

2		Areas which are important or sensitive for ecological reasons		
		<b>Water bodies</b>	<b>Distance</b>	<b>Direction</b>
A	Wetlands, water courses or other water bodies,	Canal	Adjacent	N
		Tank	120m	E
		Tank	425m	SW
		Tank	850m	SE
		Tank	720m	S
		Suruttal Lake	2.76km	N
		Cheyyar River	2.2km	SE
		Palar River	7.61km	NE
		Arapakkam Lake	4.16km	NE
		Mangal Lake	4.64km	W
		Kannikulam Lake	4.75km	SE
		Adavapakkam Lake	5.03km	SE
		Marudham Big Lake	7.02km	SE
		Uthiramerur Lake	7.42km	S
Mamandur Tank	7.49km	NW		
B	Coastal zone, biospheres,	Nil within 10km radius		
C	Mountains, forests	Nil within 10km Radius Marudham R.F – 7.04km (SE) Karikili Birds Sanctuary (17.17km - SE) & Vedanthangal Birds Sanctuary (22.90 km - SE)		
3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, overwintering, migration	Nil within 15km radius		
4	Inland, coastal, marine or underground waters	Nil within 15km radius		
5	State, National boundaries	Nil within 15km radius		
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	Nil within 15km radius		
7	Defense installations	Nil within 15km radius		

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

8	Densely populated or built-up area	Mamandur (6.75km, NW)
9	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	Mamandur (6.75km, NW)
10	Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	Nil
11	Areas already subjected to pollution or environmental damage. (those where existing legal environmental standards are exceeded)	Nil
12	Areas susceptible to natural hazard which could cause the project to present environmental problems (earth quakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions) similar effects	No. The area is not prone to earthquakes, floods, etc.

**FIG 3.1 ENVIRONMENTAL SETTING OF THE STUDY AREA**





## **STUDY PERIOD**

The relevant information and data (both primary and secondary) were collected in core as well as buffer zone (10 km distance from the mine boundary) during Summer Season (March., to May., 2024) in accordance with the guidelines for preparation of EIA studies in order to assess the impact of the mine site within the 10 Km study area on existing physical, biological and social environment.

### **3.2 ESTABLISHMENT OF BASELINE FOR VALUED ENVIRONMENTAL COMPONENTS:**

Information on the following components/parameters were collected to understand the existing scenario of the core and buffer area:

- ✚ Meteorological environment
- ✚ Air environment
- ✚ Water environment
- ✚ Noise environment
- ✚ Soil environment
- ✚ Biological environment
- ✚ Land use & Land cover
- ✚ Socio economic environment
- ✚ Hydrogeology

### **BASELINE DATA COLLECTION**

Baseline environment data on various components of the environment in the study area were collected during Summer Season (March., to May., 2024) to assess the present scenario of the area. Details are given in the table given below.

Baseline data collection During Post Monsoon Season (March., to May., 2024)

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Sr.No	Environmental Component	Primary data		
		Parameters	Frequency	Monitoring/ Sampling locations
1	Land	Agriculture, Habitation, Industry, Stony waste/ Quarries, Forest area, Plantation/ Vegetation, Open scrub, Water bodies etc.	Once in a Season	10 km radius study area
2	Meteorology	Temperature, Relative Humidity, Wind Speed, Wind Direction.	Hourly	1
3	Air	PM10, PM2.5, SO2, NO2, CO & PAH	twice a week (24 hourly)	6
4	Noise	Equivalent noise levels in Leq in dB (A)	Once in a season (day & night time)	6
5	Water	Parameters as per IS 10500 - 2012	Once in a season	
A	Surface Water	Parameters as per IS 10500 - 2012	Once in a season	2
B	Ground Water	Parameters As per IS 2720/USDA	Once in a season	6
6	Soil	Parameters As per IS 2720/USDA	Once in a season	6
7	Biological Environment	Flora and Fauna	Once in a season	Study Area
8	Socio-Economic Environment	Socio-Economic Environment	Once in a season	Study Area

### **INSTRUMENTS USED FOR ENVIRONMENTAL BASELINE DATA COLLECTION**

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

- Respirable Dust Sampler with attachment for gaseous Pollutants, Envirotech APM 460.
- Fine Particulate Matter (FPS) Sampler APM 550
- Sound Level Meter Model Envirotech SLM - 100
- Digital D.O. Meter Model - 831 E (CPCB Kit)
- Weather Monitoring Station Model Enviro WM 271
- Water Level Indicator and
- Global Positioning System (GPS) Apart from collecting samples of air, water, noise and soil from representative sampling points given in proceeding sections, the data on land use, vegetation and agricultural crops were also collected by the field team through interaction with a large number of local inhabitants of the study area and different Government departments/agencies. This provided an excellent opportunity to the members of the field team for obtaining clear scenario of the existing environment of the study area.

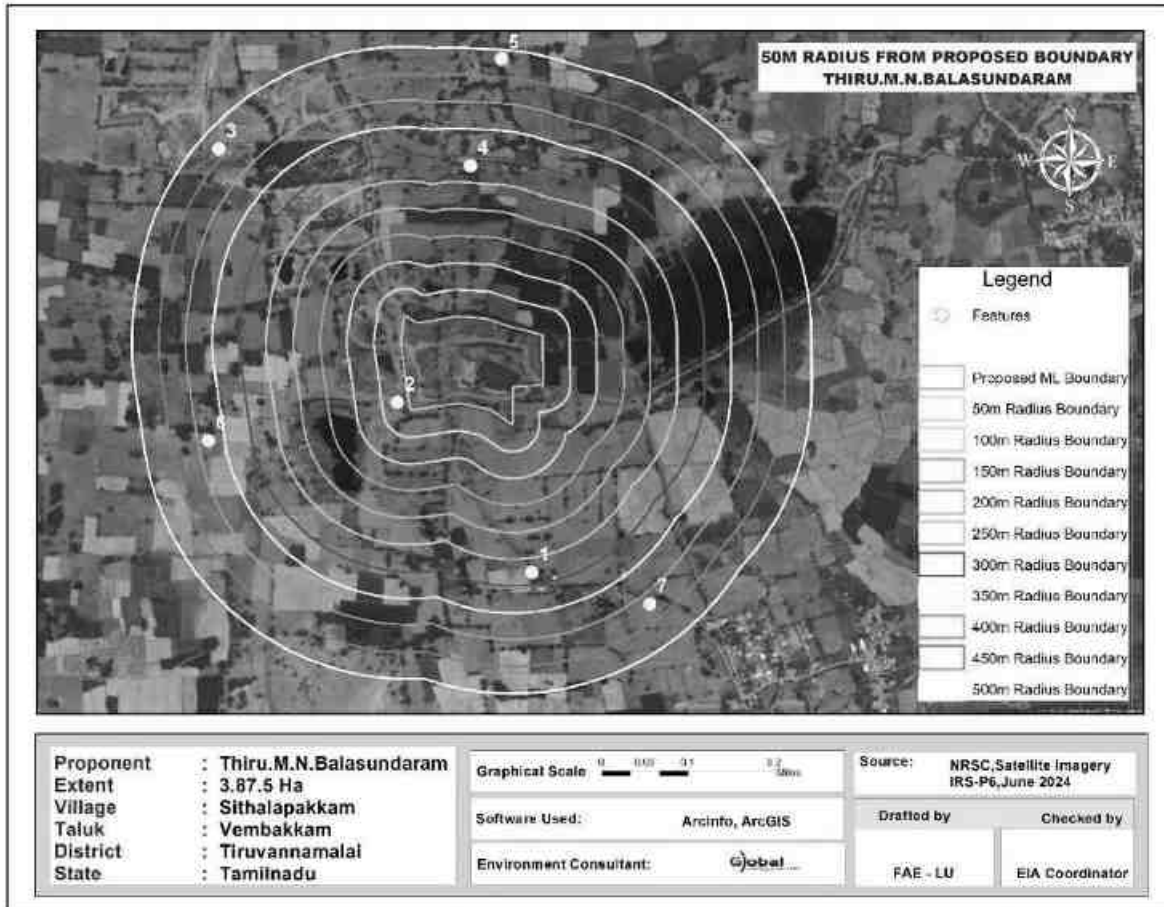
### **3.3. BASE MAP OF ALL ENVIRONMENTAL COMPONENTS**

#### **(ENUMERATION OF THE STRUCTURES LOCATED WITHIN 500M RADIUS FROM THE PROPOSED QUARRY SITE)**

A site survey has been conducted to identify and list structures located within a 1 Km radius from the proposed Quarry and are detailed below. There are permanent structures within a 500m radius from the project site. The PP has obtained a letter from Village Administrative Office (VAO), Sithalapakkam stating that there are no structures situated within 300m radius.

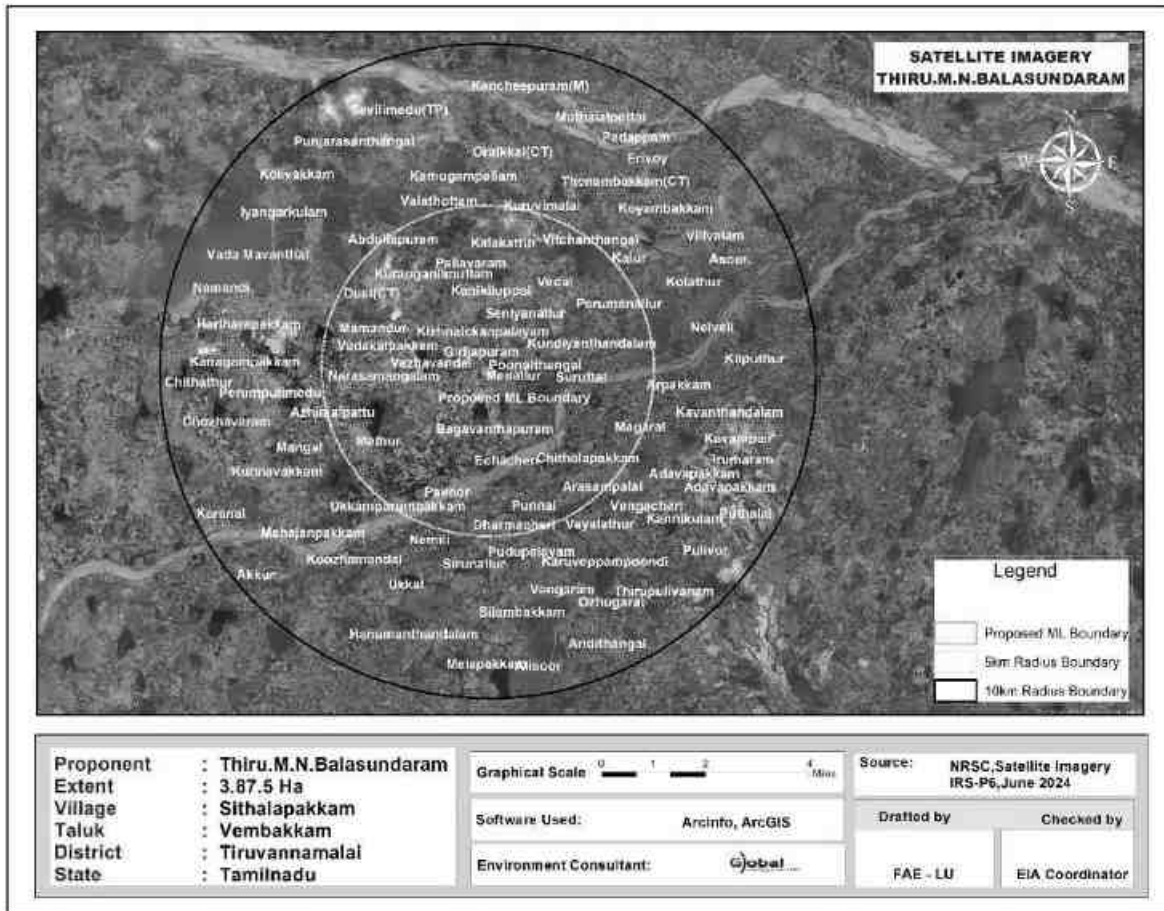
DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDARAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.

**FIG 3.2 BASE MAP SHOWING 50M INTERVAL FOR 500m RADIUS FROM THE LEASE AREA**



**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDARAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

**FIGURE - 3.2a SATELLITE MAP OF THE PROJECT AREA (10 KM RADIUS)**



**3.3.1 METEOROLOGICAL ENVIRONMENT**

**Meteorological conditions prevailing in the buffer zone is given below**

**Climate**

The climate of Tiruvannamalai District is tropical. The period from the weather is pleasant during the period from November to January. The normal temperature varies between 18<sup>0</sup>C to a maximum of 42<sup>0</sup>C during summer, whereas the hottest climate experiences from March to May with mercury reaching 38.5<sup>0</sup>C at the highest.

## Rainfall

Tiruvannamalai district generally experiences hot and humid climate conditions. The district receives rain under the influence of both southwest and northeast monsoons. Most of the precipitation occurs in the form of cyclonic storm caused due to depressions in Bay of Bengal chiefly during NE monsoon period. The SW monsoon is highly erratic and summer rains are negligible. Rainfall of this area is about 800 mm to 900 mm during the both NE & SW monsoons. The excess rainfall is 192% (Source: Mausam.imd.gov.in)

Rainfall received from 2017 to 2021 is given below.

<b>Table 3.2 Rainfall data</b>					
<b>Actual Rainfall in mm</b>					<b>Normal rainfall in mm</b>
<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	
1231	760	1023	1078	1520	982

## Relative Humidity

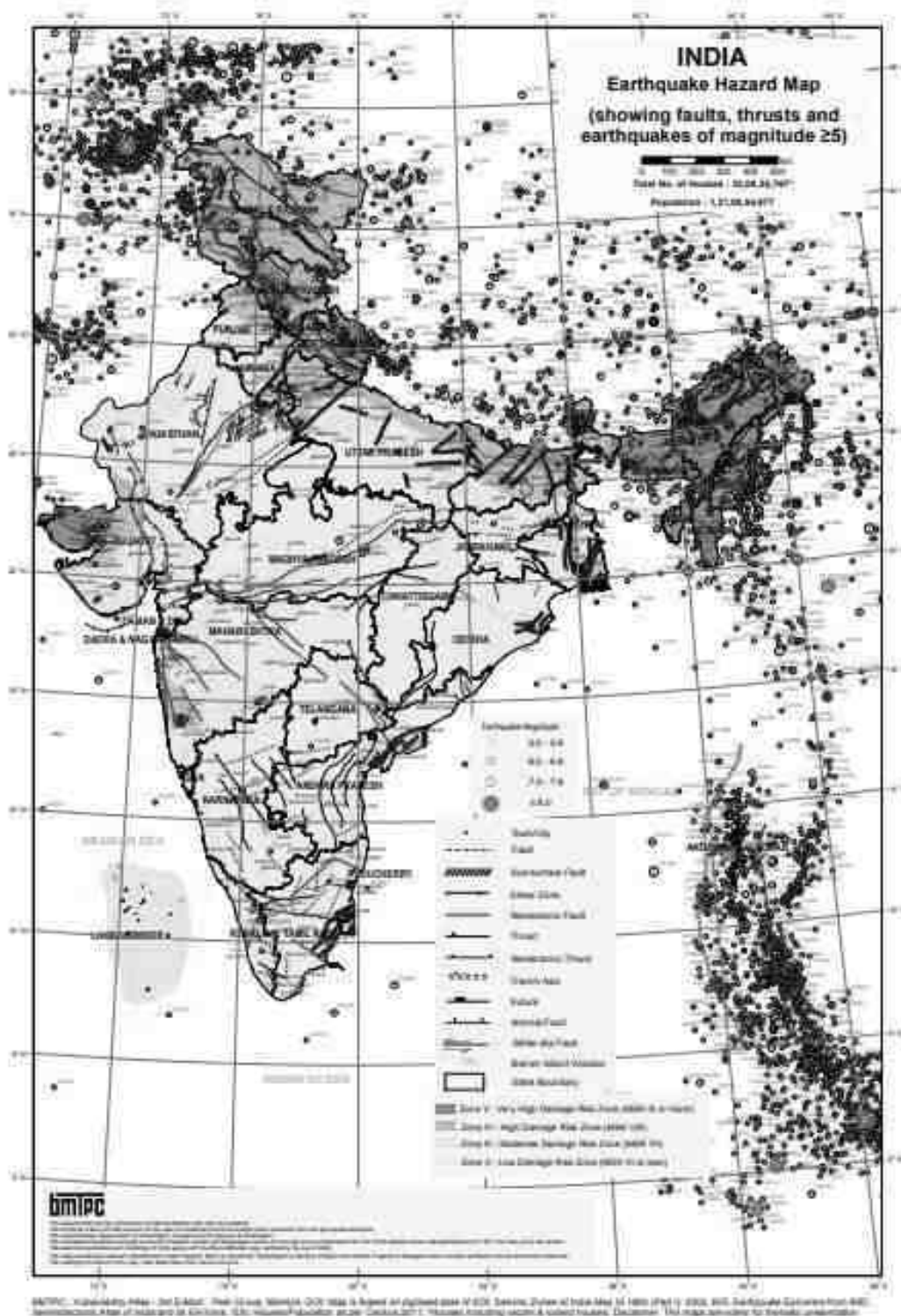
The relative humidity, in general around the year is between 55 and 65% in most parts of the district, except during the north-east monsoon season when it is over 65%. However, the coastal areas will be comparatively more humid.

## Seismic information

The study area falls in Zone II, which comes under the least active zone. The seismic map of India is given as Fig 3.2.

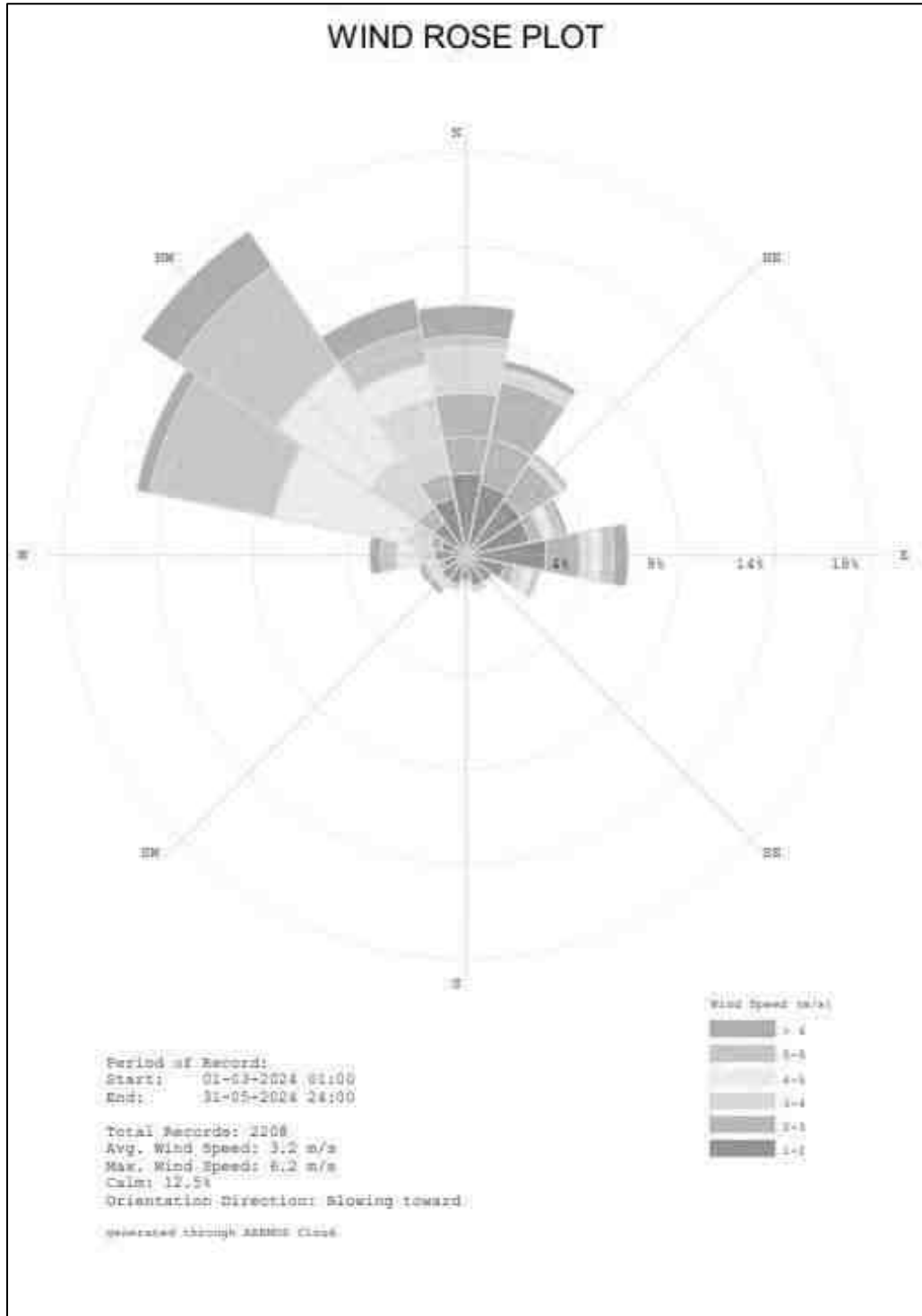
DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.

**FIG 3.3 SEISMIC MAP OF INDIA**



DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.

**FIG 3.4 WIND ROSE PLOT DURING MARCH TO MAY 2024**  
**WINDROSE FLOWING FROM**





### **Meteorological data of the project area**

The meteorological data collected in the study area from March 2024 to May 2024 which includes Temperature, Wind speed, Wind direction and Relative humidity. The predominant wind blows from West. The temperature of the area is reported to be 24.4°C and 42.5°C during summer.

### **3.3.2 AMBIENT AIR MONITORING DATA**

Ambient air quality monitoring has been carried out in 6 locations. One in the core zone and remaining five locations in the buffer zone areas. Monitoring locations have been chosen such that the measurement represents the overall air condition prevailing in the area. The study area represents mostly rural environment with stone mining quarries & crushers.

The regional climatologically data, was used as a guideline to know the predominant wind direction during study period. The locations were identified keeping in view predominant wind directions prevailing during study period, sensitive receptors, human settlements, and mining activities around.

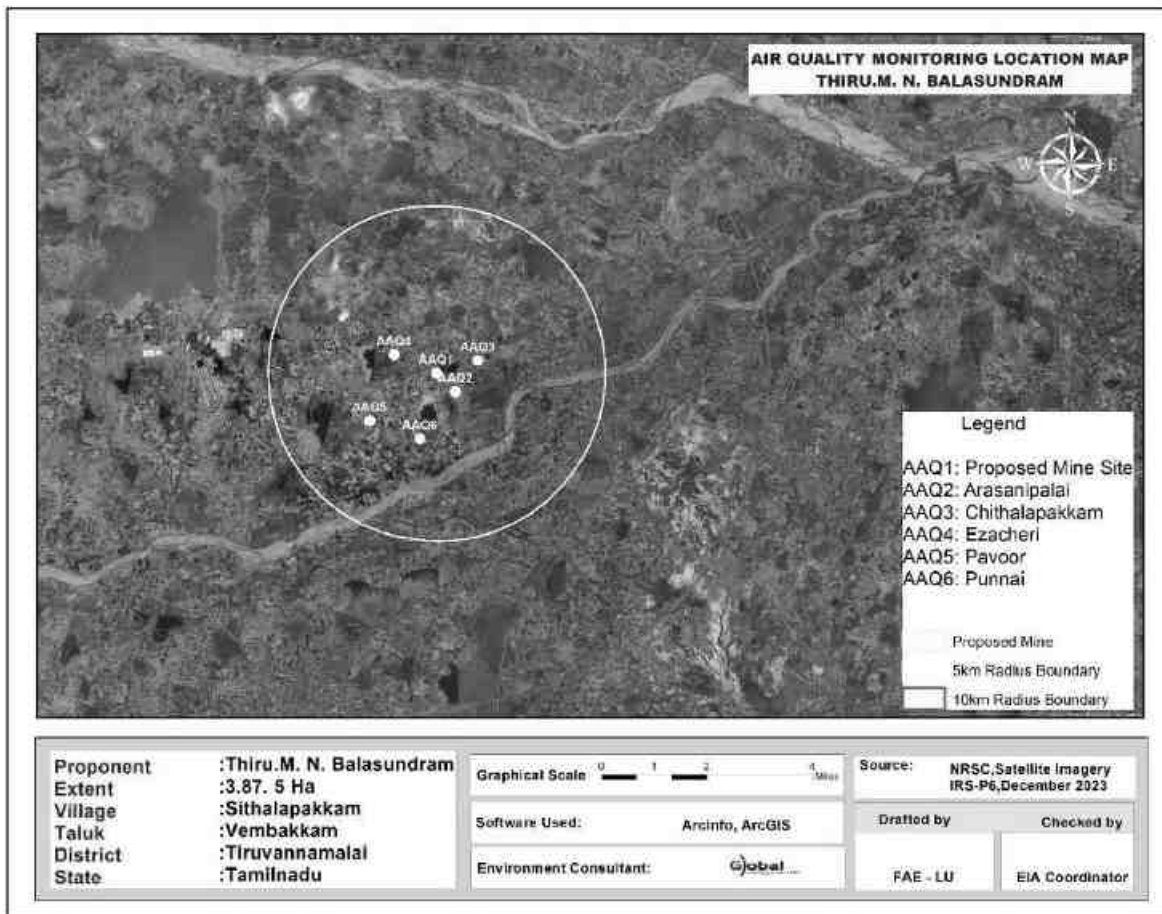
The levels of Respirable Particulate Matter (PM<sub>10</sub>), Fine Particulates (PM<sub>2.5</sub>), Sulphur Dioxide (SO<sub>2</sub>) and Oxides of Nitrogen (NO<sub>x</sub>) were monitored for establishing the baseline status. PM<sub>10</sub> were sampled with the help of Respirable Dust Samplers on filter papers and SO<sub>2</sub> & NO<sub>x</sub> were absorbed in the respective absorption media in the impingers attached to RD samplers and analyzed Spectro-photometrically. PM<sub>2.5</sub> was monitored with the help of Fine Particulate Samplers. The monitoring locations for ambient air study are given in Table – 3.3 and Figure 3.5 below.

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

**Table 3.3: Details Of Ambient Air Quality Monitoring Locations**

S. No.	Station Code	Locations	Distance & Direction	Coordinates
1	AAQ 1	Proposed Mine Site	Core Zone	12°42'50.15"N 79°43'28.67"E
2	AAQ 2	Arasanipalai	0.71 km, SE	12°42'31.88"N 79°43'47.64"E
3	AAQ 3	Chithalapakkam	1.17 km, E	12°43'2.37"N 79°44'11.3"E
4	AAQ 4	Ezhacheri	1.27 Km, NW	12°43'10.28"N 79°42'46.22"E
5	AAQ 5	Pavoor	2.36 Km, SW	12°42'3.96"N 79°42'20.85"E
6	AAQ6	Punnai	1.98 Km, S	12°41'45.35"N 79°43'10.68"E

**FIG 3.5 BASE MAP OF AMBIENT AIR MONITORING LOCATIONS**



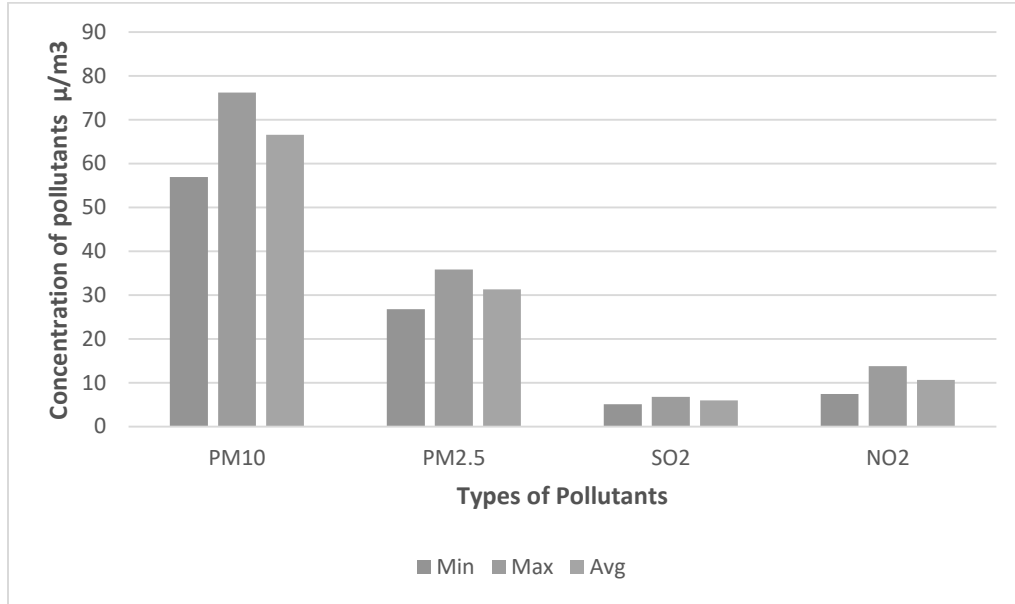
The concentrations of various air pollutants at the 6 locations are given below. For all the components in the table, the unit are in  $\mu\text{g}/\text{m}^3$ .

**Table.3.4 Results of Air sampling Analysis in 6 locations**

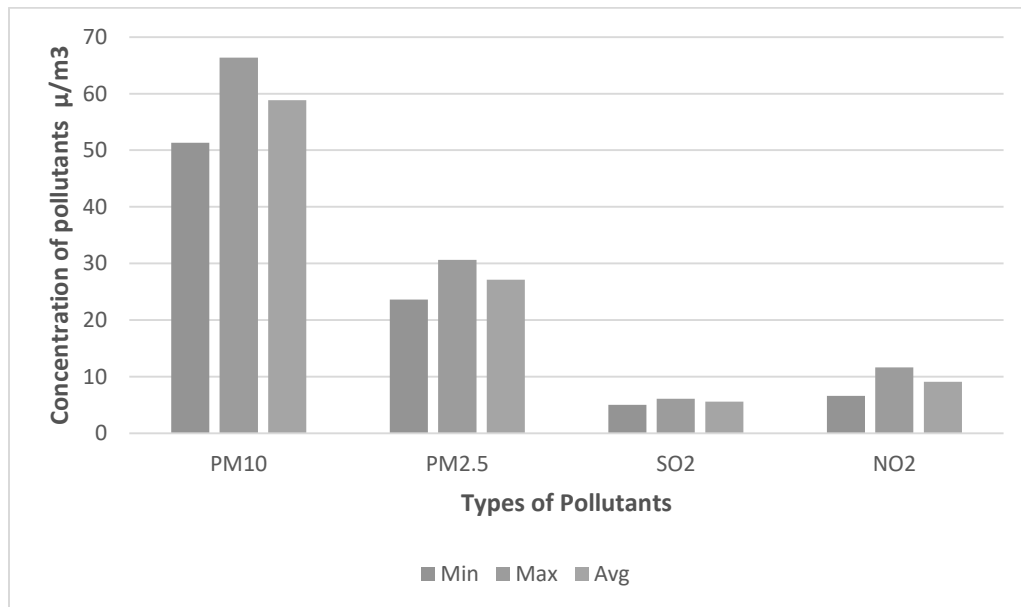
Station ID	Min	Max	Avg.
<b>Particulate matter PM<sub>10</sub> - (<math>\mu\text{g}/\text{m}^3</math>)</b>			
AAQ-1	56.9	76.2	66.55
AAQ-2	51.3	66.4	58.85
AAQ-3	48.3	58.7	53.50
AAQ-4	46.0	55.2	50.60
AAQ-5	40.9	54.7	47.80
AAQ-6	42.9	52.1	47.50
<b>CPCB NAAQS 2009 for PM<sub>10</sub> - 100 <math>\mu\text{g}/\text{m}^3</math></b>			
<b>Particulate matter PM<sub>2.5</sub> (<math>\mu\text{g}/\text{m}^3</math>)</b>			
AAQ-1	26.8	35.8	31.30
AAQ-2	23.6	30.6	27.10
AAQ-3	22.74	27.6	25.17
AAQ-4	20.69	24.83	22.76
AAQ-5	18.5	24.9	21.70
AAQ-6	20.5	25.0	22.75
<b>CPCB NAAQS 2009 for PM<sub>2.5</sub> - 60 <math>\mu\text{g}/\text{m}^3</math></b>			
<b>Sulphur Di-oxide as SO<sub>2</sub> (<math>\mu\text{g}/\text{m}^3</math>)</b>			
AAQ-1	5.1	6.8	5.95
AAQ-2	5	6.1	5.55
AAQ-3	4.2	6.1	5.15
AAQ-4	4	5.5	4.75
AAQ-5	2.9	4.3	3.63
AAQ-6	2.9	5.2	4.05
<b>CPCB NAAQS 2009 for SO<sub>2</sub> - 80 <math>\mu\text{g}/\text{m}^3</math></b>			
<b>Oxide of Nitrogen as NO<sub>2</sub> (<math>\mu\text{g}/\text{m}^3</math>)</b>			
AAQ-1	7.4	13.8	10.60
AAQ-2	6.6	11.6	9.10
AAQ-3	5.8	11	8.40
AAQ-4	5.7	10.6	8.15
AAQ-5	6.4	8.5	7.45
AAQ-6	6.5	8.8	7.65
<b>CPCB NAAQS 2009 for NO<sub>2</sub> - 80 <math>\mu\text{g}/\text{m}^3</math></b>			

The results are summarized in graph and given as below Fig. 3.5

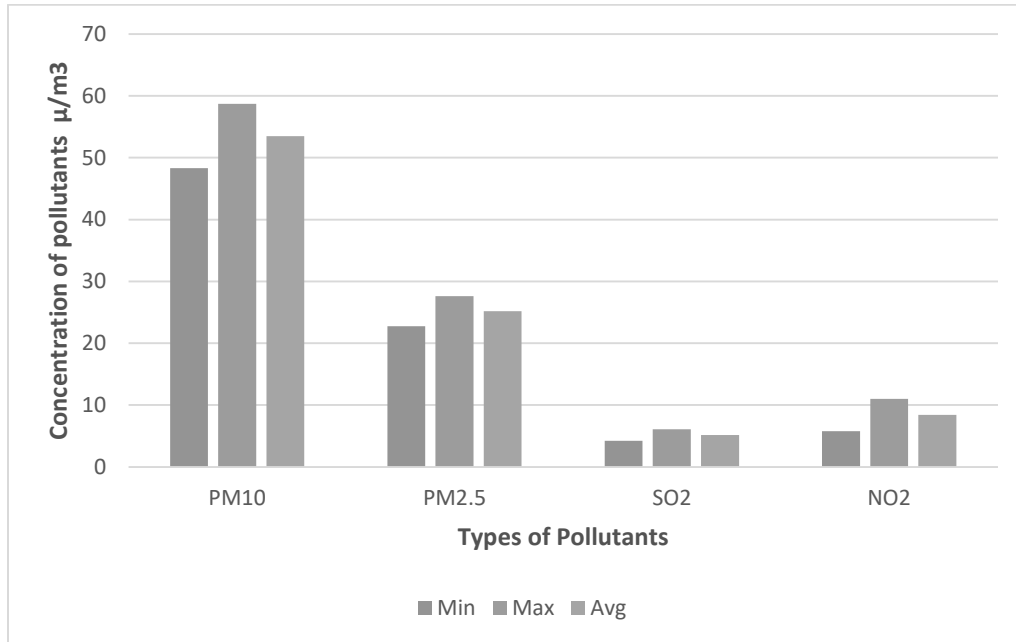
**FIG 3.6 AMBIENT AIR QUALITY DATA A1 - MINE LEASE AREA**



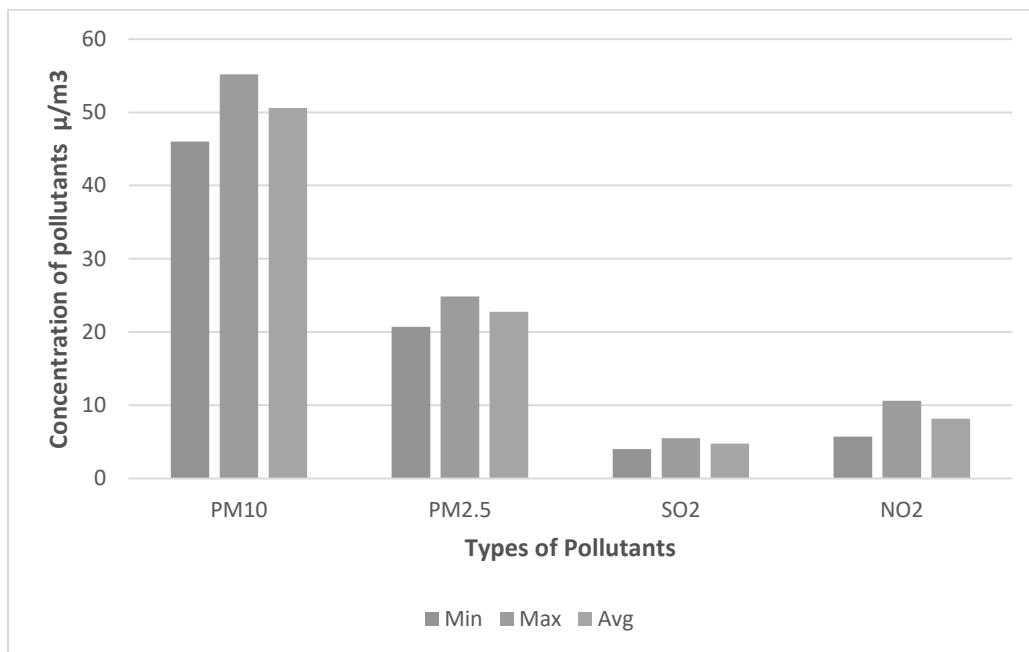
**FIG 3.7 AMBIENT AIR QUALITY DATA A2 - ARASANIPALAI**



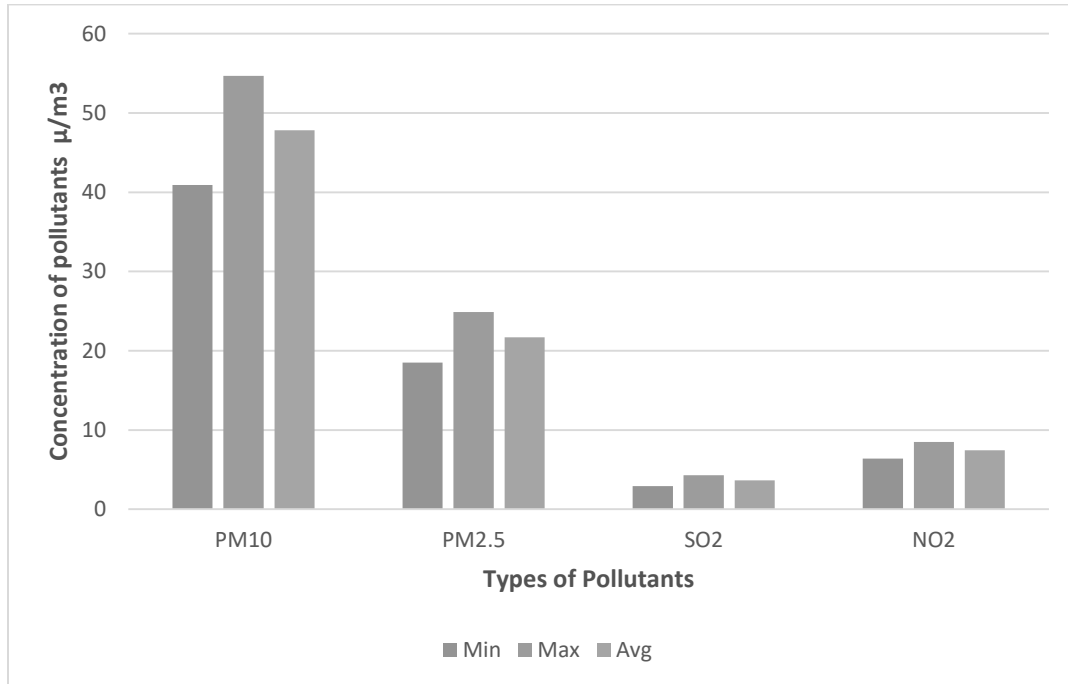
**FIG 3.8 AMBIENT AIR QUALITY DATA A3 - CHITHALAPAKKAM**



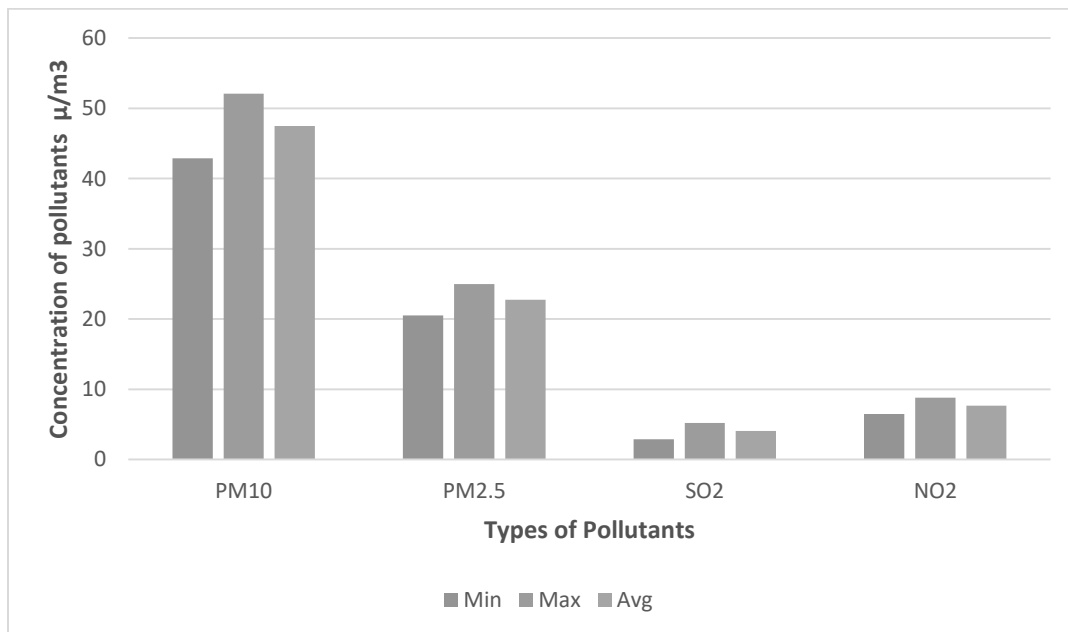
**FIG 3.9 AMBIENT AIR QUALITY DATA A4 - EZACHERI**



**FIG 3.10 AMBIENT AIR QUALITY DATA A5 - PAVOOR**



**FIG 3.11 AMBIENT AIR QUALITY DATA A6 - PUNNAI**



From the above results, it is observed that the ambient air quality with respect to PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, and NO<sub>2</sub> at all the monitoring locations was within the permissible limits specified by CPCB.

### **3.3.3 WATER ENVIRONMENT**

Assessment of baseline data on water environment includes:

- Identification of water resources
- Collection of water samples
- Analyzing water samples collected for physico-chemical parameters as per standards.

#### **Surface Water**

There is Cheyyar River is located at a distance of 2.2 km in South East and Palar River is located at a distance of 7.61 km in North East direction of lease area. The rainfall over the area is moderate, the rainwater storage in open wells, trenches is in practice over the area and the stored water acts as source of freshwater. The prevailing status of surface water quality has been assessed during the study period. Surface water quality locations and results are provided in Table 3-14 and Figure 3.11.

#### **Ground Water**

The rainfall is the main source for the availability of water both in surface and sub-surface. The quantum of rainfall varies every year depending upon the monsoon. However, the extraction of surface and sub-surface water is increasing year by year. It leads to environmental impact on the water sources like depletion of water level, deterioration of water quality. It makes the demand for the quantification of available water and also its quality for various purposes like agriculture, industries, drinking and domestic purposes. Total six (06) ground water monitoring locations were identified for assessment in different villages around the project site based on the usage of sub surface water by the settlements/ villages in the study area. The groundwater results are compared with the acceptable and permissible water quality standards as per IS: 10500 (2012) for drinking water. Groundwater quality monitoring locations and results are given in Table 3.5 and Figure 3.11.

## Sampling Locations

Two (2) surface water samples and six (6) ground water samples were collected from the study area and were analyzed for physio-chemical, heavy metals and bacteriological parameters in order to assess the effect of mining and other activities on water bodies. The samples were analyzed as per the procedures specified by CPCB, IS-10500:2012. The water sampling locations are given in Table 3.5 and shown as Figure 3.11.

The monitoring locations were selected based on:

- Location of the major water bodies
- Location of project site,
- Likely areas that can represent baseline conditions

Water bodies nearby

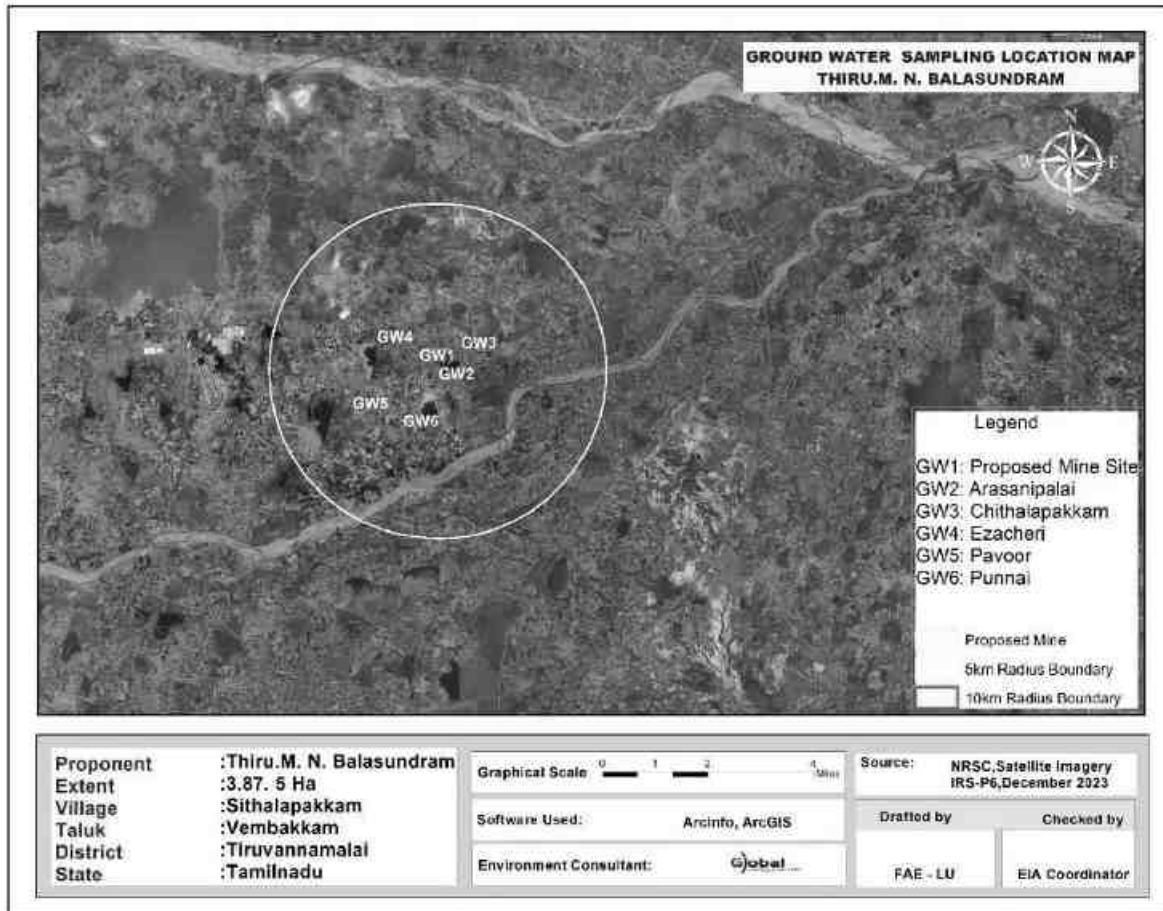
**Table 3.5 Water Sampling Locations**

S.NO	Location Code	Monitoring Locations	Latitude and longitude
<b>Surface Water</b>			
1	SW1	Palar River (US)	12°47'43.18"N 79°42'4.75"E
2	SW2	Cheyyar(DS)	12°43'1.76"N 79°46'54.79"E
<b>Ground Water</b>			
1	GW1	Proposed Mine Site	12°42'50.15"N 79°43'28.67"E
2	GW2	Arasanipalai	12°42'31.88"N 79°43'47.64"E
3	GW3	Chithalapakkam	12°43'2.37"N 79°44'11.3"E
4	GW4	Ezhacheri	12°43'10.28"N 79°42'46.22"E
5	GW5	Pavoor	12°42'3.96"N 79°42'20.85"E
6	GW6	Punnai	12°41'45.35"N 79°43'10.68"E



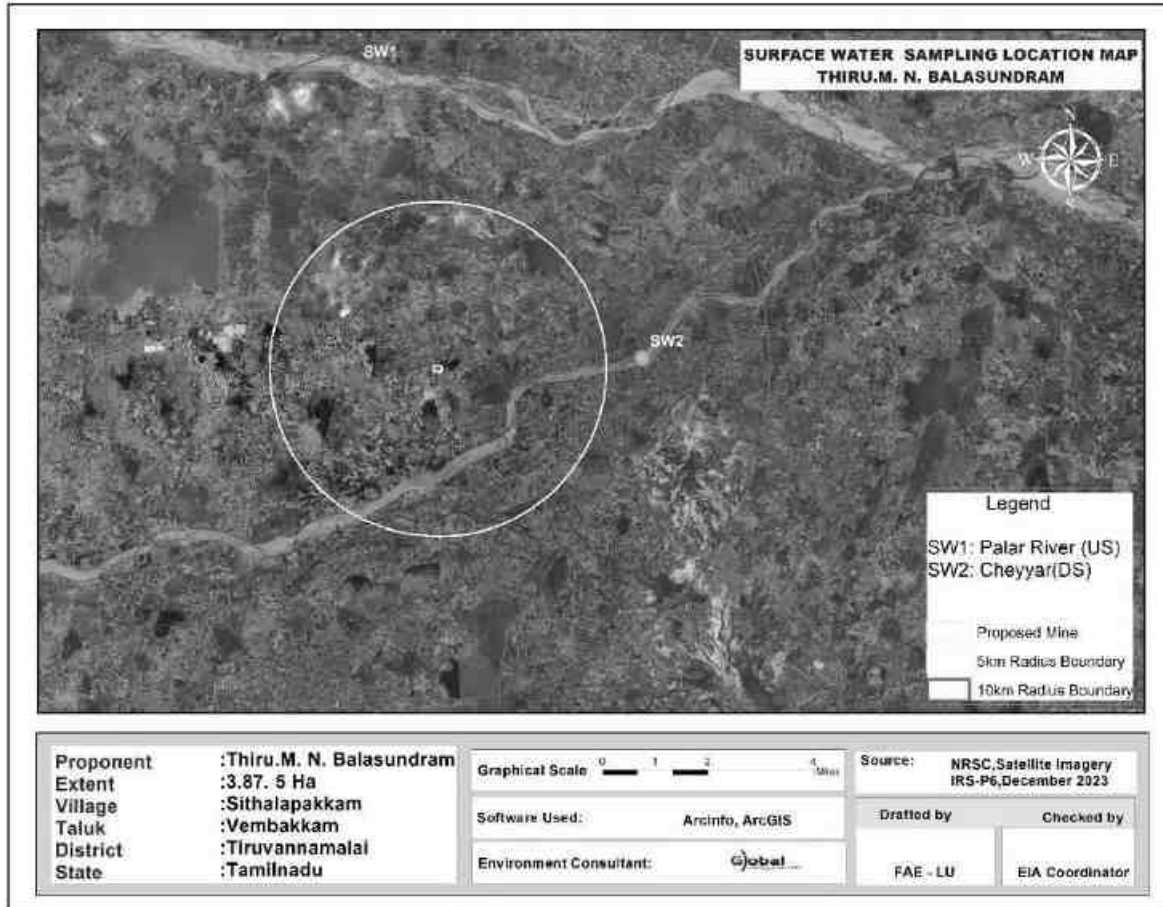
DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.

**FIG 3.12 BASE MAP OF GROUND WATER SAMPLING LOCATIONS**



**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

**FIG 3.12a BASE MAP OF SURFACE WATER SAMPLING LOCATIONS**



**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

**Table 3.6 Surface Water Analysis Results**

Sr.No	Parameter	Unit	SW1	SW2	Surface water standards (IS 2296 Class-A)
1	Odour	-	Agreeable	Agreeable	-
2	Turbidity	NTU	<1.0	<1.0	1
3	pH at 25 °C	-	7.53	6.99	6.5-8.5
4	Electrical Conductivity	µs/cm	1012	129.5	-
5	Total Dissolved Solids	mg/l	610	76.0	500
6	Total hardness as CaCO <sub>3</sub>	mg/l	261	27.7	-
7	Calcium as Ca	mg/l	42.8	4.75	300
8	Magnesium as Mg	mg/l	37.1	3.80	-
9	Calcium as CaCO <sub>3</sub>	mg/l	101	11.9	-
10	Magnesium as CaCO <sub>3</sub>	mg/l	154	15.8	-
11	Total alkalinity as CaCO <sub>3</sub>	mg/l	263	36.4	-
12	Chloride as Cl <sup>-</sup>	mg/l	183	16.1	-
13	Free Residual chlorine as Cl <sup>-</sup>	mg/l	BDL (D.L - 0.2)	BDL (D.L - 0.2)	250
14	Sulphates as SO <sub>4</sub> <sup>2-</sup>	mg/l	120	15.2	400
15	Iron as Fe	mg/l	0.12	0.09	1.0
16	Nitrate as NO <sub>3</sub>	mg/l	3.42	1.56	20
17	Fluoride as F	mg/l	0.36	0.14	1.5
18	Manganese as Mn	mg/l	BDL (D.L - 0.05)	BDL (D.L - 0.05)	0.5
19	COD	mg/l	BDL (D.L - 2.0)	BDL (D.L - 2.0)	-
20	BOD	mg/l	BDL (D.L - 4.0)	BDL (D.L - 4.0)	-
21	TSS	mg/l	BDL (D.L - 2.0)	BDL (D.L - 2.0)	-
22	DO	mg/l	6.1	6.3	-

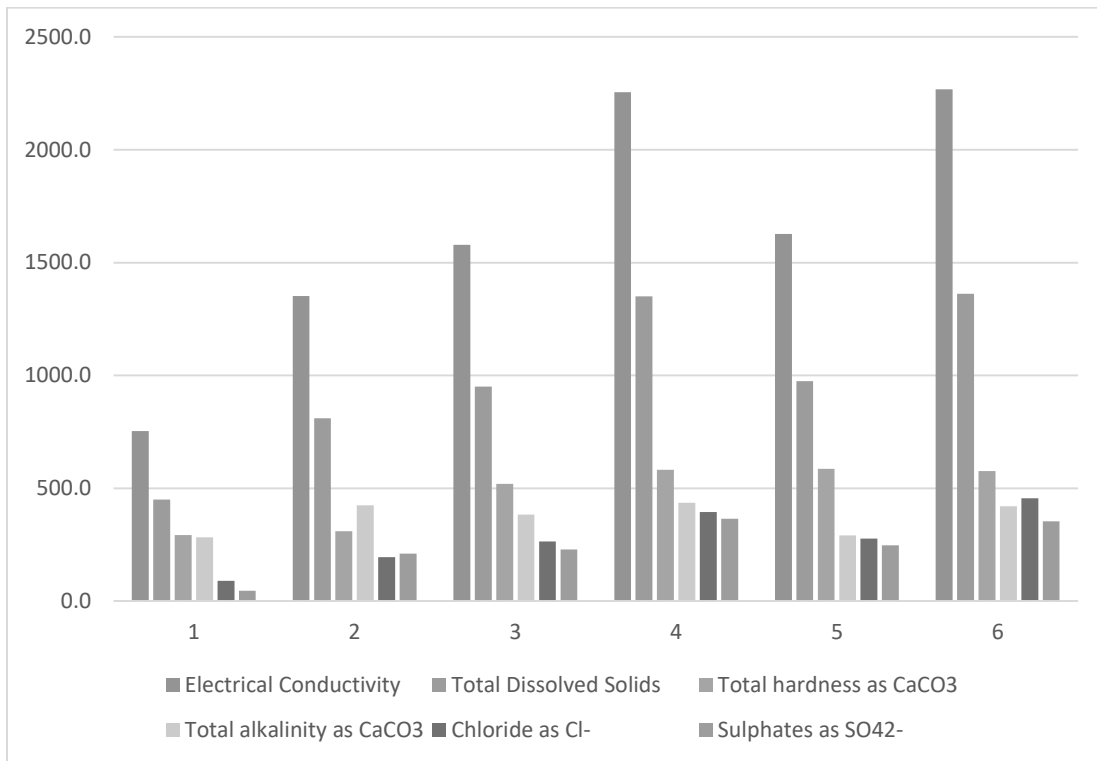
**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

The samples were analyzed by Shrient Analytical & Research Labs Private Limited; Chennai and the results are summarized below.

<b>Table 3.7 Results of Ground Water sampling Analysis in 6 locations</b>							<b>IS:10500: 2012</b>	
	<b>W1</b>	<b>W2</b>	<b>W3</b>	<b>W4</b>	<b>W5</b>	<b>W6</b>	<b>Desirab le</b>	<b>Permissi ble</b>
Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity	<1	<1	<1	<1	<1	<1	Agreeable	Agreeable
pH at 25 °C	7.59	7.62	7.05	6.60	7.06	6.98	6.5 - 8.5	No Relaxation
Electrical Conductivity	753.9	1352	1579	2255	1627	2268	1	5
Total Dissolved Solids	450	810	950	1350	974	1362	500	2000
Total hardness as CaCO3	293	309	519	582	586	576	1	15
Calcium as Ca	79.2	66.5	124	130	165	141	200	600
Magnesium as Mg	22.8	34.2	50.4	61.8	41.8	53.8	200	600
Calcium as CaCO3	198	166	309	325	412	352	75	200
Magnesium as CaCO3	95.0	143	210	257	174	224		
Total alkalinity as CaCO3	283	424	384	436	291	420		
Chloride as Cl-	90.5	195	264	394	277	456	250	1000
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)	30	100
Sulphates as SO42-	45.6	210	229	365	247	354	45	No Relaxation
Iron as Fe	0.05	0.11	0.06	0.04	0.08	0.05	200	400
Nitrate as NO3	2.34	4.35	1.98	6.89	5.64	4.62	1	No Relaxation
Fluoride as F	0.42	0.47	0.44	0.52	0.54	0.59	0.1	0.3
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)	Not Specified	Not Specified

Some of the common parameters including EC, TDS, Total Hardness, Total Alkalinity, Chlorides and Sulphates in the 6 locations were plotted and the graph is provided below.

**FIG 3.13 VALUES OF FEW COMMON PARAMETERS IN WATER ANALYSIS**



All the values were found to be within the permissible limits.

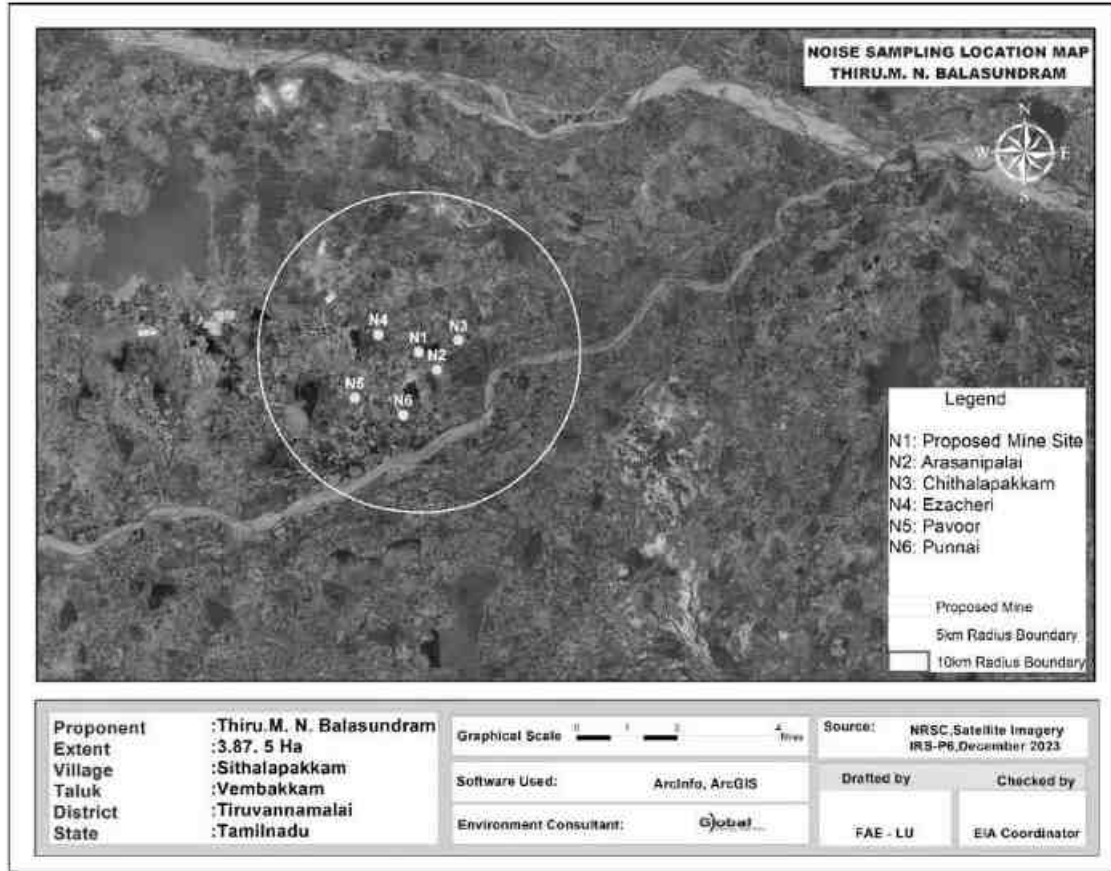
**3.3.4 NOISE MONITORING**

Noise level monitoring was calculated using a noise level meter by NABL Accredited lab and the results are summarized below.

The noise monitoring locations are given in Fig 3.12

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.

**FIG 3.14 BASE MAP OF NOISE MONITORING LOCATIONS**



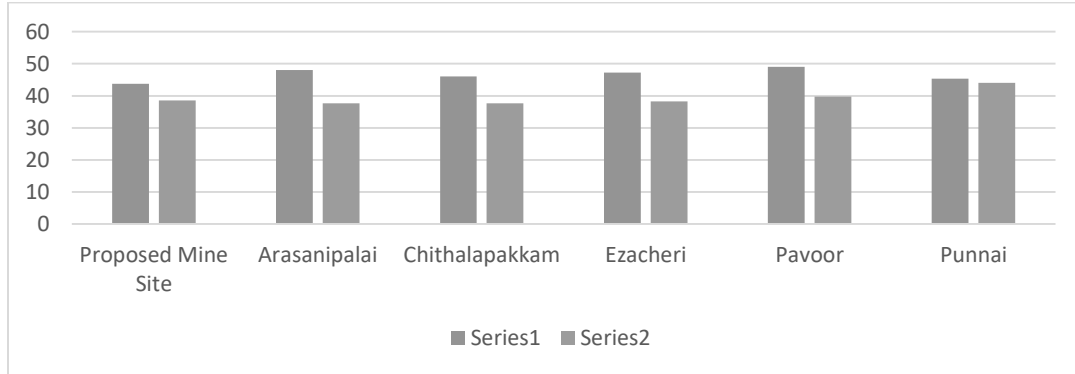
The results are given in Table below.

<b>Table 3.8 Noise monitoring results</b>					
<b>S. No</b>	<b>Location</b>	<b>Day equivalent</b>	<b>Night equivalent</b>	<b>Day equivalent limits by CPCB</b>	<b>Night equivalent limits by CPCB</b>
1	Proposed Mine Site	43.8	38.6	75	70
2	Arasanipalai	48.1	37.7		
3	Chithalapakkam	46.1	37.7		
4	Ezhacheri	47.3	38.3		
5	Pavor	49.1	39.8		
6	Punnai	45.4	44.1		

The results are plotted as below.

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

**FIG 3.15 DAY AND NIGHT EQUIVALENT VALUES IN 6 LOCATIONS**

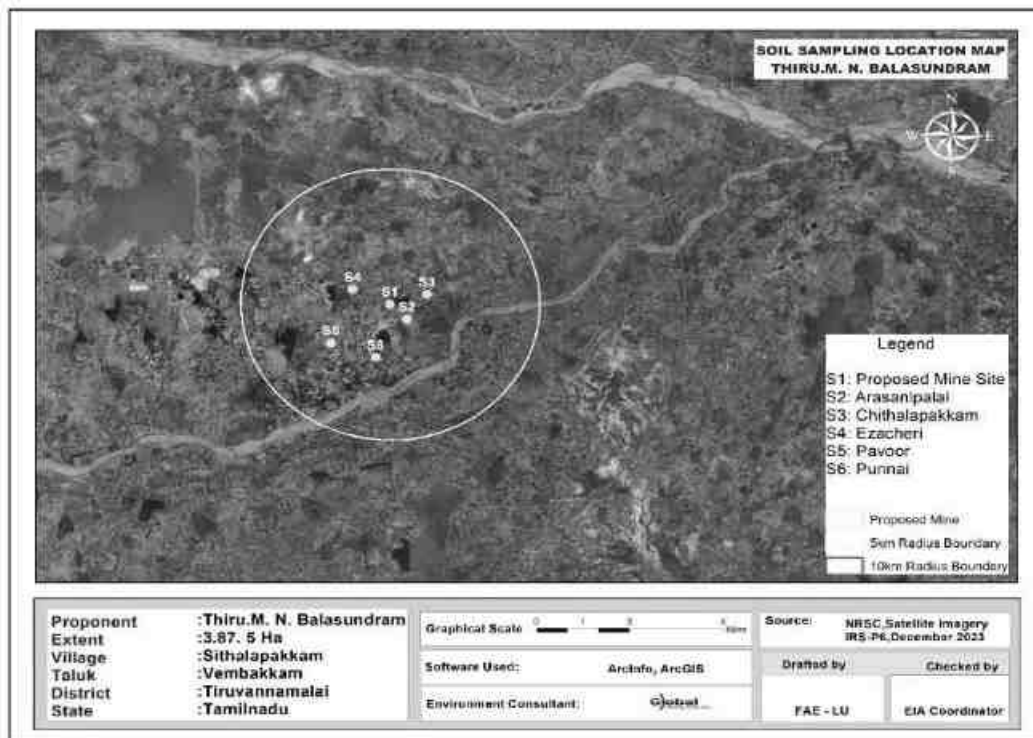


All the values are found to be within CPCB norms.

**3.3.5 SOIL SAMPLING ANALYSIS**

Soil samples have been collected from the mine lease area and 5 other locations from Arasanipalai, Chithalapakkam, Ezhacheri, Pavor and Punnai Villages. The locations are shown in figure below.

**FIG 3.16 BASE MAP OF SOIL SAMPLING LOCATIONS**



The results are summarized in the table below.

<b>Table 3.9 Results of Soil Sample Analysis</b>								
S. No	Parameter	Unit	S1	S2	S3	S4	S5	S6
S. No	Parameter	Unit						
1	pH at 25 °C	-	6.78	6.66	7.26	7.05	7.56	6.96
2	Electrical Conductivity	µmhos/cm	70.24	158.80	104.30	110.60	174.10	95.64
3	Dry matter content	%	95.68	94.67	96.14	97.84	90.70	97.78
4	Water Content	%	4.32	5.33	3.86	2.16	9.30	2.22
5	Organic Matter	%	1.25	1.95	2.09	1.68	2.09	1.65
6	Soil texture	-	sandy clay	clay	silt loam	loam	SILTY CLAY	SILTY CLAY
7	Grain Size Distribution	%	61.00	37.76	17.89	36.47	5.86	6.48
	i. Sand							
8	ii. Silt	%	36.95	21.04	65.70	43.60	39.55	46.68
9	iii. Clay	%	53.74	41.20	16.41	19.93	54.59	46.84
10	Phosphorous as P	mg/kg	0.69	0.78	1.32	0.96	1.75	1.11
11	Sodium as Na	mg/kg	745	998	1020	812	656	1042
12	Potassium as K	mg/kg	366	1056	976	765	794	896
13	Nitrogen and Nitrogenous Compounds	mg/kg	232	364	297	255	366	455
14	Total Soluble Sulphate	%	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)
15	Porosity	%	20.7	24.4	23.1	21.6	20.5	22.3
16	Water Holding Capacity	Inches/foot	38	36	40	42	40	36

### **3.3.6 BIOLOGICAL ENVIRONMENT**

The biological study of the area has been conducted in order to understand the ecological status of the existing flora and fauna to generate baseline information and evaluate the probable impacts on the biological environment. The details are given below.



### Flora in the study area

We have conducted field survey during study period. The flora population in each quadrant is summed up for the total population in the study area. Also, data from the State Forest department is used.

### Core Zone

During the field visit, it is observed that there are no national parks / Sanctuaries / forests in the 10km buffer area. The study area is devoid of any major plantations.

Table 3.10 Flora in Core Zone			
S.No.	Scientific name	Vernacular/English name	Type of flora
1	Calotropis gigantea	Erukku	Shrubs
2	Cassia auriculata	Aavarai	
3	Achyranthes aspera	Nayuruvi	

### Buffer zone

Only common trees, shrubs, bushes, etc. are found. The list is given below.

Table 3.11 Flora in Buffer zone			
S.No.	Scientific name	Vernacular/English name	Type of flora
1	Azadirachta indica	Neem	Trees
2	Carica papaya	Papaya	
3	Mangifera indica	Mango	
4	Acacia leucophloea	Velamaram	
5	Acacia nilotica	Karu- velamaram	
6	Moringa oleifera	Murungai	
7	Tamarindus indica	Puli	
8	Tectona grandis	Theku	
9	Manilkara zapota	Sappota	
10	Musa paradisiaca	Valzhilai	
11	Borassus flabelliformis	Panna-maram	
12	Ficus benghalensis	Alamaram	
13	Ficus religiosa	Arasamaram	
14	Phyllanthus emblica	Nelli	
15	Calotropis gigantea	Yerukku	Shrubs
16	Cassia auriculata	Aavarai	
17	Ricinus communis	Aamanakku	

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18	Tecoma stans	Arali	
19	Aloe vera	Kathalai	
20	Catharanthus roseus	Nithyakalyani	Herbs
21	Acalypha indica	Kuppaimeni	
22	Coccinia grandis	Kovai	Climbers
23	Cissus quadrangularis	Pirandai	
24	Jasminum angustifolium	malli	
25	Ziziphus oenoplia	Ilandai	
26	Cymbopogon	Kanam	Grasses
27	Cyperus rotundus	Kora grass	
28	Cynodon dactylon	Arugu	

**Fauna in the study area**

There is no specific Fauna found within ML area. The buffer zone Fauna in the area is studied by direct observation method. Secondary data collected from Forest department and the same is used in this report. People in the nearby locality were also consulted. The commonly found fauna in the area are given below.

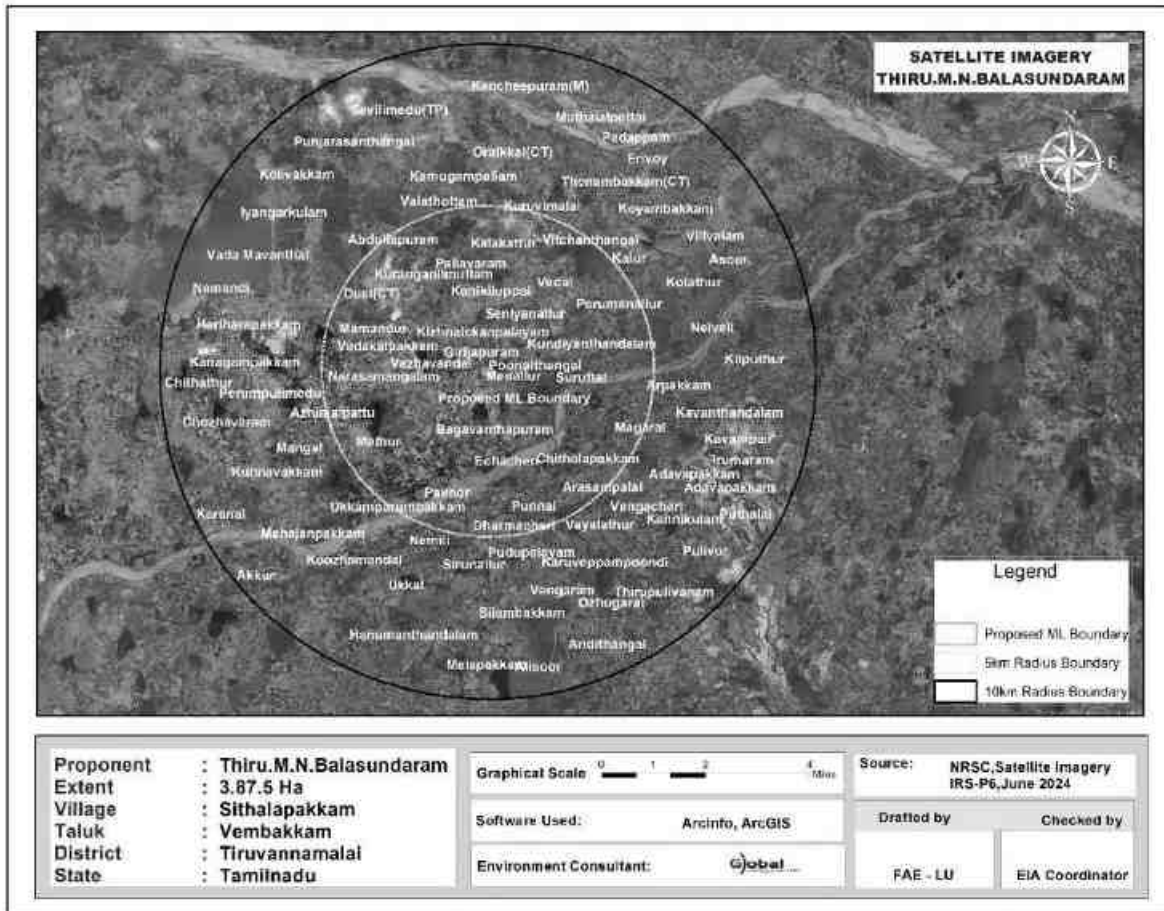
**Table 3.12 Fauna in buffer zone**

S.No.	Scientific name	Common name	Type of fauna	Schedule to which the species belong
1	Canis familiaris	Common dog	Mammals	IV
2	Felis catus domesticus	Domestic cat		IV
3	Golunda ellioti	Indian bush rat		IV
4	Funambus palmarum	Squirrel		IV
5	Lepus nigricollis	Indian hare		IV
6	Bos indicus	Domestic cow		IV
7	Common Crow	Corvus splendens	Birds	V
8	House Sparrow	Passer domesticus		IV
9	Common Myna	Acridotheres tristis		IV
10	Streptopelia chinensis	Pigeon		IV
11	Calotes versicolor	Lizard	Amphibia	IV
12	Ptyas mucosa	Snake		IV
13	Rana hexadactyla	Frog		IV

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**3.3.7 LAND USE**

For Land-use and land cover study, sensing satellite data of NRSC Satellite imagery and GeoEYE has been used as per Figure No. 15. A land use map showing 10 Km radial distance.



**Figure No. 3.17: REMOTE SENSING SATELLITE IMAGE**

Selection of remote sensing satellite image (RSI) is on the availability of cloud free data and interpretability of predominant landuse and land cover (LULC) category. The examination of satellite data showed that the region is always covered by clouds with lesser percentage during summer due to cluster habitation. But rained crops are cultivated during southwest monsoon and hence a data acquired during first onset of

precipitation is preferred so as to delineate crop and fallow land parcels of agricultural category. Delineation of scrub land is also possible since land with scrub could be easily distinguished from crop vegetation and separated. This may be an arduous task during monsoon since the entire area would be witnessed with sudden sprout of lush natural vegetation, mostly *prosopis*, with first onset of precipitation.

### **Methodology Adopted for the Land Use Study**

Present study involves micro level analysis of landuse pattern showing 10 km radius and changes in landuse pattern using satellite data. This necessitates a careful analysis of satellite data adopting a well-defined methodology.

To cater the requirement, a preliminary assessment of terrain using digital analysis helping to infer relationship between terrain and landuse has been carried out. Such an approach provides lucid understanding of landuse units and enhances the knowledge on the landuse pattern assisting in impact assessment.

The knowledge base thus generated is used to delineate various landuse units while carrying out interpretation of the satellite image. The derived landuse information is transformed into a GIS based spatial database using geo-referencing techniques. Besides, a limited but well focused field investigation also carried out and coordinates of significant landuse units using handheld GPS (Global Positioning System) are gathered to be used as control points for geo-referencing. Interpreted landuse units are verified in the field to carryout necessary corrections wherever is required before preparing final landuse map.

Using the image elements such as color, tone, texture, size, shape and associated elements various landuse units are delineated following the categorization and nomenclature adopted for the national level landuse classification system as recommended by National Remote Sensing Centre (NRSC), Department of Space, Government of India. Some of the landuse units that are identified in the study area are listed in **Table No. 3.13** given below.

**Field Verification:**

Field verification involved collection, verification and record of the different surface features that create specific spectral signatures / image expressions on FCC. In the study area, doubtful areas identified in course of interpretation of imagery is systematically listed and transferred on to the corresponding SOI topographical maps for ground verification. In addition to these, traverse routes were 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 6 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.

**Table No.3.13: Major Land use Units of the Study Area**

<b>Sr. No.</b>	<b>1<sup>st</sup> level classification</b>	<b>2<sup>nd</sup> level classification</b>
1	Built-Up Or Habitation	Residential
		Commercial / Industrial
2	Agriculture	Crop / Fallow Land
		Plantation
3	Water Bodies	Reservoir / Lake / Pond
		River
4	Vegetation Cover	Scrub
		Open Vegetation
		Close Vegetation
		Mangroves
5	Waste Land	Open Without Scrub
		Open With Scrub
6	Others	Mudflow
		Salt Pan
		Brick Manufacturing

**Land Use Pattern of 10 km Radial Buffer Area of Project Site**

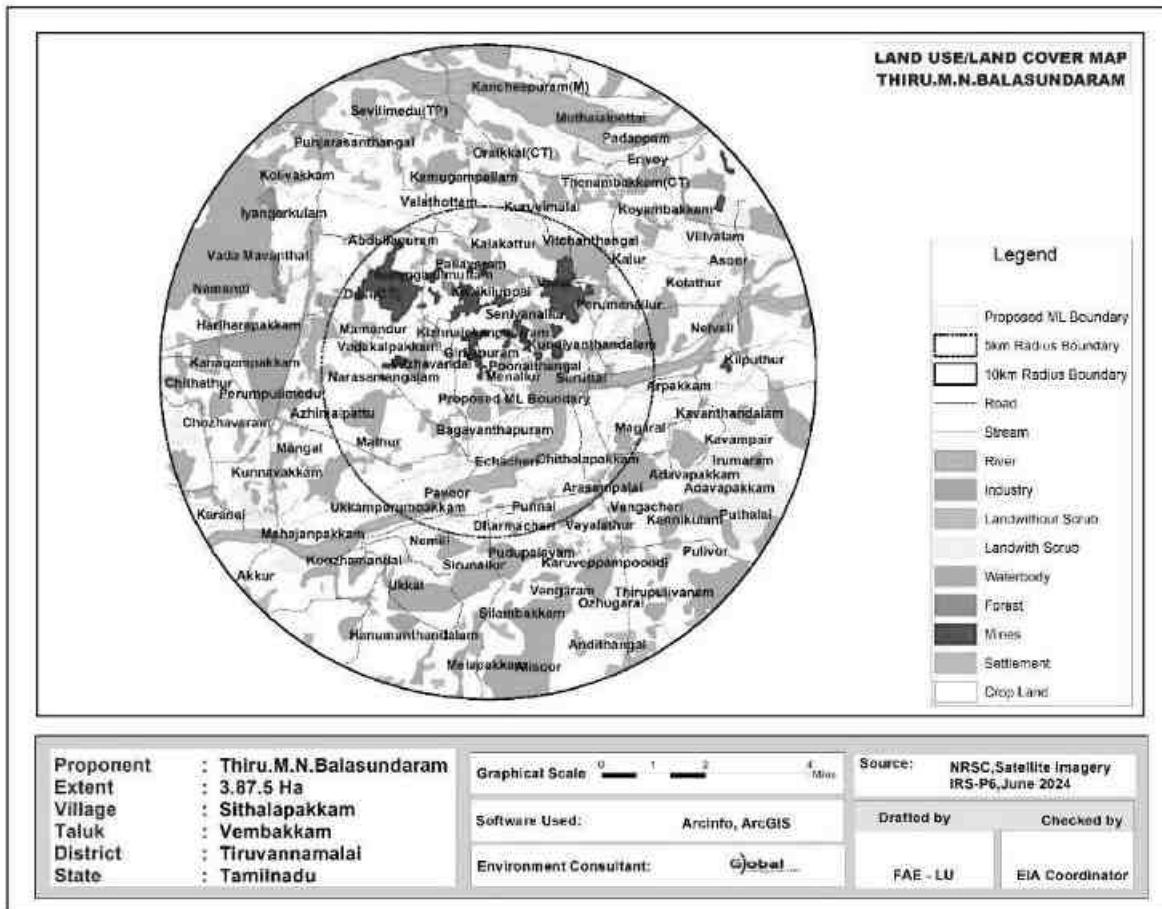
The existing land use pattern and land cover distribution of the whole acquired block, have been studied from the satellite imagery and subsequent ground checking during the field surveys.

It mainly comprises of agricultural land with bi-annual crops of Kharif (Kharif: Jowar, Bajra, Cotton, etc. Season: July to October) and Rabi (Rabi: Wheat, Rai etc. Season: December to March). The presence of the agricultural land is followed by few dense settlements sithalapakkam village natural or man-made pond etc. The shortage of rainfall, availability of ground water at deeper level and other climatic condition do not support good agricultural productivity inspite of having enough land. There is no demarcated forest land within the study area, however, some scattered forest is found throughout the 10 km radius, especially along the periphery of the villages.

The general landuse pattern of the core and buffer may be broadly classified into four major types – Buildup or habitation, Agriculture, Water Bodies, Waste land and Other categories. Under buildup or habitation category covered villages, town and infrastructure. Under agriculture category considered crop land/fallow land and plantation. Under the water body categories Reservoir/ lake, pond, River and stream. Under wasteland category considered land with scrub and land without scrub is interpreted. Lastly other category's covered Mines area and forest are interpreted under this category. These categories are delineated from the selected satellite image using image elements such as color, tone, texture, size, shape and associated elements. The delineated land use units are transformed into a spatial database in GIS environment. Estimated for area and representation of each category in the study area. The total area of LULC in the study area is calculated as 318 sq. km and spatial distribution of various LULC categories within buffer area are discussed below. The 5km and 10km radius lands map is shown above. The details are given below.

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**FIG 3.18 LAND USE/LAND COVER MAP OF THE STUDY AREA**



Land Use / Land Cover Classification classified into first level classification and second level classification and major land use/land cover classes were demarcated in the study area following Level II classification. A thematic map of 1:50,000 scale was generated incorporating these classified categories considering the area of the project.

**Built-up / Settlements**

Settlements in the study area are generally small to medium size in stature and area scattered. Kanchipuram is the relatively larger settlements observed at the north part of the study area.

Interpretation of settlement from the satellite image is based upon the image

elements such as color, tone, texture and association. It is delineated by their typical red color. Association with linear features such as roads reaffirmed the presence of delineation of settlements. The spatial extent of settlement is estimated as 35.19 sq. km representing 10.89% of the study area and Industrial + Commercial area covers 5.0 sq. km with 1.55 %.

### **Agricultural Land**

Under the broad category of agriculture crop land, fallow land and plantation is delineated. Cultivation is mostly dependent upon river water for irrigational activities are good. River, Ponds and tanks in each village act as rainwater storage units and do support domestic requirement and even cultivation to some extent. Because of these conditions, minimal water requiring crops such as corn, sunflower, oil seeds, grams, millets and coriander are cultivated. Cultivation is the most predominant crop cultivated and even if it failed their stalks are used as fodder for cattle.

Crop and Fallow land are interpreted using their image elements such as light to green, smooth to medium tone, they are the second most predominant landuse category delineated in the buffer area. As explained earlier, cultivation mostly depends upon river, canal and rainfall and majority of the land parcels are tilled and ready for cultivation with even a scanty Canal. Hence, cropland is the predominant category estimated at 184.1 Sq.km representing 57 % of the buffer area.

### **Wasteland**

The last category of the landuse units in the study area is "Wasteland" which denotes land parcels that could not be utilized for cultivation even after conservation measures – such as land with scrub, land without scrub area.

Next to agricultural area, natural vegetation such as land with scrub forms the predominant LULC category of the buffer area. Land with scrub is sparse and delineated as patches scattered in all the parts of the buffer area. The spatial pattern of scrub suggests it is closely associated with water courses. This category occupies land with scrub an area of 6.20 sq.km representing 1.92 % of the total core and buffer area.



Land without scrub, on the other hand is interpreted using brown to white color, medium tone and medium texture and is generally restricted around land covered with scrub and fallow land. They occur as small patches and very minimal area covering 2.43 sq.km representing 0.75 % of the buffer area.

**Water bodies**

Many Streams small and big water bodies are seen in the study area distributed all over the study area. They support the domestic water requirements and for cattle. At some places, they may also use for irrigation purpose and are very limited. Few dry stream courses are also seen in the study area. In the satellite image, water bodies are interpreted by their light blue to greyish blue color, smooth tone and smooth texture.

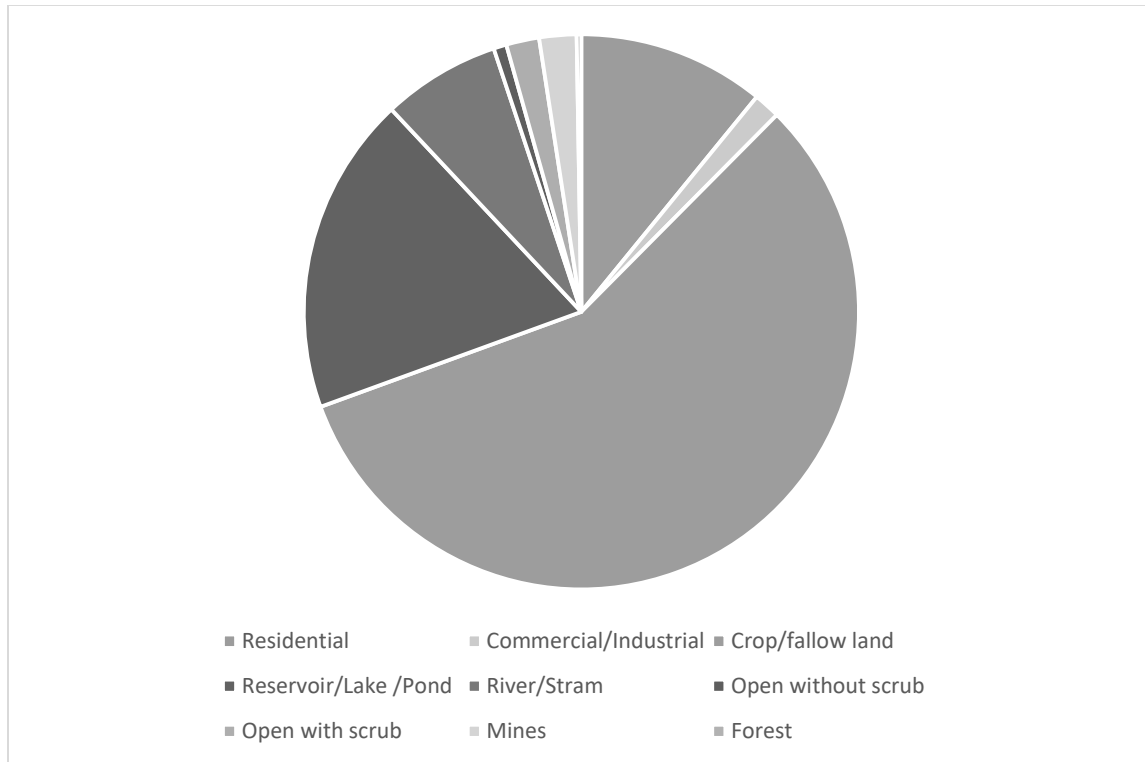
Most of the water bodies retain water for a shorter period after precipitation due to the soil constraint and hence go dry soon. Spatial extent of rivers, stream and water bodies is estimated at 82.2 sq.km and 25.45 %.

**Mining area**

Mining area seen in the study area distributed all over the study area. Major domestic income from mining business. Spatial extent of mining is estimated at 7.01 sq.km 2.17 %.

**Table No. 3.14: Major Land Use Units of the Study Area in Percentage**

S. No	1st Level Classification	Area in (sq.km)	Percentage (%)	2nd Level Classification	Area in (sq.km)	Percentage (%)
1	Built-up or habitation	40.19	12.44	Residential	35.19	10.89
				Commercial/Industrial	5.0	1.55
2	Agriculture	184.1	57.00	Crop/fallow land	184.1	57.00
3	Water bodies	82.2	25.45	Reservoir/Lake /Pond	59.97	18.57
				River/Stram	22.23	6.88
4	Waste Land	8.63	2.67	Open without scrub	2.43	0.75
				Open with scrub	6.20	1.92
5	Mines	7.01	2.17	Mines	7.01	2.17
6	Forest	0.87	0.27	Forest	0.87	0.27
<b>Total</b>		<b>323</b>	<b>100</b>	<b>Total</b>	<b>323</b>	<b>100</b>



### **3.3.8 SOCIOECONOMIC ENVIRONMENT**

The socio-economic environment of the study area is studied by conducting primary sites through site visits and conducting sample surveys. The secondary data obtained from Census 2011 is also used. The following data area collected from secondary data:

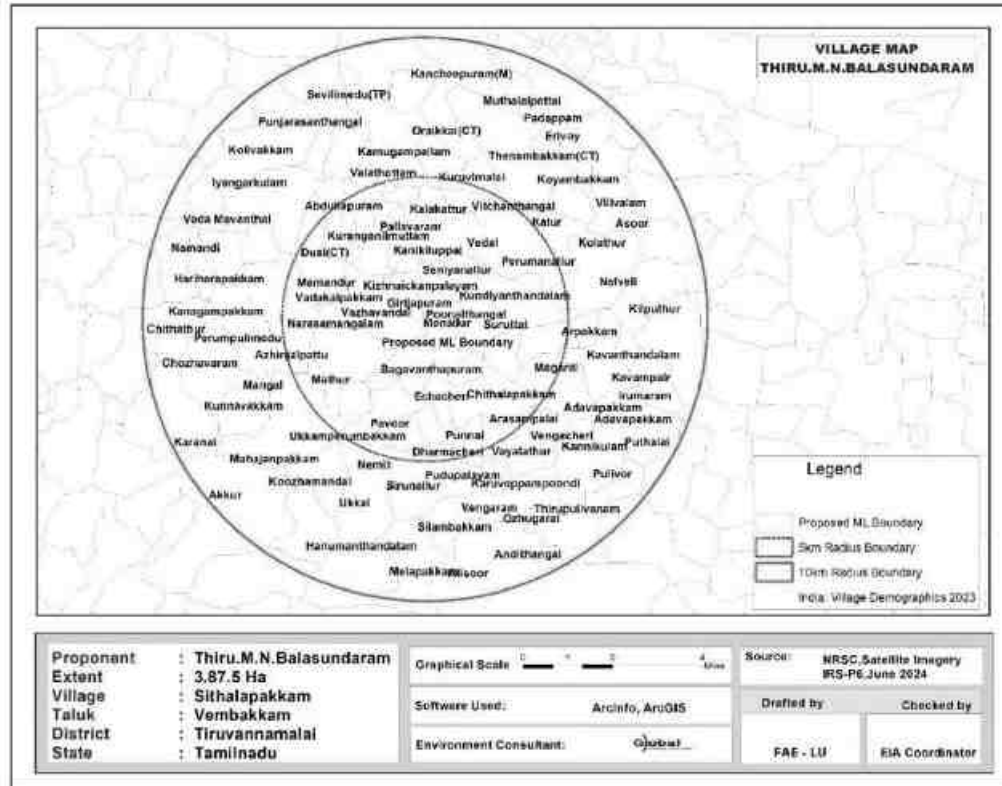
- Demographic pattern.
- Health pattern
- Occupational structure.

#### **DETAILS OF VILLAGES**

The profile of the villages located in the study area is given in Fig 3.16 below.

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDARAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

**FIG 3.19 VILLAGE MAP OF THE STUDY AREA**



**DETAILS OF VILLAGES**

The project is located in Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District. The total population is 370499 which comprise of 185595 males and 184904females. There are 103rural villages and one urban area in the study area. List of villages are given below.

<b>Table 3.15 Village details in study area</b>				
<b>S.No.</b>	<b>Village/Town Name</b>	<b>Radius</b>	<b>Taluk Name</b>	<b>District Name</b>
1	Menallur	1-5km	Vembakkam	Tiruvannamalai
2	Suruttal			
3	Poonaihangal			
4	Kizhnaickanpalayam			
5	Seniyanallur			
6	Pallavaram			
7	Kanikiluppai			
8	Kundiyanthandalam			
9	Girijapuram			
10	Kuranganilmuttam			

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11	Vadakalpakkam						
12	Vazhavandal						
13	Mamandur						
14	Narasamangalam						
15	Azhinjalpattu						
16	Mangal						
17	Ukkamperumbakkam						
18	Arasanipalai						
19	Chithalapakkam						
20	Punnai						
21	Pavoor						
22	Kalakattur						
23	Vedal						
24	Vitchanthangal				Walajabad	Kanchipuram	
25	Perumanallur						
26	Magaral						
27	Arpakkam						
28	Vayalathur						
29	Sothiyampakkam						
30	Bagavanthapuram						
31	Dusi (CT)				6-10	Vembakkam	Tiruvannamalai
32	Nemili						
33	Sirunallur						
34	Pudupalayam						
35	Namandi						
36	Thiruvadiraipuram						
37	Hariharapakkam						
38	Ezhacheri						
39	Chithathur						
40	Kanagampakkam						
41	Chozhavaram						
42	Perumpulimedu						
43	Chellaperumpulimedu						
44	Ukkal						
45	Koozhamandal						
46	Kunnavakkam						
47	Mahajanampakkam						
48	Akkur						
49	Karanai						
50	Pandiyampakkam						
51	Nattapettai (CT)	Cheyyar					
52	Thenambakkam (CT)						
53	Kancheepuram (M)			Kancheepuram	Kancheepuram		

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

54	Sevilimedu (TP)	Walajabad			
55	Orikkai (CT)				
56	Iyangarkulam				
57	Kolivakkam				
58	Punjarasanthangal				
59	Valathottam				
60	Muthialpettai				
61	Ayyampettai (CT)				
62	Padappam				
63	Erivoy				
64	Kuruvimalai				
65	Nelveli				
66	Kavanthandalam				
67	Kilputhur				
68	Kolathur				
69	Kalur				
70	Koyambakkam				
71	Elayanarvelur				
72	Kambarajapuram				
73	Melputhur				
74	Asoor				
75	Thammanur				
76	Avalur				
77	Villivalam				
78	Naickenpettai				
79	Thimmaiyanpettai				
80	Ekanampettai				
81	Thangi				
82	Seeyamangalam				
83	Perunagar			Uthiramerur	
84	Hanumanthandalam				
85	Melpakkam				
86	Silambakkam				
87	Vengaram				
88	Alisoor				
89	Ozhugarai				
90	Andithangal				
91	Karuveppampoondi				
92	Vengacheri				
93	Adavapakkam				
94	Kannikulam				
95	Thriupulivanam				
96	Murukkeri				

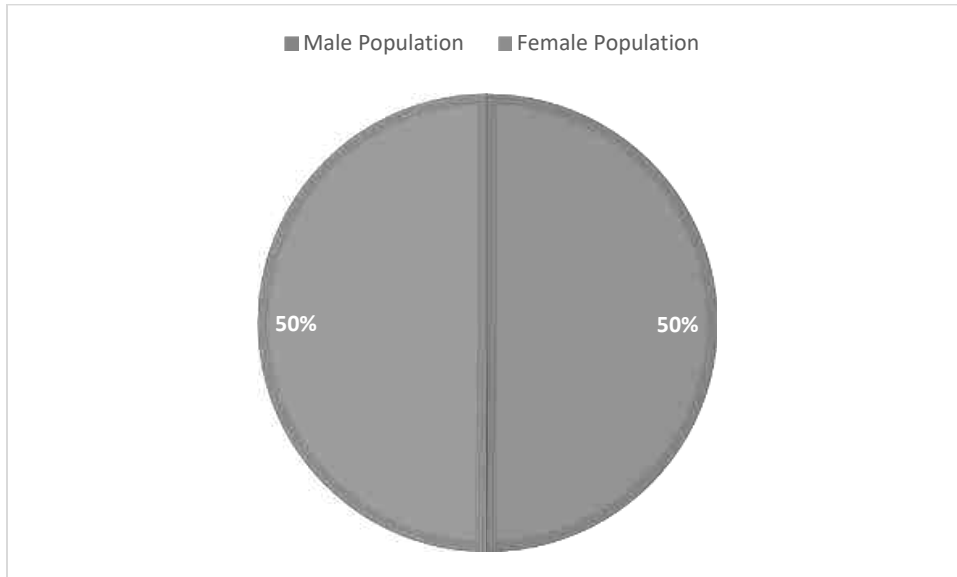
**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

97	Pulivoy			
98	Irumaram			
99	Puthali			
100	Sembulam			
101	Marudham			
102	Kavampair			
103	Neyyadivakkam			

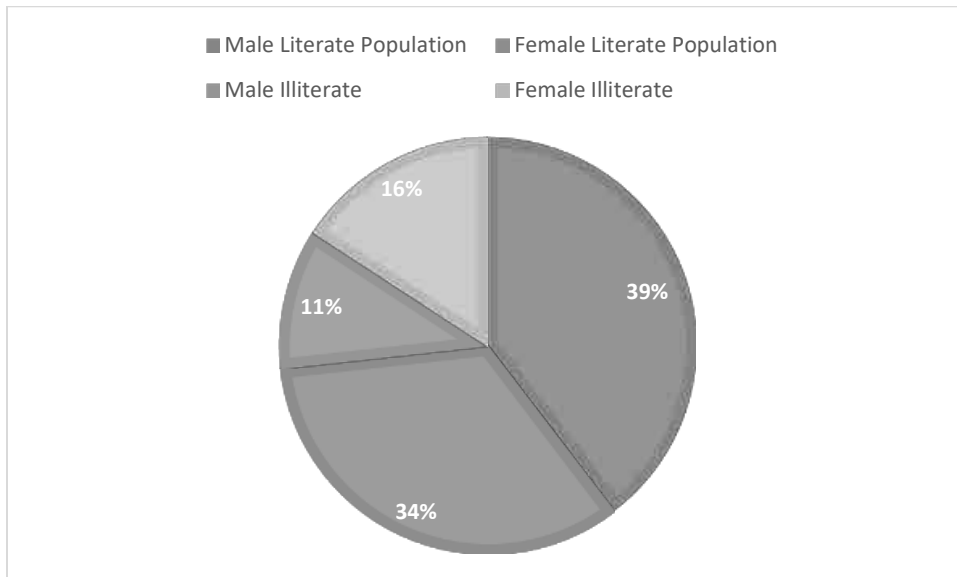
<b>Table 3.16 Population profile of the study area</b>		
<b>Particulars</b>	<b>No of Population</b>	<b>Percentage (%)</b>
<b>A. Population break-up by Gender</b>		
Male Population	185595	50
Female Population	184904	50
Total	370499	100
<b>B. Population break-up by Caste</b>		
Scheduled Caste	52203	14
Scheduled Tribes	3355	1
Others	314941	85
Total	370499	100
<b>C. Literacy Level</b>		
Male Literate Population	146413	39
Female Literate Population	124973	34
Male Illiterate	39182	11
Female Illiterate	59931	16
Total	370499	100
<b>D. Occupational structure</b>		
Main workers	135599	-
Marginal workers	23154	-
Total Workers	158753	43
Total non-workers	211746	57
<b>Total</b>	<b>370499</b>	<b>100</b>

The above table shows that the male and female population ratios are almost equal. Among the total population 1 % belong to Scheduled Tribes, 14 % are Scheduled Caste and the balance 85 % people belong to other castes. Among the total population 74 % of the people are literate. Among the total population 39 % are literate males and 34 % are literate females. This shows that the male literates are higher than the female literates. The results are plotted in figures below.

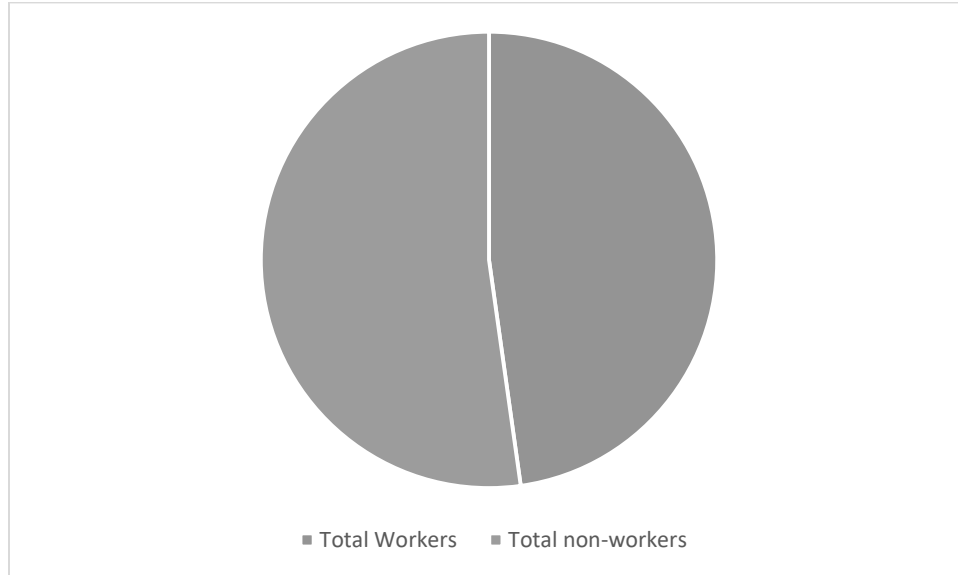
**FIG 3.20 GENDER-WISE POPULATION DISTRIBUTION**



**FIG 3.21 GENDER WISE LITERACY DISTRIBUTION**



**FIG 3.22 OCCUPATIONAL STRUCTURE WITHIN BUFFER ZONE**



## Infrastructure facilities in the study area

### Education

**Table 3.17 Educational infrastructure -10 km radius from proposed mine lease**

S. No.	Particulars	Available in village (Nos)
1	Govt. Primary School	Kancheepuram - 27
2	Govt. Middle School	22
3	Govt. Secondary School	17
4	Govt. Senior Secondary School	13
5	Govt. Arts and Science Degree College	28
6	Govt. Engineering College	0
7	Govt. Medicine College	0
8	Govt. Management Institute	0
9	Govt. Polytechnic	0
10	Govt. Vocational Training School/ITI	0

In the study area, there are totally 27 Primary Schools functioning in these 22 urban areas. Among them 80 villages have 16 primary school, 28 villages have 19 primary schools & 25 villages have more than 14 primary school.



## Healthcare

In the study area, the following facilities are available.

<b>Table 3.18 Medical Infrastructure-10 km radius from proposed mine lease</b>		
<b>S.No.</b>	<b>Particulars</b>	<b>Available in village (Nos)</b>
1	Community Health Centre	13
2	Primary Health Centre	8
3	Primary Health Sub Centre	22
4	Maternity And Child Welfare Centre	14
5	TB Clinic	12
6	Hospital Allopathic	0

## Other Infrastructure

The other infrastructure facilities available are given below.

<b>Table 3.19 Other Infrastructure-10 km radius from proposed mine lease</b>		
<b>S.No.</b>	<b>Particulars</b>	<b>Available in village</b>
1	Tap Water-Treated	40
2	Covered Well	12
3	Hand Pump	15
4	Tube Wells/Borehole	13
5	Post office	8
6	Public bus services	12
7	Commercial Bank	17
8	Cooperative bank	13

## Sample Survey

The expert visited 5 villages in the study area namely Arasanipalai, Chithalapakkam, Ezacheri, Pavoor and Punnai villages. Discussions were held with the people from nearby locality to study the social and economic conditions prevailing in the area. The expert also visited nearby hospitals, primary health centers and Tiruvannamalai. The following observations were made.

Primary schools are available in many villages. For hospital facilities, people in the locality have to go to hospital in Kanchipuram which is about 8.5 km from the lease area. Major schools with higher secondary and senior secondary schools are located in Kanchipuram. The major sithalapakkam Union located in the area is Tiruvannamalai. Facilities like petrol pump stations, ATM facility are available in Kanchipuram

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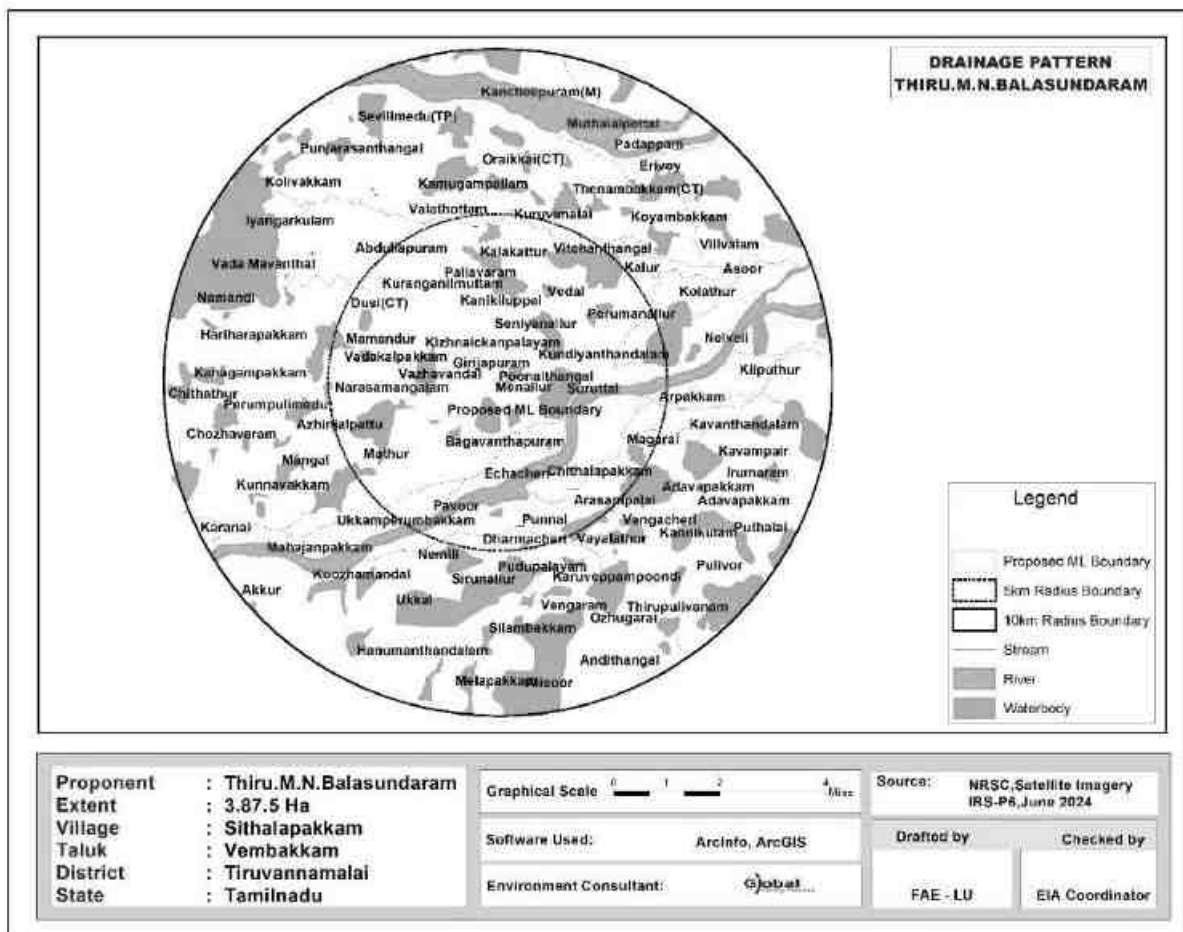
### 3.3.9 HYDROGEOLOGY OF THE STUDY AREA

Since There is Cheyyar River is located at a distance of 2.2 km in South East and Palar River is located at a distance of 7.61 km in North East direction of lease area, the hydrological and hydrogeological pattern of the study area is studied in detail using satellite imagery.

#### HYDROGEOLOGICAL STUDY

To assess the hydrogeological condition of the surrounding proposed mine lease area. The study area is located in Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State. is considered to understand the nature of the general hydrogeological conditions of the surrounding proposed mine lease area.

**FIGURE 3. 23 10 KILOMETER RADIUS OF THE DRAINAGE MAP**



## **PHYSIOGRAPHY AND DRAINAGE**

**Physiography:** The area applied for quarry lease is exhibits plain topography covered by rough stone and Gravel formation. The massive Charnockite formation is clearly visible right from the surface and gentle towards Southwestern side of the area, the altitude of the area is above 90 m (maximum) from MSL.

**Drainage:** The drainage pattern study reveals that from the proposed mine lease area with around 1 Km radius and 10 Km study observed in Figure 3.20. There is Cheyyar River is located at a distance of 2.2 km in South East and Palar River is located at a distance of 7.61 km in North East direction of lease area.

## **GEOLOGY, GEOMORPHOLOGY AND SOIL**

### **Geology:**

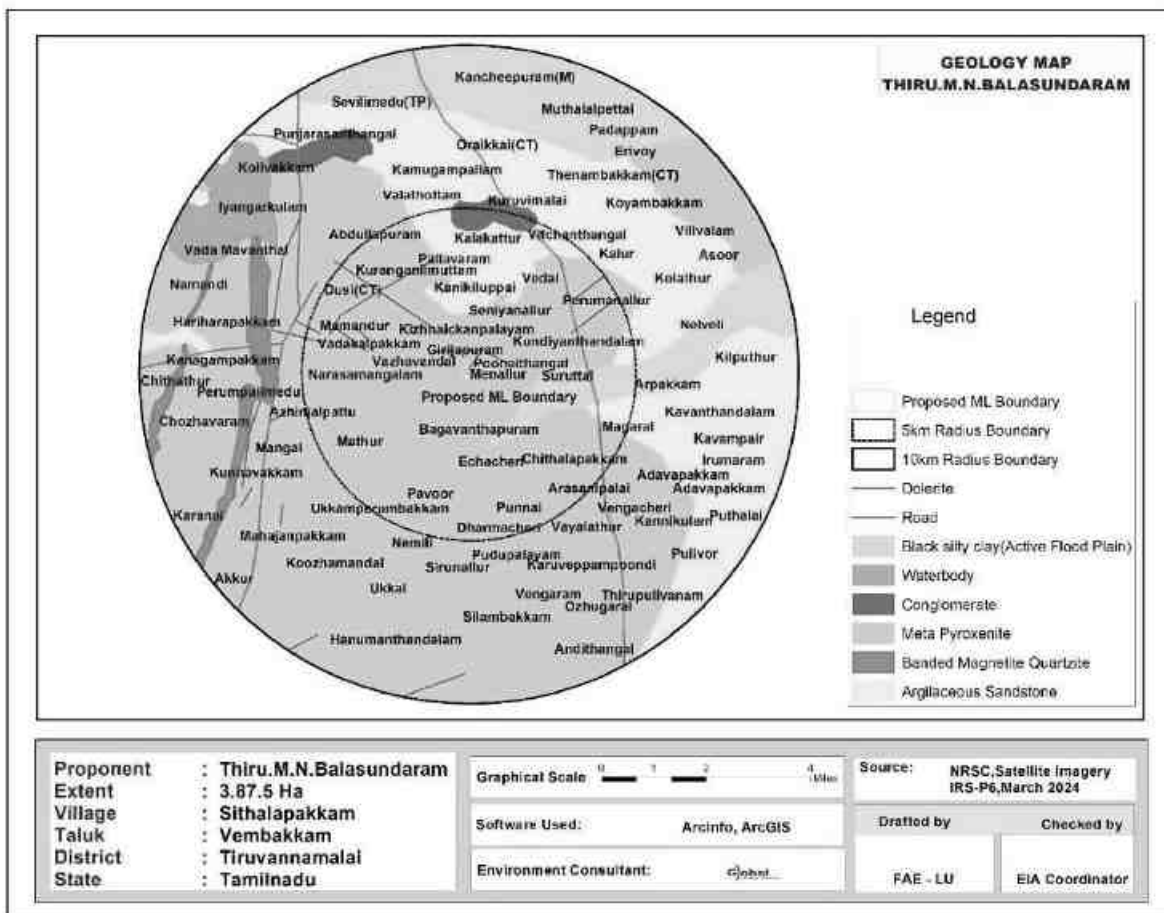
Geologically Tiruvannamalai District is mostly underlain by the Archaean crystalline and metamorphic complex. The geology of the district is complicated due to recurring tectonic and magmatic activities occurred during. Pre-Cambrian period. Hornblende Biotite Gneisses are the oldest rocks of the district. It is very fissile and present widely in plains. The gneisses are highly weathered upto 30 m at some places.

The Charnockites are coarse grained, massive and foliated at places and their colour is bluish dark to grey. They are the second largest rock type present in the district. They are massive and less weathered than the gneisses. They exhibit 2 to 3 distinct set of joints and most of them are vertical with steep dips. Iron ore deposits associated with quartz feldspathic gneiss and garnetiferous quartz gneisses are present in some areas. These rocks are highly folded and jointed and less weathered. Quartzite and crystalline lime stones are exposed in patches in north and central parts of the district. The thickness of these bands varies from a few meters to ten meters and the length extends to few kilometers. Numerous lenses of dunite with magnesite veins of various dimension are exposed within gneiss .There are number of basic dykes present in the study area. Granites are found in some parts of the district. They are massive and jointed poorly. Several faults and shears are occurring

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mostly with north east-southwest trend. They are expected to influence the course of groundwater movement, its storage and developmental potentials in the district. Regional Geology map for the 10 Km radius from the proposed project site is given as Figure 3.23.

**FIGURE 3. 24 10 KILOMETER RADIUS OF THE GEOLOGY MAP**

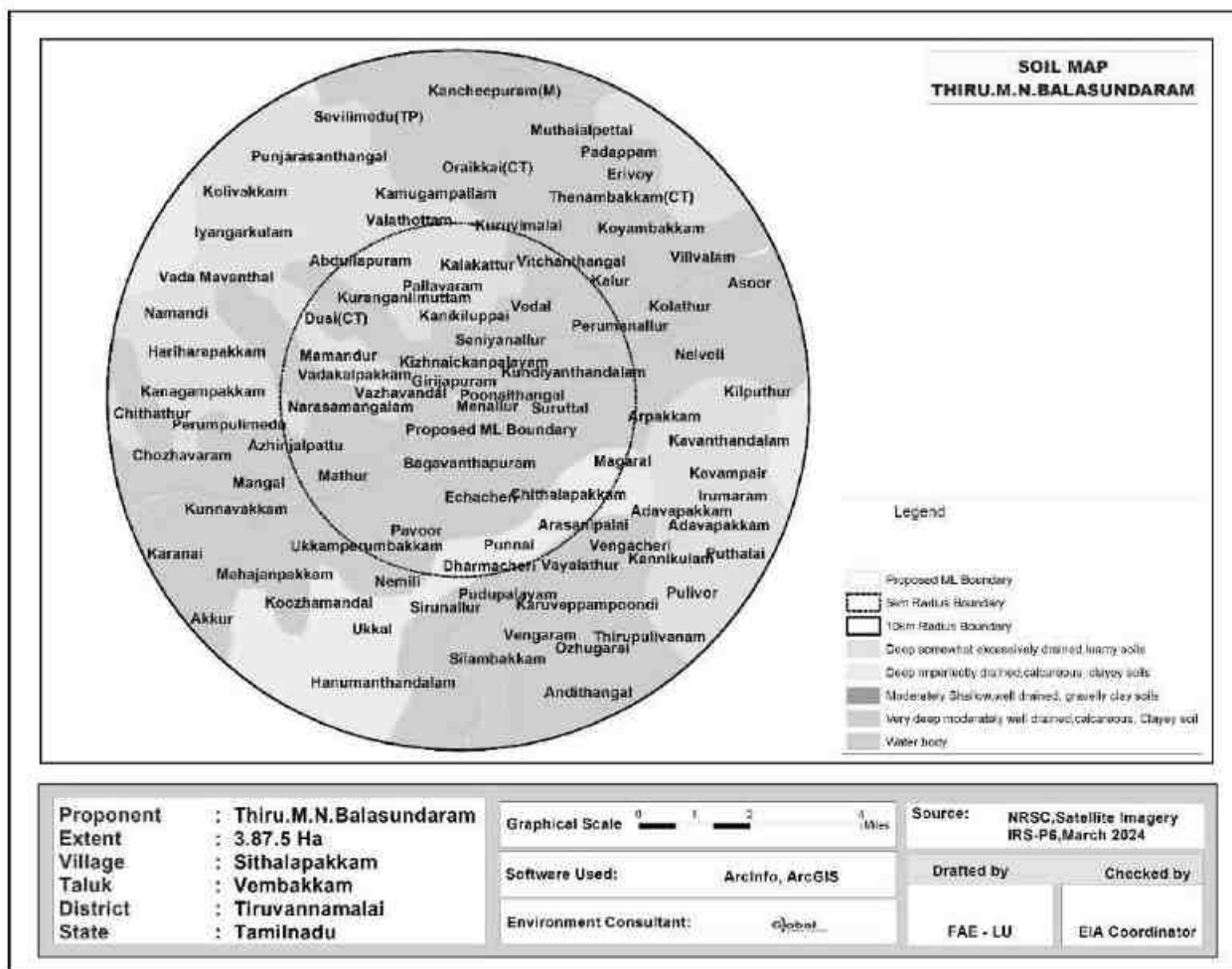




**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

**Soil:** The soil types in the study area are mostly Calcareous black soil, Red loamy soil, clayey soil and Calcareous clayey soil (Figure 3.23.). Calcareous black soil (177.25 sq.km) was distributed over the study area. Red loamy soil is found in north, east, west and central part of the study area (108.43 sq.km). Clayey soil is found in north-western part of the study area (34.93 sq.km).

**FIGURE 3.26 10 KM RADIUS OF THE STUDY AREA SOIL TYPE MAP**

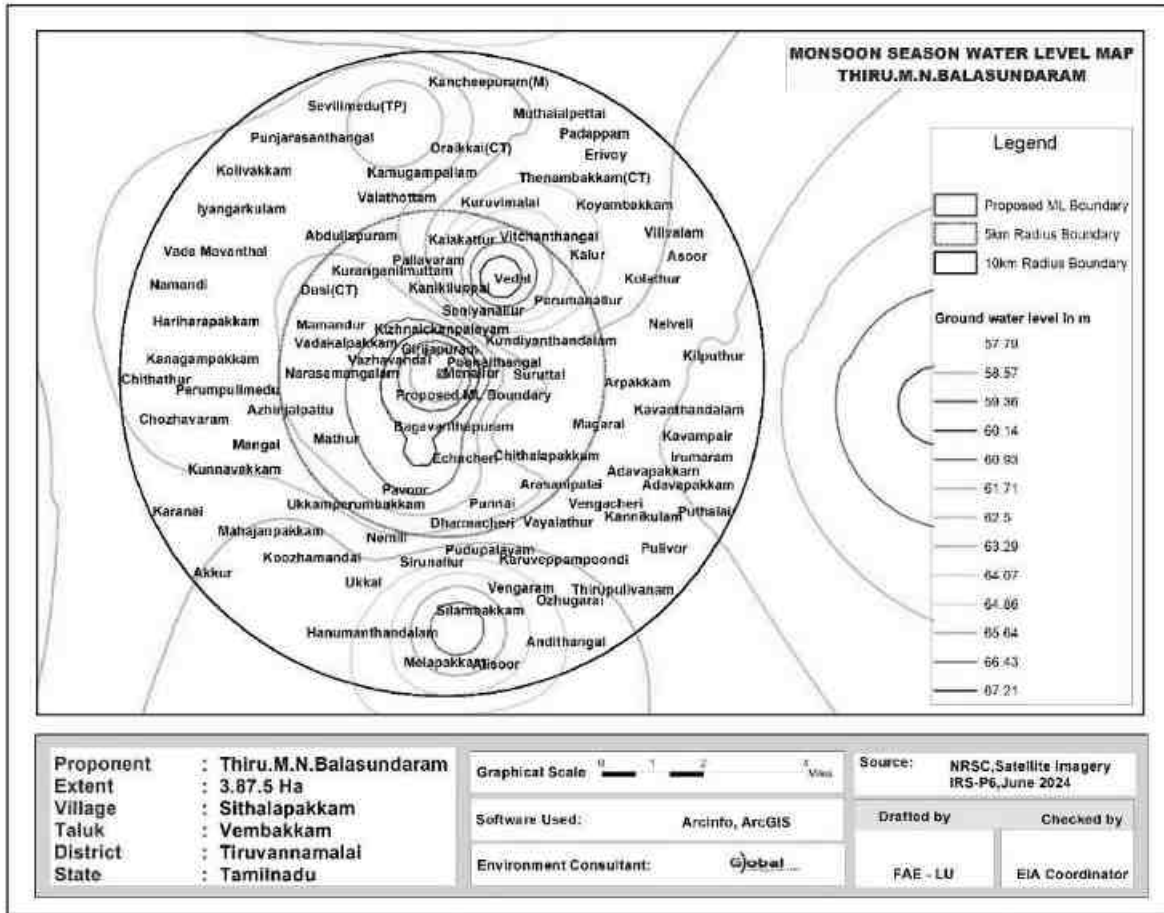


**BELOW GROUND LEVEL (BGL)**

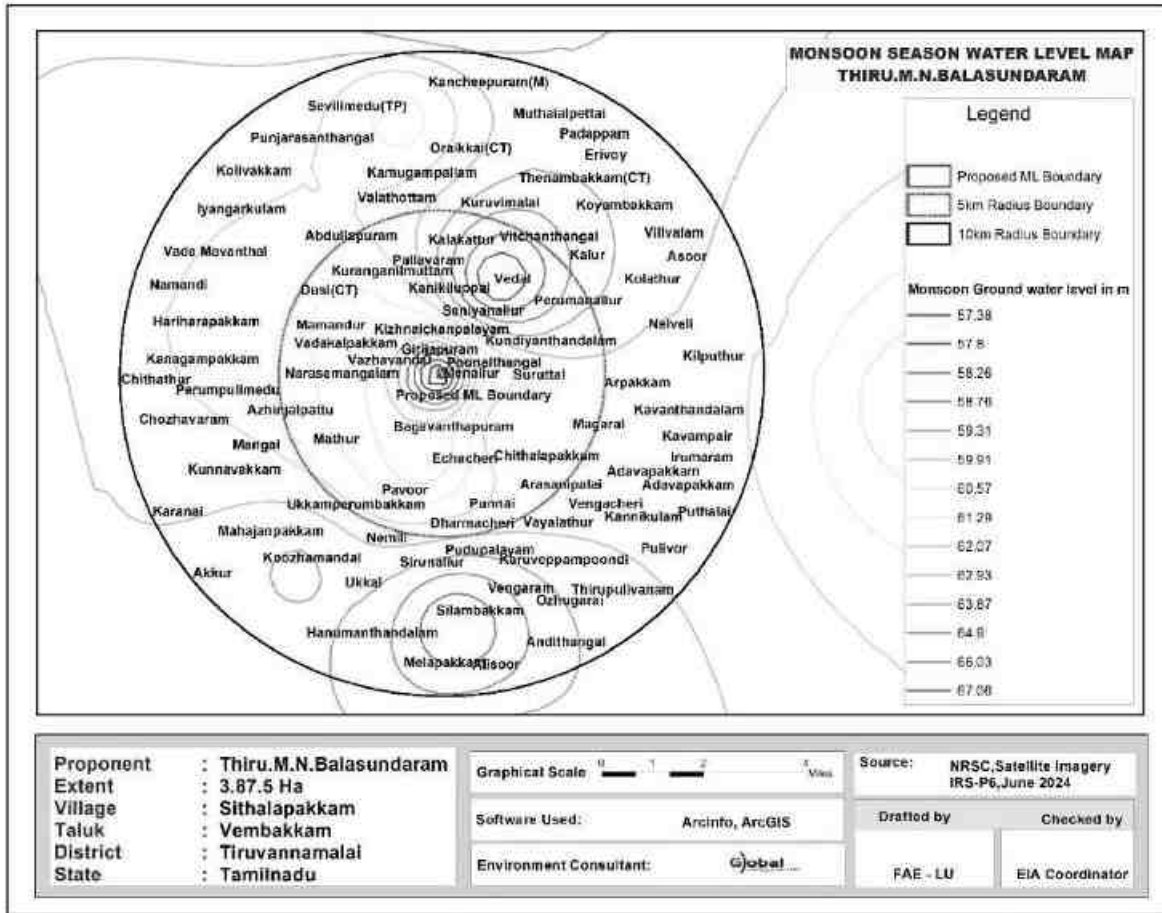
Figure 3.26 & 3.27 shows the Non-Monsoon and Monsoon water level map of the study area.

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDARAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

**FIGURE 3.27 NON-MONSOON WATER LEVEL MAP OF THE STUDY AREA**



**FIGURE 3.28 MONSOON WATER LEVEL MAP OF THE STUDY AREA**



### FIELD INVESTIGATION

The temporary seasonal streams water flow from center to outer most area. There is Cheyyar River is located at a distance of 2.2 km in South East and Palar River is located at a distance of 7.61 km in North East direction of lease area. The water is temporarily found only during the rainy season.

In this representation in the two seasons, the water level substantially gets fall-down in the non-monsoon season, because of the rainfall impact and it extended up to the Monsoon season. Some of the wells water level is shallow depth in both seasons.



These dug wells are located nearby water bodies. So, clearly shows that surface water is impact in these wells.

The shallow depth of groundwater level in the monsoon season. It is interesting to note that the water level is increased because of heavy rainfall during the southwest and northeast monsoon. The groundwater table level is substantially increased in the monsoon season.

In the study area, the shallow aquifer is developed through dug wells and deeper aquifer through tube wells. The study has revealed that potential fractures are encountered at deeper levels. The water in the wells is available mainly monsoon and it reduces during non-monsoon demanding the groundwater. Bore wells are deep and it reflects that the yield is only better at deeper water levels.

Rain water collected in the tanks in the region acts as a good source of water during monsoon season. In order to increase the recharge, tanks, and percolation ponds may be provided with the recharge wells/recharge shafts penetrating this impervious layer to make it more effective in recharging the aquifer.

\*\*\*\*\*

## CHAPTER 4

### **ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES**

#### **INTRODUCTION**

This chapter deals with the various anticipated environmental impacts and mitigation measures of the proposed mining activity. The proposed method of mining is Opencast Mechanized and the quarry operation involves Shallow Jack Hammer Drilling, Blasting, Excavation, Formation of benches, Loading and Transportation of minerals. The above activities may affect the surrounding environment like removal of rock mass, Loss of flora and fauna of the area, surface water discharge, change in air and water quality, etc., If adequate measures are not taken for the proposed operations, it will cause the environmental degradation of the area and it will lead to affect to the ecosystem of the surrounding environment.

In order to maintain the existing environmental scenario of the proposed mine lease area it is mandatorily required to assess the present ecology and environment of the proposed mine lease area and buffer area of the project before starting mining operations. The various environmental impacts which are identified by the proposed quarrying activities have been discussed below and its subsequent paragraphs.

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

**4.1 DETAILS OF INVESTIGATED ENVIRONMENTAL IMPACTS DUE TO PROJECT LOCATION POSSIBLE ACCIDENTS, PROJECT DESIGN, PROJECT CONSTRUCTION, REGULAR OPERATIONS FINAL DECOMMISSIONING OR REHABILITATION OF A COMPLETE PROJECT.**

This is a proposed Rough Stone Quarry & Gravel Quarry of Thiru.M.N.Balasundaram, located at S.F. No. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B over an extent of 3.87.5 Ha in Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State. The method of mining is Opencast mechanized with a bench width and height of 5m. It is proposed to excavate to 2,12,855 m<sup>3</sup> of Rough Stone and 15,912 m<sup>3</sup> of Gravel formation upto a depth of 47 m (BGL) for the period of five years. There is no stream/odai within the mine lease area.

The main anticipated impact on the Land Environment due to quarrying operation is change in Landscape, change in Land – use Pattern.

The entire mine lease area is Patta land. The project area of 3.87.5 Ha boundary barrier except in eastern direction. It is proposed to be altered by effective quarrying operation such as excavation (2.27.0 Ha), Infrastructure (0.01.0), Road (0.02.0 Ha) and green belt will be developed in the safety zone of 1.57.5 Ha. The ultimate depth of quarrying is proposed with maximum depth of 47m BGL and will not intersect the ground water table.

## 4.2 MEASURES FOR MINIMIZING AND /OR OFFSETTING ADVERSE IMPACTS IDENTIFIED

Aspect	Impact	Mitigation measures																																																						
<b>Topography</b>	<p>The area exhibits plain region covered by rough stone and Gravel formation. Quarrying activity will lead to change in geological setting of the area i.e., Due to the quarrying activity in the mine lease area will leads to affect the aesthetic view on the environment. Further, due to the movement of heavy vehicles in and around the mine lease area will leads to affect the surrounding agricultural lands, ecology and biodiversity, human habitations due to the emissions from vehicles like SO<sub>2</sub>, NO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, etc., The existing land use pattern is given as under.</p> <table border="1"> <thead> <tr> <th>Land Use</th> <th>Present Area (Hect)</th> <th>Area in use during the quarrying period (Hect)</th> </tr> </thead> <tbody> <tr> <td>Quarrying Pit</td> <td>1.33.0</td> <td>2.27.0</td> </tr> <tr> <td>Infrastructure</td> <td>Nil</td> <td>0.01.0</td> </tr> <tr> <td>Roads</td> <td>0.01.0</td> <td>0.02.0</td> </tr> <tr> <td>Green Belt</td> <td>0.02.0</td> <td>1.57.5</td> </tr> <tr> <td>Unutilized</td> <td>2.51.5</td> <td>Nil</td> </tr> <tr> <td><b>Total</b></td> <td><b>3.87.5</b></td> <td><b>3.87.5</b></td> </tr> </tbody> </table> <p>The ultimate pit dimension of the mine lease area is given below.</p>	Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)	Quarrying Pit	1.33.0	2.27.0	Infrastructure	Nil	0.01.0	Roads	0.01.0	0.02.0	Green Belt	0.02.0	1.57.5	Unutilized	2.51.5	Nil	<b>Total</b>	<b>3.87.5</b>	<b>3.87.5</b>	<p>The major impact due to this project on land environment is the change in land use. Mining activity will be carried out upto a depth of 47 m Below ground level. At the end of mining period, the quarried pit will act as a water reservoir to store the rain water.</p> <p>Land Use at the end of mine will be as follows.</p> <table border="1"> <thead> <tr> <th>Land Use</th> <th>Area in use during the quarrying period (Hect)</th> </tr> </thead> <tbody> <tr> <td>Area left for water body</td> <td>2.27.0</td> </tr> <tr> <td>Green Belt</td> <td>1.57.5</td> </tr> <tr> <td>Remaining area</td> <td>0.03.0</td> </tr> <tr> <td><b>Total</b></td> <td><b>3.87.5</b></td> </tr> </tbody> </table> <p>At the mine closure stage 2.27.0Ha of lease area will be left as harvesting pond 3.87.5 Ha will be developed with green belt.</p> <p>Greenbelt shall be developed around the mine lease area and the details has been given below.</p> <table border="1"> <thead> <tr> <th>Year</th> <th>Species</th> <th>No. of trees</th> <th>Spacing</th> <th>Survival</th> </tr> </thead> <tbody> <tr> <td>I</td> <td rowspan="5">Azadirachta indica</td> <td>2000</td> <td rowspan="5">3m x 3m</td> <td rowspan="5">80%</td> </tr> <tr> <td>II</td> <td>-</td> </tr> <tr> <td>III</td> <td>-</td> </tr> <tr> <td>IV</td> <td>-</td> </tr> <tr> <td>V</td> <td>-</td> </tr> <tr> <td><b>Total</b></td> <td></td> <td><b>2000</b></td> <td></td> <td></td> </tr> </tbody> </table>	Land Use	Area in use during the quarrying period (Hect)	Area left for water body	2.27.0	Green Belt	1.57.5	Remaining area	0.03.0	<b>Total</b>	<b>3.87.5</b>	Year	Species	No. of trees	Spacing	Survival	I	Azadirachta indica	2000	3m x 3m	80%	II	-	III	-	IV	-	V	-	<b>Total</b>		<b>2000</b>		
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**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="4" style="text-align: center;"><b>Ultimate Pit dimension at the end of Mining plan Period</b></th> </tr> <tr> <th style="text-align: center;"><b>Pit No.</b></th> <th style="text-align: center;"><b>Length (max) (m)</b></th> <th style="text-align: center;"><b>Width (Avg) (m)</b></th> <th style="text-align: center;"><b>Depth (max) (m)</b></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">I</td> <td style="text-align: center;">234</td> <td style="text-align: center;">97</td> <td style="text-align: center;">47 m Below ground level</td> </tr> </tbody> </table> <p>If mining is not done systematically it will lead to the dumping failure in the mining area.</p>	<b>Ultimate Pit dimension at the end of Mining plan Period</b>				<b>Pit No.</b>	<b>Length (max) (m)</b>	<b>Width (Avg) (m)</b>	<b>Depth (max) (m)</b>	I	234	97	47 m Below ground level	<p>Due to the thick vegetation around the mine lease area and sprinkling of water around the haul roads the dust emissions arises from the vehicles will be controlled.</p> <p>At the end of mining period, fencing will be provided around the mine lease area to arrest the entry of public/cattle to the mining area.</p> <p>The rough stone and Gravel are proposed to quarry 5m bench height and 5m width with 80° slope and with conventional Opencast-Mechanized method. As per the approved mining plan a safety distance of 7.5m, 10m and 50m shall be provided. There is no overburden anticipated during the entire Rough Stone and Gravel quarrying operation. The excavated rough stone and Gravel will be directly loaded into tipper to the needy crusher/other buyers.</p>
<b>Ultimate Pit dimension at the end of Mining plan Period</b>														
<b>Pit No.</b>	<b>Length (max) (m)</b>	<b>Width (Avg) (m)</b>	<b>Depth (max) (m)</b>											
I	234	97	47 m Below ground level											
<b>Drainage</b>	<p>Mine drainage is surface water or groundwater that drains from an active or abandoned mine. One of the adverse impacts of mine drainage is it will contaminate the ground water.</p>	<p>As per the approved mining plan the ultimate pit limit is 47m (BGL). The ground water table is reported as 66m. In the proposed mining plan only 47 m below ground level has been envisaged as workable depth for safe &amp; economic quarrying for the entire lease period. Hence the quarrying operation may not affect the ground water.</p>												
<b>Soil Quality and Agriculture</b>	<p>In monsoon seasons due to the excavation of minerals soil erosion and sediment deposition will occur in the nearby water bodies.</p>	<p>It is proposed to quarry upto a depth of 47m below ground level and the nearby water table is 66 m. So, the mining activity will not affect the ground water. To prevent the soil erosion during monsoon season, garland drain will be constructed with silt traps.</p>												
<b>Visual impact on surrounding environment</b>	<p>Quarrying activities and rock extraction generally cause several environmental effects on the surrounding areas. The alteration of landscape due to activities like excavation, drilling or blasting, in particular, often generates a visual impact on the receptors set in the surroundings. Among these effects, the shape, extent, or chromatic contrast of the mining surface with the original land form may represent a huge loss of appeal for the growth of new urban settlements.</p>	<p>The reclamation of the post mined quarry surface is aimed at restoring the ecological balance taking into account geological parameters but also local flora and climate. Further the ultimate depth of mining is 47m. In the post mining stage, the quarried-out pit will be used for rainwater harvesting.</p>												

#### **4.2.1 SOLID WASTE GENERATION AND MANAGEMENT**

The plastic waste generation is very negligible and it will be collected from the source level in specific dustbin and disposed through the municipal bins.

- Identification of solid waste generations
- Providing dustbins to collect with different color coding
- Creating awareness among the employees
- Developing common storage yards
- Disposal to the nearby municipal yards
- Record keeping
- Review once in quarter

#### **4.2.2 WATER ENVIRONMENT**

##### **Impact on Surface Water Resources**

There is Cheyyar River is located at a distance of 2.2 km in South East and Palar River is located at a distance of 7.61 km in North East direction of lease area. Surface run-off water of the M.L. area is drained through proposed drainage and collected in the bottom of the quarry and collected water will be used for same quarry operation as such for plantation & dust suppression.

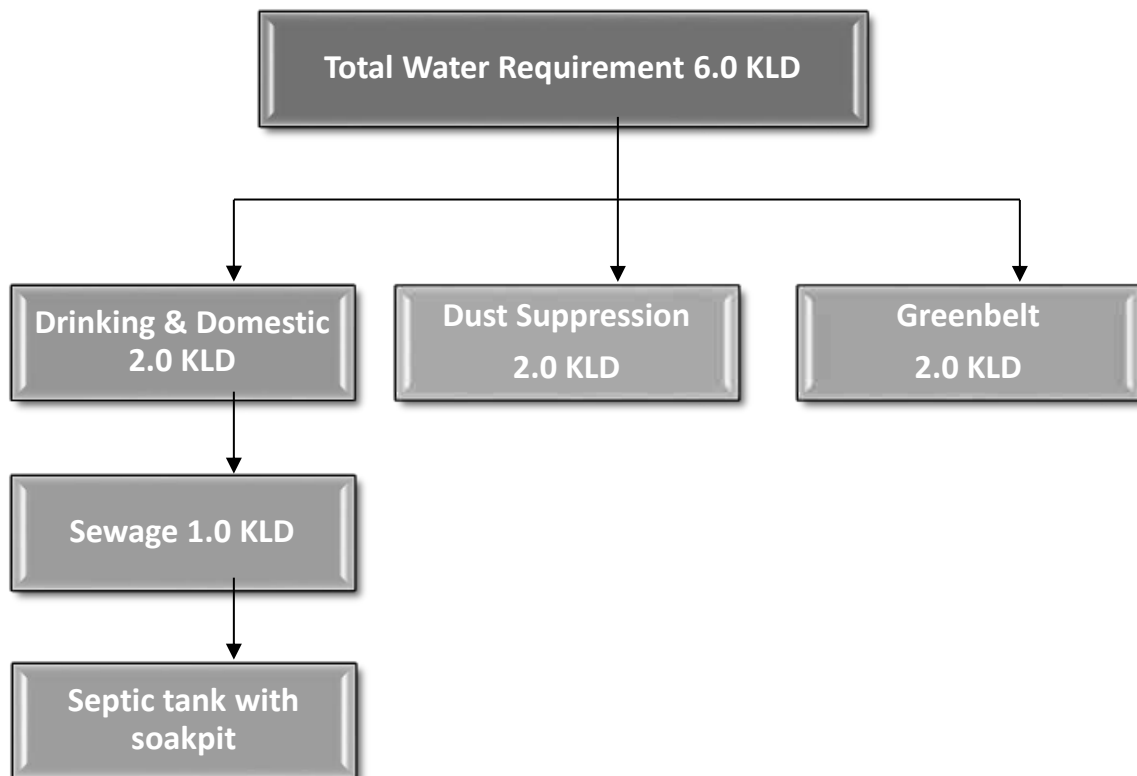
There is Cheyyar River is located at a distance of 2.2 km in South East and Palar River is located at a distance of 7.61 km in North East direction of lease area. Water table is found at a depth of 66m.

Since these water bodies are located outside the lease area and there is no discharge of effluent or any untreated water from the mines will be made into these water bodies, there is no major impact. The project proponent will restrict the mining operation only within the lease and no other work will be carried out outside the mining lease.

### Impact due to Water use in Mines

In the proposed mines water will be mainly used for domestic purpose, dust suppression & plantation. Total water requirement for the project is 6.0 KLD which will be sourced from outside agencies. Negligible sewage of 1.0 KLD will be generated, for which a septic tank with soak pit will be set up. The water balance diagram is given below.

**FIG 4.1 WATER BALANCE DIAGRAM**



### Impact on Ground Water

The mining activity is not likely to intersect ground water as the ground water table occurs at a depth of 66m. The mining will go up to the maximum depth of 47 m BGL. So, there will be no chance of intersecting the ground water table by the mining activity. So, the impact of mining on the ground water is not envisaged.

### Mitigation measures

- Entire lease area will be provided with proper garland drains.
- Check wears will be provided to prevent solids from wash off.
- Construction of garland drains around freshly excavated so that flow of water with loose material is prevented.
- The mine water will be passed through the natural slopes and valleys and gets accumulated in the settling tank (Bottom pit)

### Ground water environment in buffer zone

The scenario of ground water in Tiruvannamalai Districts is given below.

Table 4.1 Ground Water Level Status in Tiruvannamalai District							
S. No.	Assessment Unit (Firka)	Net Annual Ground water availability	Existing gross ground water consumption for irrigation	Existing gross ground water consumption for domestic and industrial water supply	Existing gross ground water consumption for all uses	Stage of ground water development	Category
1	Tiruvannamalai	111,687.47	99,684.23	3,278.01	102,962.24	92	Over Exploited

Source:nwm.gov.in

It is planned to carryout appropriate rainwater harvesting schemes and artificial recharge schemes in the area.

### 4.2.3 VEGETATION

#### VEGETATION IN THE CORE ZONE

The mine lease area is devoid of major plantation. Shrubs and bushes are majorly found within the lease area. The proponent has planned to develop green belt in an area of 1.57.50 Ha. Trees like Pungai, Vagai, Vembu, Manjal konrai, Naval, Puvarasu, etc., will be planted around the mine lease area. A total of 2000 trees are planned to be planted. Spacing will be 3m x 3m.



## **FAUNA**

There are no sanctuaries/national parks in the buffer zone of 10km study area. The commonly found fauna in the buffer zone are given in Chapter III. During mining activity the impacts and mitigation measures for Fauna are given in below table.

<b>Table 4.2 Impacts and mitigation measures for Fauna</b>		
<b>S.No.</b>	<b>Impact</b>	<b>Mitigation measure</b>
1	Fauna is affected 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.
2	Dust generation due to mining activities	To reduce dust generation, mist sprayers will be used. During transportation, the material will be covered with tarpaulin. Water sprinkling will be done to reduce generation of pollutants.
3	Change in land use of the lease area	After the mine closure stage, the mine pit will be left as rain water collecting tank, which can attract bird population in the nearby areas.
4	Accidental falling of animals	To prevent entry of animals, the mine lease surrounding area will be properly fenced with barbed wire.

### **4.3 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF ENVIRONMENTAL COMPONENTS.**

#### **4.3.1 IMPACT DUE TO MINING OPERATION**

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.

#### **4.3.2 IMPACT ON AIR ENVIRONMENT**

The impacts on air environment from a mining activity depend on various factors like production capacity, machinery involved, operations and maintenance of various equipment's 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.

#### **4.3.3 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 equipments 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.

#### **4.3.4 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 is 2,12,855 m<sup>3</sup> of Rough Stone and 15,912 m<sup>3</sup> 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 modeling 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 inhomogeneity 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.

#### **4.3.5 Sources of Dust Emission**

The proposed mining is carried out by 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 (SO<sub>2</sub>), Oxides of Nitrogen (NO<sub>x</sub>) 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 has 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.

#### **4.3.6 Emission Details**

All the emissions discussed above are quantified for proposed maximum production of is 2,12,855 m<sup>3</sup> of Rough Stone and 15,912 m<sup>3</sup> of Gravel by the open-cast 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 and Gravel.

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.

#### **4.3.7 Meteorological Data**

The meteorological data recorded continuously during the month of March 2024 – May 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 modeling. Mixing heights representative of the region have been taken from the available published literature.

#### **4.3.8 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.

The maximum ground level concentration is estimated to be about 0.48  $\mu\text{g}/\text{m}^3$  of PM<sub>2.5</sub> & 1.24  $\mu\text{g}/\text{m}^3$  of PM<sub>10</sub> within the mine area and surrounding cluster area 0.80  $\mu\text{g}/\text{m}^3$  of PM<sub>2.5</sub> & 1.70  $\mu\text{g}/\text{m}^3$  of PM<sub>10</sub>, where mining operations are being carried out. The impact of mining operations would be negligible beyond 0.5 km.

**Figure – 4.2** represents the spatial distribution of the predicted ground level concentrations of PM<sub>10</sub> due to emissions from mine.

#### 4.3.9 Emission sources & Quantification

Various point and non-point sources of emissions from Proposed Rough Stone and Gravel Quarry of Thiru.M.N.Balasundaram, S/o.Natarajan (Total Material handling (Rough Stone & Gravel) is quantified and presented below:

Area Emissions – Total Material handling of Thiru.M.N.Balasundaram, S/o.Natarajan (Rough Stone & Gravel).

<b>Quantity, m<sup>3</sup></b>	<b>Rough Stone: 42571 m<sup>3</sup> Gravel: 3182 m<sup>3</sup></b>
Operational Hours Per Year	2400
Activity Rate, t/hr.	52.42
Emission of dust, g/t.	0.19
Emission of dust, g /hr.	51.6214
Area of influence, m <sup>2</sup>	625
Uncontrolled emission rate g/s/m <sup>2</sup>	0.000033326
Controlled emission rate, PM10 g/s/m <sup>2</sup>	0.000003332
Controlled emission rate, PM2.5 g/s/m <sup>2</sup>	0.02221

Area Emissions – Total Material handling (Cluster Rough Stone & Gravel)

<b>Quantity, m<sup>3</sup></b>	<b>Existing Quarries:</b>
	<ul style="list-style-type: none"> <li>• Thiru.P.Shankar (2.09.50 Ha) - Rough Stone (3,28,200 m<sup>3</sup> for five years).</li> <li>• Thiru.R.Monishkumar (3.12.50)- Rough Stone 1,77,815 m<sup>3</sup> for five years).</li> <li>• R.Elumalai(1.24.0 Ha)- Rough Stone (95,980 m<sup>3</sup> for 5 years)</li> </ul>
Operational Hours Per Year	2400
Activity Rate, t/hr.	76.25
Emission of dust, g/t.	0.20
Emission of dust, g /hr.	58.41397
Area of influence, m <sup>2</sup>	625
Uncontrolled emission rate g/s/m <sup>2</sup>	0.00087698
Controlled emission rate, PM10 g/s/m <sup>2</sup>	0.000876980
Controlled emission rate, PM2.5 g/s/m <sup>2</sup>	0.00058465

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

**Line Source – Transport of Rough Stone & Gravel from Pit to Boundary**

<b>Quantity, m<sup>3</sup></b>	<b>Rough Stone: 42571 m<sup>3</sup> Gravel: 3182 m<sup>3</sup></b>
Operational Hours Per Year	2400
Capacity of each Dumper (T)	10
Total No. of Tippers/ day	15
Lead length/trip, Km	0.8
Total VKT/day	30.15
Emission Kg/VKT	0.22
Total emission Kg/year	2,354.88
Uncontrolled emission rate g/s/m	55543
Controlled emission rate, PM10 g/s/m	0.555437
Controlled emission rate, PM2.5 g/s/m	0.19997

**Line Source – Transport of Cluster Rough Stone & Gravel from Pit to Boundary**

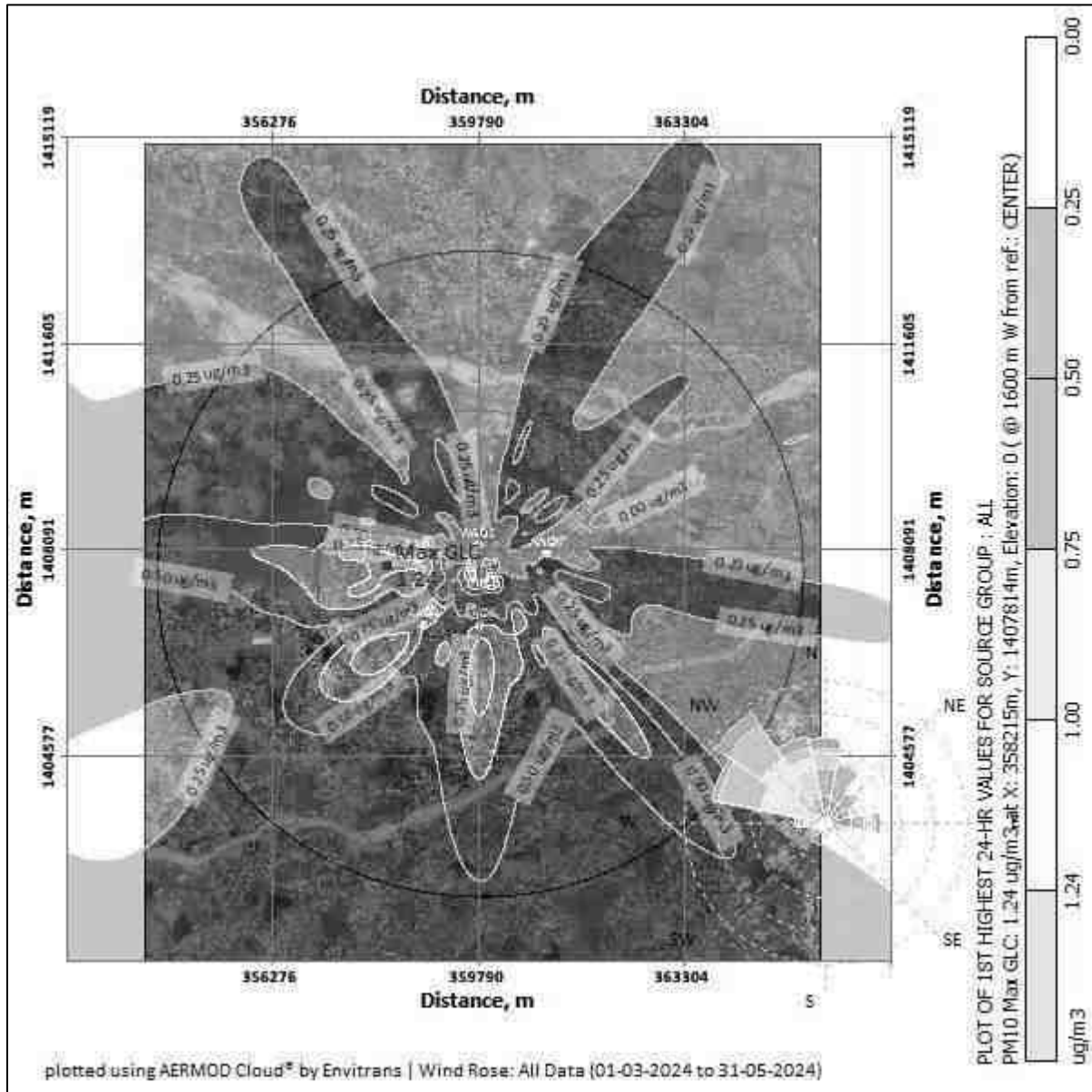
<b>Quantity, m<sup>3</sup></b>	<b>Existing Quarries:</b>
	<ul style="list-style-type: none"> <li>• Thiru.P.Shankar (2.09.50 Ha) - Rough Stone (3,28,200 m<sup>3</sup> for five years).</li> <li>• Thiru.R.Monishkumar (3.12.50)- Rough Stone 1,77,815 m<sup>3</sup> for five years).</li> <li>• R.Elumalai(1.24.0 Ha)- Rough Stone (95,980 m<sup>3</sup> for 5 years)</li> </ul>
Operational Hours Per Year	2400
Capacity of each Dumper (T)	10
Total No. of Tippers/ day	40
Lead length/trip, Km	2.6
Total VKT/day	97.15
Emission Kg/VKT	0.22
Total emission Kg/Year	6514.9
Uncontrolled emission rate g/s/m	5261882
Controlled emission rate, PM10 g/s/m	0.526188
Controlled emission rate, PM2.5 g/s/m	0.146163

Note: \*Emission factor computed based on wind speed of 2 m/s, and moisture content of 10 %. + Emission factor computed based on silt content of 10 % and moisture content of 10 %



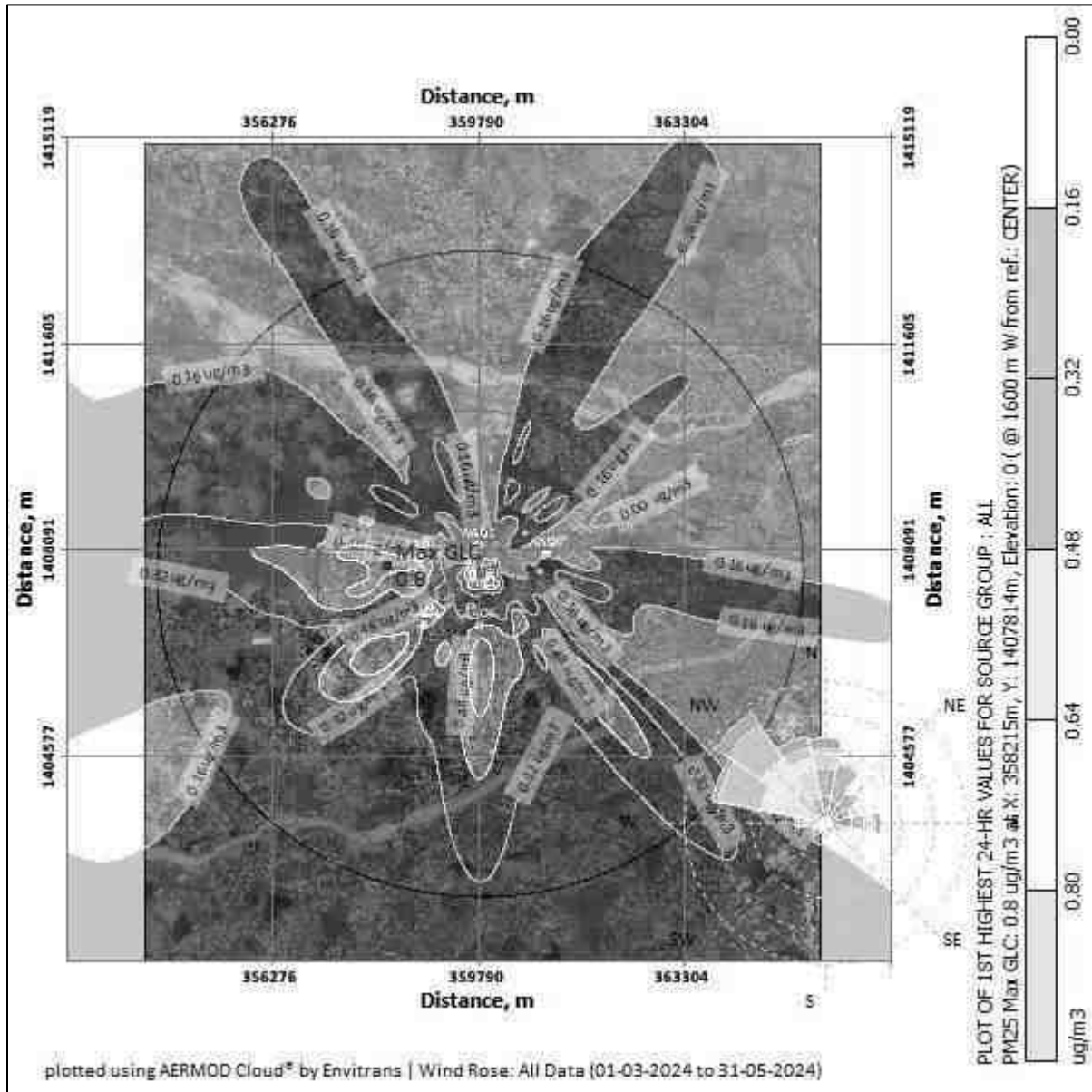


**FIG 4.3 Isopleth of GLC Prediction for PM<sub>10</sub>**



DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.

**FIG 4.4 Isoleth of GLC Prediction –Cumulative for PM<sub>2.5</sub>**





DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.

**Table 4.3 Concentrations of PM2.5 after Project Implementation**

SL. No	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in $\mu\text{g}/\text{m}^3$
1	Proposed Mine Site	31.30	0.48	31.78	60
2	Arasanipalai	27.10	0.39	27.49	
3	Chithalapakkam	25.17	0.29	25.46	
4	Ezacheri	22.76	0.19	22.95	
5	Pavoor	21.70	0.10	21.80	
6	Punnai	22.75	0.05	22.80	

**Table 4.3a Cluster Concentrations of PM2.5 after Project Implementation**

SL. No	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in $\mu\text{g}/\text{m}^3$
1	Proposed Mine Site	31.30	0.80	32.1	60
2	Arasanipalai	27.10	0.64	27.74	
3	Chithalapakkam	25.17	0.48	25.65	
4	Ezacheri	22.76	0.32	23.08	
5	Pavoor	21.70	0.16	21.86	
6	Punnai	22.75	0.10	22.85	

**Table 4.3b Concentrations of PM10 after Project Implementation**

SL. No	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in $\mu\text{g}/\text{m}^3$
1	Proposed Mine Site	66.55	1.24	67.79	100
2	Arasanipalai	58.85	1.00	59.85	
3	Chithalapakkam	53.50	0.75	54.25	
4	Ezacheri	50.60	0.50	51.1	
5	Pavoor	47.80	0.25	48.05	
6	Punnai	47.50	0.15	47.65	

**Table 4.3c Cluster Concentrations of PM10 after Project Implementation**

SL. No	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in $\mu\text{g}/\text{m}^3$
1	Proposed Mine Site	66.55	1.70	68.25	100
2	Arasanipalai	58.85	1.36	60.21	
3	Chithalapakkam	53.50	1.02	54.52	
4	Ezacheri	50.60	0.68	51.28	
5	Pavoor	47.80	0.34	48.14	
6	Punnai	47.50	0.22	47.72	

The above report seems that, even in the worst-case scenario, the resultant added concentrations with baseline figures show that the values of ambient air quality for  $\text{PM}_{10}$  are in the range of  $47.65/\text{m}^3$  to  $67.79 \mu\text{g}/\text{m}^3$  and for  $\text{PM}_{2.5}$  are in the range of  $21.8 \mu\text{g}/\text{m}^3$  to  $31.78 \mu\text{g}/\text{m}^3$  and  $\text{PM}_{10}$  are surrounding area range of  $47.72 \mu\text{g}/\text{m}^3$  to  $68.25 \mu\text{g}/\text{m}^3$  and for  $\text{PM}_{2.5}$  are in the range of  $21.86 \mu\text{g}/\text{m}^3$  to  $32.1 \mu\text{g}/\text{m}^3$  which are within the statutory limits in each case. 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.
- Three-layer plantation in the safety zone.

DG sets shall be periodically maintained as per manufacturer's specifications.

#### 4.4 ASSESSMENT OF SIGNIFICANCE OF IMPACTS (CRITERIA FOR DETERMINING SIGNIFICANCE, ASSIGNING SIGNIFICANCE).

##### 4.4.1 NOISE ENVIRONMENT

The main noise generating source during mining operation and related activities are drilling, excavation, loading and transportation. Intermittent noise is generated due to operation of diesel generator.

##### 4.4.2 Likely Noise Levels in Lease Area due to mining activity

S.No.	Source Name	Noise Level in dB (A)
1	Diesel generator	90
2	Excavator Operation	86
3	Trucks movement	82
4	Drilling	96
5	Blasting	102

It is expected that the generated noise will be limited within the mine lease area and there will be no profound effect of noise on the buffer zone. The noise level will be maintained below the threshold limit by vigorous maintenance of the machineries. Wet drilling with dust extractor is being used to reduce the noise level during the mining operation.

Noise levels were measured in the lease area and in the nearby villages Arasanipalai, sithalapakkam, Ezhacheri, Pavor and Punnam village the values are given below.

S. No	Location	Day equivalent	Night equivalent	Day equivalent limits by CPCB	Night equivalent limits by CPCB
1	Proposed Mine Site	43.8	38.6	75	70
2	Arasanipalai	48.1	37.7		
3	Chithalapakkam	46.1	37.7		
4	Ezhacheri	47.3	38.3		
5	Pavor	49.1	39.8		
6	Punnai	45.4	44.1		

The noise levels are within the MoEF & CC limits of 75 dB(A) in the working area and in the buffer areas, the values are below the limit of 70 dB(A). Since, the residential area norm has been considered for all five locations mentioned above, during mining operation mine lease area will be considered as industrial area/quarry area for which DGMS norms 85 dB(A)/CPCB guidelines 75 dB(A)

#### **4.4.3 Impact of Noise due to mining**

- ✚ Noise generation in mining is due to operation like drilling, blasting and transportation of minerals within and outside the lease area.
- ✚ As per DGMS (Directorate General of Mines Safety) limits, the acceptable noise level is 85 dB(A) for an exposure period of 8 hours.
- ✚ Exposure to loud noise can also cause high blood pressure, heart disease, sleep disturbances, and stress. Noise pollution also impacts the health and well-being of wildlife.
- ✚ Noise exceeding prescribed limits may cause impairment like abnormal loudness perception, tinnitus which causes a persistent high-pitched ringing in the ears, paracusis or distorted hearing.

#### **4.5 MITIGATION MEASURES**

##### **4.5.1 Noise level control.**

- ✚ As the distance between the source and receptor increases, the noise level decreases. Hence, there will be a natural attenuation.
- ✚ The proponent has planned to develop green belt in the periphery of the lease area which diminishes sound volume by dampening them.
- ✚ All the equipment/machinery/tippers involved will be properly maintained to control noise generation.
- ✚ Conducting regular health checkups for employees involved.
- ✚ Employees will be made to work on shifts to reduce their exposure time.
- ✚ Providing earplugs to all employees.
- ✚ Providing green walls/nets wherever possible.

By adopting these measures, the noise levels will be maintained well within MoEF & CC limits since the baseline value is low.

#### **4.5.2 IMPACTS DUE TO VIBRATION**

There will be negligible vibration of ground due to the following activities.

- ✚ Due to Blasting
- ✚ Due to Drilling
- ✚ Due to movement of machinery

#### **Impacts**

- ✚ 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.

#### **Mitigation measures**

- ✚ 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.



### **4.5.3 SOCIO ECONOMIC IMPACT**

The lease area is Consented Patt land. The proponent has planned to spend INR 10,00,000 for CER activities.

### **4.5.4 OCCUPATIONAL HEALTH**

#### **Impacts on humans due to various mining activities**

The occupational risk due to proposed mining may be due to drilling, blasting, excavation and transportation. A total of 25 workers will be engaged in the mining activity. Mining activity may cause various health problems to the mines workers as follows:

- Dust generated during excavation, drilling, stone cutting, sizing and transportation may cause health problems like Silicosis, Asthma, Tuberculosis and other respiratory lungs disorders.
- Heavy weight lifting by the workers may cause injuries to arms, legs and back.
- Noise generated during the mining activity may cause Noise Induced Hearing Loss (NIHL).

**Table 4.5 Impacts on humans due to various mining activities**

<b>S.No.</b>	<b>Type of activity</b>	<b>Impact</b>
1	Dust generation due to drilling and blasting	Continuous exposure to dust causes Pneumonia, Tuberculosis, Rheumatic arthritis and Segmental Vibration
2	Noise generation due to drilling and blasting	Short term impact will be lack of sleep, high blood pressure and heart ailments. Long term exposure may lead to partial or permanent deafness
3	Unexpected accidents	Risks include fly rocks, cracks or fissures due to improper mining methods

### **Mitigation measures**

- The mines worker will be provided with dust mask to minimize the inhalation of the dust.
- Water sprinkling twice in a day is in practice on the haul roads, near excavation and roads to reduce the fugitive dust emission.
- Wet drilling and drilling with dust extractor will be practiced.
- Ear muffs will be supplied to the workers working in the noise prone area
- The mining site will be supplied with first aid facilities and the entire mines worker will have access to that.
- The mines workers will be well trained about the safety practices in the mining activities.
- As per Mines Rules, 1955, medical examination of employees at the initial stage and periodically, shall be done by a team of qualified medical officers provided by the project proponent.
- Regular medical checkup camps shall also be arranged for detection of occupational diseases and minor disease in the nearby rural population.
- Free checkup and medicine for treatment for their acute and chronic illness shall be provided by the lessee. Conducting periodical Medical Examination as per DGMS.
- Making all first aid kits available in mines office
- Keeping fire extinguisher in place
- Educating the employees about how to handle unexpected happenings
- Posting information containing emergency contact numbers in mines office
- By adopting all these measures, the safety of the employees working in the quarry will be ensured.

#### **4.5.5 WASTE MANAGEMENT**

##### **Solid Waste**

Since the entire mined out material will be utilized there will not be any solid waste generation from this project. However, the Solid waste (MSW) generated from administrative activities will be properly collected and disposed to Govt. Authorized yards / Re-cylers / Disposers.

##### **Liquid Waste**

There is no process effluent generation from this mine. Hence no liquid waste is generated. Domestic wastewater i.e 1.0 KLD will be discharged in soak pit via septic tank.

##### **Hazardous Waste Management**

In this project the following management practices will be followed:

In the quarrying operation, the source of hazardous waste is from machinery maintenance activities that are waste oil/ Waste lubricants / Used filters / Used Hydraulic hoses. The said hazardous waste are very negligible quantity, it will be properly collected in the source level, stored in impervious storage yards and disposed of as per the Hazardous waste (Trans-boundary Movement) Management Rules, 2016.

##### **Plastic Waste**

Single use plastics/ use and throwaway plastics will be banned in the site as directed by the Tamil Nadu Government vide GO(Ms)No.84 regarding ban on use of plastic products. The employees will be encouraged to use compostable material or reusable material.

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## **CHAPTER 5**

### **ANALYSIS OF ALTERNATIVES**

#### **5.1 DESCRIPTION OF EACH ALTERNATIVE**

Analysis of alternative site helps in selection of best possible site for the project. On one hand it helps to closeness to the existing infrastructure and on other hand it also helps to minimize the impact of project on environment.

#### **5.2 SUMMARY OF ADVERSE IMPACTS OF EACH ALTERNATIVE**

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 Deputy Director, Department of Geology and Mining, Tiruvannamalai vide Rc.No.429/Kanimam/2023 dated 29.11.2023.

- There is no forest land or other Eco-sensitive places.
- Proposed mine site is selected on the basis of occurrence of mineral for suitable end use.

Hence seeking alternative site is not required.

#### **5.3 MITIGATION MEASURES PROPOSED FOR EACH ALTERNATIVE**

The mining technology is mechanized Opencast in single-shift operation without any change in technology. The operation will be carried out as per DGMS norms. No alternate technology will be used. Details of the technology used are given in Chapter II.

#### **5.4 SELECTION OF ALTERNATIVE**

In case of Mining projects alternate site selection is not necessary as the mining is site specific and the area in which mining will be carried out has been adequately proved for presence of mineral. The deposit is also having good infrastructural facilities for access and development.

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## CHAPTER 6

### **ENVIRONMENTAL MONITORING PROGRAMME**

#### **6.1 TECHNICAL ASPECTS OF THE MONITORING THE EFFECTIVENESS OF MITIGATION MEASURES (INCL MEASUREMENTS, METHODOLOGIES, FREQUENCY LOCATION DATA ANALYSIS, REPORTING SCHEDULES EMERGENCY PROCEDURES DETAILED BUDGET AND PROCUREMENT SCHEDULES)**

##### **6.1.1 ENVIRONMENTAL MONITORING**

Monitoring is done to measure the efficiency of control measures implemented. Regular monitoring of various environmental parameters like air, water, noise and soil environments is needed to assess the status of environment during the project operation.

A schedule is framed with timeline to monitor various parameters during the operation of the project. The schedule is framed based on MoEF& CC and Tamil Nadu State Pollution Control Board. In case the SEIAA/TNPCB/MoEF&CC or other statutory bodies demand monitoring of any additional parameter/factor, the same will also be done.

The proposed quarry is a small quarry. Hence the Mines-in-charge will be responsible for environmental related activities. After obtaining EC, the conditions mentioned in EC will be strictly followed. The Mines-in-charge will be responsible for implementing the conditions. EC compliance report will also be submitted periodically.

##### **6.1.2 OBJECTIVES OF ENVIRONMENTAL MONITORING**

The objectives of Environmental Monitoring are as follows.

- ✚ Monitoring and analysis of air and water samples
- ✚ Implementing the control and protective measures.
- ✚ Coordinating the environment related activities within the project as well as with outside agencies. Collecting statistics of health of workers and population of the surrounding villages. Green belt development etc.

- ✚ Monitoring the progress of implementation of Environmental Management Programme.
- ✚ Monitoring the noise generation in and around the project areas.
- ✚ Monitoring of wastewater treatment and disposal of solid waste.
- ✚ The laboratory will be suitably equipped for sampling/testing for various environmental pollutants.

### **6.1.3 ENVIRONMENTAL MONITORING SCHEDULE**

To evaluate the effectiveness of Environmental Management Programme, regular monitoring of the important environmental parameters will be taken up. The frequency of monitoring different parameters is given in table 6.1.

<b>Table 6.1 Environmental Monitoring Schedule</b>			
<b>Sl.No.</b>	<b>Description of Parameters</b>	<b>Parameters</b>	<b>Frequency</b>
1	Air	Air Quality for SPM, PM-10, PM-2.5, SO <sub>2</sub> and NO <sub>x</sub>	24 hour average samples Once in a 3 month
2	Water	General, Physical, and chemical parameters	Once per season
3	Noise	Leq, L <sub>max</sub> , L <sub>min</sub> , Leq Day & Leq Night dB(A)	8 hour average samples Once in a 3 month
4	Soil	Physical and Chemical characteristics	Once per season

### **6.1.4 LOCATION**

Monitoring of the above-mentioned environmental parameters would be done at appropriate and sensitive areas. The exact location of monitoring is given as Figure - 3.4, 3.10, 3.12 & 3.14.

### **6.1.5 MEASUREMENT METHODOLOGY**

#### **(a) Ambient Air Quality**

Ambient air quality will be monitored for SO<sub>2</sub>, NO<sub>x</sub>, PM<sub>10</sub> and PM<sub>2.5</sub>. 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.

**(b) 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.

**(c) Noise Monitoring**

Noise level will be monitored in working environment mainly noise producing sources over the boundary and around the mining area.

**(d) Green Belt and Afforested Areas**

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.

**(e) Socio-Economics**

Socio-economic of the core and buffer zone details elaborated in Chapter-3.

**6.1.6 TECHNICAL ASPECTS OF MONITORING THE EFFECTIVENESS OF MITIGATION MEASURES**

The above monitoring schedule will be followed periodically. After collection of the data, the mines-in-charge will analyze the data obtained. The data thus obtained will be incorporated in the EC Compliance report submitted to the Regional office, MoEF&CC. The measurement methodologies will be as per CPCB/BIS/MoEF&CC/DGMS norms.

**6.1.7 EMERGENCY PROCEDURES**

In case of any emergency due to environmental conditions, the mines in-charge will immediately report to the top-level management and the emergency response protocol will be implemented as per MoEF&CC/ SPCB / DGMS norms.

### 6.1.8 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.

<b>Table 6.2 Important Records to be maintained by PP</b>	
<b>S.No.</b>	<b>Particulars</b>
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

### 6.1.9 DETAILED BUDGET AND PROCUREMENT SCHEDULES

The budget planned for environmental monitoring is given below.

**Table 6.3 - Environmental Management Plan Budget**

<b>SI .No</b>	<b>Budget planned for</b>	<b>Capital Cost Amount (INR)</b>	<b>Recurring Cost/Annum Amount (INR)</b>
1	Air Environment	10,04,000	11,28,000
2	Noise Environment	50,000	5,47,000
3	Water Environment	2,39,000	2,45,000
4	Implementation of EC, Mining Plan & DGMS Condition	16,64,000	12,48,00
5	Green Belt	4,20,000	60,000
6	Additional Key EMP Expenses	5,50,000	10,000
<b>Total</b>		<b>39,27,000</b>	<b>32,38,000</b>

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## CHAPTER 7

### **ADDITIONAL STUDIES**

The additional studies covered for this EIA / EMP report are,

- Public consultation
- Risk Assessment
- Social Impact Assessment, R&R Action Plans
- Cumulative Environmental Impact Assessment Study
- A detailed Hydrogeological Study
- Slope Stability plan

#### **7.1 PUBLIC CONSULTATION**

After the preparation of the draft EIA/EMP report, it must be submitted to the State Pollution Control Board. A public consultation will be conducted on behalf of the Pollution Control Board through the District Collector and the officials from the PCB. A prior notice must be issued about the event, along with the time and date, in two leading newspapers. The opinions, suggestions, demands, and objections of people, NGO environmentalists, etc. are sought, and the proceedings are recorded. The replies of the proponent and corresponding officials will be recorded in the final EIA/EMP report.

#### **7.2 RISK ASSESSMENT & MANAGEMENT**

##### **(a) Objectives**

Risk assessment is a method in which possible threats/hazards which may arise during mining operations are identified so that adequate machinery/equipment are made available in precaution. The objectives of environmental risk assessment are governed by the following, which excludes natural calamities:

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- ✚ To identify the potential hazardous areas so that necessary design safety measures can be adopted to minimize the probability of accidental events.
- ✚ To identify the potential areas of environmental disaster which can be prevented by proper design of the installations and its controlled operation.
- ✚ To manage the emergency situation or a disastrous event, if any, from the mining operation.

The major hazards related to the mining activities are as follows

- ✚ Open cast bench slope failure
- ✚ Accident due to fall of quarry sides
- ✚ Accident due to machineries
- ✚ Accident due to explosives
- ✚ Accident due to large block cutting, separation and loading

Some of the common hazards are identified and the corresponding precautionary measures are drafted.

<b>Table 7.1 Hazards and Precautionary measures</b>		
<b>S.No.</b>	<b>Hazard</b>	<b>Precautionary measures</b>
1	Fire	Fire suppressants will be made available at mines office and explosive storage room.
2	Explosion	Controlled blasting will be done. DGMS norms will be strictly followed during blasting. Blasting will be done only by trained professionals.
3	Combustion of chemicals or hazardous substances	Combustible Substances are stored with all precautionary measures. Fire suppressant is made available at storage site
4	Landslide	Width, height and slope will be maintained as suggested by DGMS
5	Accidents during handlings	All vehicles will be properly maintained. Overloading will not be done. Only trained/certified people will be employed.
6	Accidental fall of people or animals	The lease area will be fenced properly. Only people working in the mines will be permitted to enter.

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

### **7.3 SOCIAL IMPACT ASSESSMENT (R & R) ACTION PLAN**

No land is acquired from people dwelling in the area. The lease area is an uninhabited land. No R & R plan is proposed.

#### **7.3.1 CUMULATIVE ENVIRONMENTAL IMPACT ASSESSMENT STUDY**

The details of other quarries located within the 500m radius of this project are provided below:

<b>Table 7.2 500m Radius Cluster Mines Details (as per 500m certificate)</b>					
<b>Sl. No</b>	<b>Name of the owner (Tvl.)</b>	<b>Village &amp; S. F. Nos.</b>	<b>Extent (Ha)</b>	<b>Lease Period</b>	<b>Lease Status</b>
<b>Existing Quarries</b>					
1	Thiru.R.Elumalai, S/o.Rajagopal, No.20, Pillaiyar Koil Street, Arasanipalai Village, Vembakkam Taluk.	Ezhacheri & 62/1A, 1B, 2C, 2D, 4, 5, 6, 7, 9, 10, 11	1.24.0	02.11.2021 to 01.11.2031	Existing Quarry
2	Thiru.P.Sanker, S/o.Ponnappan, No.1/63, Pillaiyar koil street, Eruamiyur Village, Thirumudivakkam, Chennai.	Ezhacheri & 21/2F, 2G, 2H, 2I, 2J & 2K	2.09.5	02.11.2021 to 01.11.2031	Existing Quarry
3	Thiru.R.Monishkumar, S/o.Rajendiran, No.35/58, Rajaji Street, Chengalpattu.	Ezhacheri & 16/5A, 16/5B, 19/1B3, 4A1, 4B1, 4C1, 4D1, 5A, 5B1, 21/1C, 1D, 1E, 1F, 22/2B	3.12.5	02.11.2021 to 01.11.2031	Existing Quarry
<b>Abandoned Quarries</b>					
1	B.Deenan, No.79, Gajapathi Street, Sanai Nagar, Chennai.	Ezhacheri & 25/2	1.00.5	19.3.2010 to 18.3.2015	Expired Quarry
2	R.Seenuvasan, Road Street, Arasanipalai village, Vembakkam Taluk.	Ezhacheri & 65/4, 5, 7, 8A, 66/4	3.42.0	27.06.2014 to 26.06.2019	Expired Quarry

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

3	B.Deenan, No.79, Gajapathi Street, Sanai Nagar, Chennai.	Ezhacheri & 65/6	0.95.5	20.07.2018 to 01.03.2021	Expired Quarry
<b>Present Proposed Quarries</b>					
1	Thiru.M.N.Balasundaram , S/o.Natarajan, No.72, Main Road, Mangadu, Kundrathur Taluk, Kanchipuram District.	Chithalapakkam 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A & 8/3B	3.87.5	-	-
<b>Future Proposed quarries</b>					
Nil					
<b>Total Extent = 10.33.5 Ha</b>					

A cumulative impact of these two proposed quarries has been studied and the details are given in Chapter IV.

### **7.3.2 AIR QUALITY IMPACT PREDICTION FOR THE 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 March to May 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 Thiru.M.N.Balasundaram, S/o.Natarajan (Total Material handling (Rough Stone & Gravel) is quantified and presented below:

Area Emissions – Total Material handling of Thiru.M.N.Balasundaram, (Rough Stone & Gravel).

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

<b>Quantity, m<sup>3</sup></b>	<b>Rough Stone: 42571 m<sup>3</sup> Gravel: 3182 m<sup>3</sup></b>
Operational Hours Per Year	2400
Activity Rate, t/hr.	52.42
Emission of dust, g/t.	0.19
Emission of dust, g /hr.	51.6214
Area of influence, m <sup>2</sup>	625
Uncontrolled emission rate g/s/m <sup>2</sup>	0.000033326
Controlled emission rate, PM10 g/s/m <sup>2</sup>	0.000003332
Controlled emission rate, PM2.5 g/s/m <sup>2</sup>	0.02221

**Area Emissions – Total Material handling (Cluster Rough Stone & Gravel)**

Quantity, m <sup>3</sup>	<b>Existing Quarries:</b> <ul style="list-style-type: none"> <li>• Thiru.P.Shankar (2.09.50 Ha) - Rough Stone (3,28,200 m<sup>3</sup> for five years).</li> <li>• Thiru.R.Monishkumar (3.12.50)- Rough Stone 1,77,815 m<sup>3</sup> for five years).</li> <li>• R.Elumalai(1.24.0 Ha)- Rough Stone (95,980 m<sup>3</sup> for 5 years)</li> </ul>
Operational Hours Per Year	2400
Activity Rate, t/hr.	76.25
Emission of dust, g/t.	0.20
Emission of dust, g /hr.	58.41397
Area of influence, m <sup>2</sup>	625
Uncontrolled emission rate g/s/m <sup>2</sup>	0.00087698
Controlled emission rate, PM10 g/s/m <sup>2</sup>	0.000876980
Controlled emission rate, PM2.5 g/s/m <sup>2</sup>	0.00058465

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

**Line Source – Transport of Rough Stone & Gravel from Pit to Boundary**

<b>Quantity, m<sup>3</sup></b>	<b>Rough Stone: 42571 m<sup>3</sup> Gravel: 3182 m<sup>3</sup></b>
Operational Hours Per Year	2400
Capacity of each Dumper (T)	10
Total No. of Tippers/ day	15
Lead length/trip, Km	0.8
Total VKT/day	30.15
Emission Kg/VKT	0.22
Total emission Kg/year	2,354.88
Uncontrolled emission rate g/s/m	55543
Controlled emission rate, PM10 g/s/m	0.555437
Controlled emission rate, PM2.5 g/s/m	0.19997

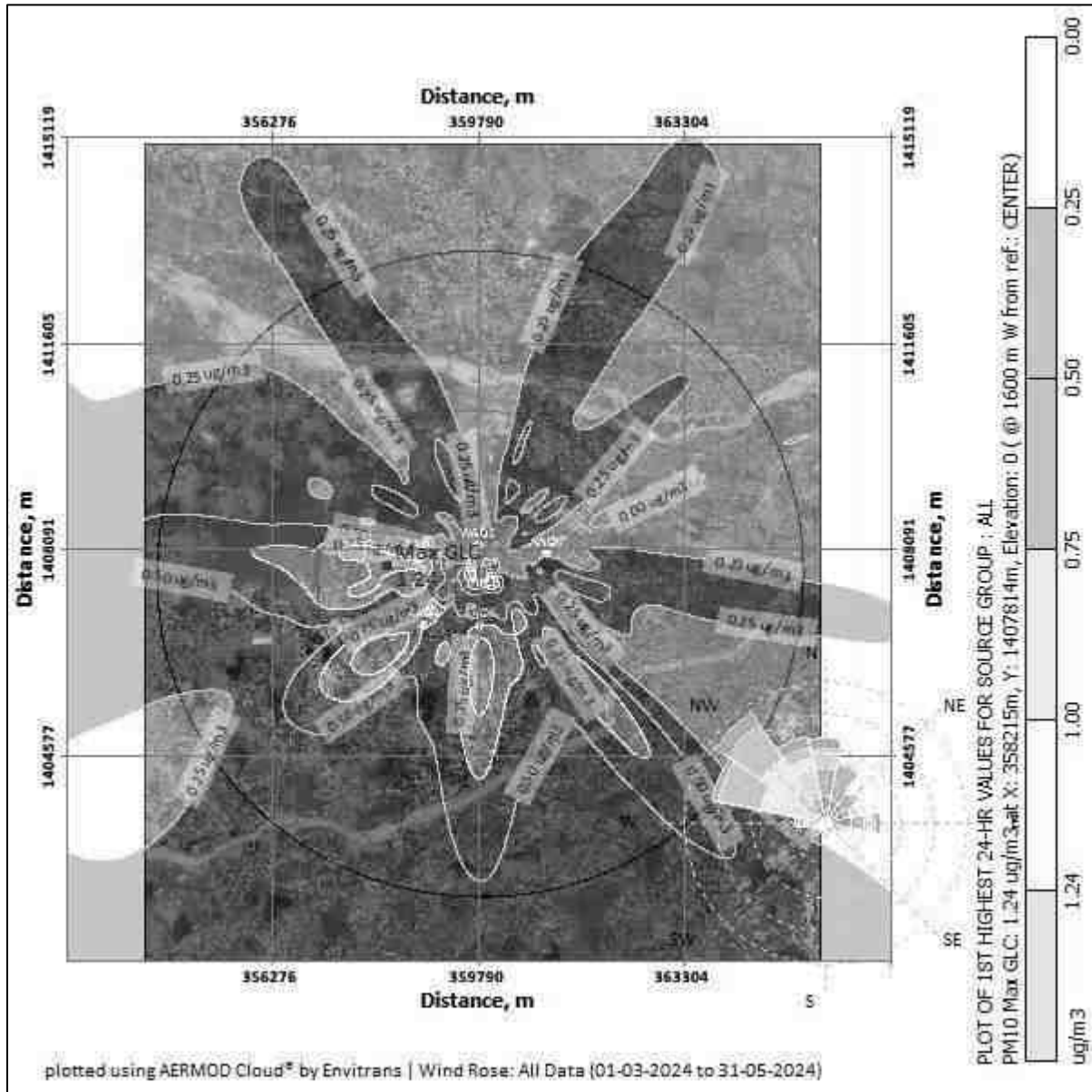
**Line Source – Transport of Cluster Rough Stone & Gravel from Pit to Boundary**

<b>Quantity, m<sup>3</sup></b>	<b>Existing Quarries:</b> <ul style="list-style-type: none"> <li>• Thiru.P.Shankar (2.09.50 Ha) - Rough Stone (3,28,200 m<sup>3</sup> for five years).</li> <li>• Thiru.R.Monishkumar (3.12.50)- Rough Stone 1,77,815 m<sup>3</sup> for five years).</li> <li>• R.Elumalai(1.24.0 Ha)- Rough Stone (95,980 m<sup>3</sup> for 5 years)</li> </ul>
Operational Hours Per Year	2400
Capacity of each Dumper (T)	10
Total No. of Tippers/ day	40
Lead length/trip, Km	2.6
Total VKT/day	97.15
Emission Kg/VKT	0.22
Total emission Kg/Year	6514.9
Uncontrolled emission rate g/s/m	5261882
Controlled emission rate, PM10 g/s/m	0.526188
Controlled emission rate, PM2.5 g/s/m	0.146163

Note: \*Emission factor computed based on wind speed of 2 m/s, and moisture content of 10 %. + Emission factor computed based on silt content of 10 % and moisture content of 10 %



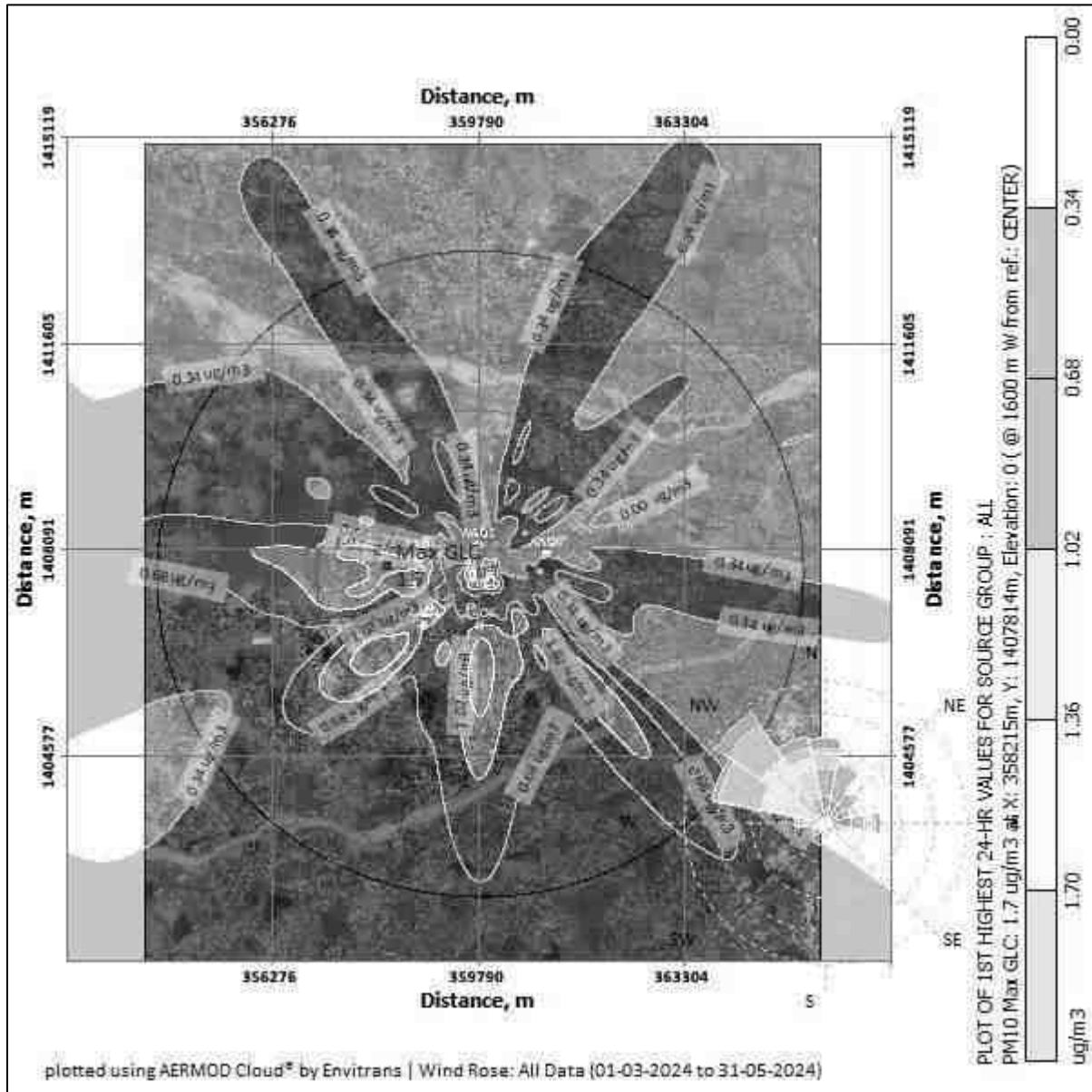
**FIG 7.2 Isopleth of GLC Prediction for PM<sub>10</sub>**







**FIG 7.4 Isopleth of GLC Prediction –Cumulative for PM<sub>10</sub>**



**PREDICTED AMBIENT AIR QUALITY:**

The post project Concentrations of PM<sub>10</sub>, PM<sub>2.5</sub>, (GLC) (base line + incremental) after adopting necessary control measures is given in Table No - 4.3.

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.

**Table 7.3 Concentrations of PM2.5 after Project Implementation**

SL. No	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in $\mu\text{g}/\text{m}^3$
1	Proposed Mine Site	31.30	0.48	31.78	60
2	Arasanipalai	27.10	0.39	27.49	
3	Chithalapakkam	25.17	0.29	25.46	
4	Ezacheri	22.76	0.19	22.95	
5	Pavoor	21.70	0.10	21.80	
6	Punnai	22.75	0.05	22.80	

**Table 7.4 Cluster Concentrations of PM2.5 after Project Implementation**

SL. No	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in $\mu\text{g}/\text{m}^3$
1	Proposed Mine Site	31.30	0.80	32.1	60
2	Arasanipalai	27.10	0.64	27.74	
3	Chithalapakkam	25.17	0.48	25.65	
4	Ezacheri	22.76	0.32	23.08	
5	Pavoor	21.70	0.16	21.86	
6	Punnai	22.75	0.10	22.85	

**Table 7.5 Concentrations of PM10 after Project Implementation**

SL. No	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in $\mu\text{g}/\text{m}^3$
1	Proposed Mine Site	66.55	1.24	67.79	100
2	Arasanipalai	58.85	1.00	59.85	
3	Chithalapakkam	53.50	0.75	54.25	
4	Ezacheri	50.60	0.50	51.1	
5	Pavoor	47.80	0.25	48.05	
6	Punnai	47.50	0.15	47.65	

**Table 7.5a Cluster Concentrations of PM10 after Project Implementation**

SL. No	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in $\mu\text{g}/\text{m}^3$
1	Proposed Mine Site	66.55	1.70	68.25	100
2	Arasanipalai	58.85	1.36	60.21	
3	Chithalapakkam	53.50	1.02	54.52	
4	Ezacheri	50.60	0.68	51.28	
5	Pavoor	47.80	0.34	48.14	
6	Punnai	47.50	0.22	47.72	

The above report seems that, even in the worst-case scenario, the resultant added concentrations with baseline figures show that the values of ambient air quality for  $\text{PM}_{10}$  are in the range of  $47.65/\text{m}^3$  to  $67.79 \mu\text{g}/\text{m}^3$  and for  $\text{PM}_{2.5}$  are in the range of  $21.8 \mu\text{g}/\text{m}^3$  to  $31.78 \mu\text{g}/\text{m}^3$  and  $\text{PM}_{10}$  are surrounding area range of  $47.72 \mu\text{g}/\text{m}^3$  to  $68.25 \mu\text{g}/\text{m}^3$  and for  $\text{PM}_{2.5}$  are in the range of  $21.86 \mu\text{g}/\text{m}^3$  to  $32.1 \mu\text{g}/\text{m}^3$  which are within the statutory limits in each case. 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.
- Three-layer plantation in the safety zone.

DG sets shall be periodically maintained as per manufacturer's specifications.

### **Cumulative Impact on Traffic**

The mined-out minerals will be transported by means of trucks to the consumers like crusher units for producing stone aggregates of different sizes or construction of roads, bridges, buildings and other buyers etc. The cumulative impact on traffic due to transportation of minerals from these three leases are provided below:

**Table 7. 6 – Impact on Traffic**

<b>Description</b>	<b>Rough Stone and Gravel Production Per day in tons</b>	<b>No. of Lorry Load per day</b>
Proposed Quarry	152	15
Cluster Quarries	1975	197
<b>Total</b>		<b>212</b>

The proposed projects will bring 212 trips per day. The existing road can absorb this additional traffic due to this project. Various measures like proper maintenance of road, covering of the loaded truck with tarpaulin, water sprinkling will be carried out to ensure no adverse impact on the logistical front.

### **7.3.3 HYDROGEOLOGICAL STUDY**

There is Cheyyar River is located at a distance of 2.2 km in South East and Palar River is located at a distance of 7.61 km in North East direction of lease area. Due to the presence of these water bodies nearby, a detailed hydrogeological study has been done. As suggested in the Precise Area Communication letter, safety distances of 7.5m, 10m and 50m provided.

### **7.3.4 SLOPE STABILITY STUDY**

The proposed quarry is a very small quarry and the production is also less. Opencast-Mechanized mining with a bench height of 5m and bench width of 5m and 80° Slope is proposed. The depth of mining is proposed as 47 m (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
- Bench height, width, slope will be as per DGMS norms

### **7.3.5 DISASTER MANAGEMENT PLAN**

Proper preventive mechanism exists already in the mines.

- Precautionary measures are well explained to all staff by the mines in-charge.
- PPE necessary for all staff are available in the quarry. No person is allowed to enter inside without PPE. Avoiding quarrying during unfavorable environmental conditions.
- Carrying out safe blasting by following DGMS norms
- Safety equipment like fire extinguisher, first aid kit, etc are present in the mine.
- Proper maintenance of machinery used for mining
- In case of any emergency, the contact numbers of mines in-charge, mines manager, Management contact are available in the mines office.

### **7.3.6 MINE CLOSURE PLAN**

The quarrying operation is proposed up to a depth of 47m (BGL) only, which will be achieved in 5 years. The ultimate pit dimension will be 234m x 97m x 47m. After completion of quarrying operation, the mined-out pit will be left as rain water harvesting pond. The quarry will be properly fenced with barbed wire.

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## **CHAPTER 8**

### **PROJECT BENEFITS**

#### **INTRODUCTION**

Thiru.M.N.Balasundaram, S/o.Natarajan has proposed Rough stone and gravel quarry over an extent of 3.87.5 Ha located at from S. F. Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B in Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State.

#### **PROJECT BENEFITS**

Project benefits are attributed in various ways as under:

- Environment Benefits
- Employment Potential: Skilled, Semi-skilled & Un-skilled
- Economic Benefits
- Social Benefits

#### **8.1 IMPROVEMENTS IN THE PHYSICAL INFRASTRUCTURE**

The project area is located on Patta land, thereby causing no impact on the loss of agriculture or forest land. The project will create employment opportunities in the area. There will be no adverse effect of mining on the socioeconomic status of the people; rather, mining activities will improve their standard of living. The mining activity creates employment opportunities for the local people, and this definitely raises their economic status. Apart from the overall beneficial impact of the project on the local people of the region, it is felt necessary to augment facilities in the fields of education, health, and social awareness, including concern for the environment and ecosystem.

## **8.2 IMPROVEMENTS IN THE SOCIAL INFRASTRUCTURE**

The proposed project will help in improving the socio-economic status of the near-by villages by generating direct or indirect employment opportunities. Substantial amount of indirect revenue will be generated by transportation activities along with employment e.g. labour, helper etc.

### **ECONOMIC BENEFITS:**

The execution of proposed mine will boost the economy of the area by creating direct & indirect jobs for locals. There will be a positive cumulative impact of the project on the economy.

## **8.3 EMPLOYMENT POTENTIAL: SKILLED, SEMI-SKILLED & UN-SKILLED**

The mining activity at proposed Rough Stone and Gravel of Thiru.M.N.Balasundaram, S/o.Natarajan will create direct employment opportunity for 25 local people. As per MOEF & CC Notification CER cost is arrived for an amount of 10 Lakhs, it will be utilized as per the CER letter received from the competent authority, enclosed as annexure no 13.

## **8.4 OTHER TANGIBLE BENIFITS**

The mine management will recruit semi-skilled & unskilled eligible workers from the nearby villages depending upon requirement in the mines and the eligibility, qualification and experience of local persons.

The overall effect will result in higher standard of living viz. better education, improved health and sanitation facilities, housing and acquisition of consumer durables. Housing, transport, medical, educational and other civic amenities will get improved in the future. This is envisaged as a major positive benefit.

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## CHAPTER 9

### ENVIRONMENTAL COST BENEFIT ANALYSIS

As per EIA Notification dated 14th Sept., 2006, as amended from time to time, 'Environmental Cost Benefit Analysis' is applicable only if the same is recommended at the Scoping stage.

As per the ToR points issued by SEIAA-TN vide ToR Identification No. TO24B0108TN5397062N, dated 14.05.2024 for the proposed project, the 'Environmental Cost Benefit Analysis' is not prescribed.

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## CHAPTER 10

### **ENVIRONMENTAL MANAGEMENT PLAN**

#### **10.1 DESCRIPTION OF THE ADMINISTRATIVE ASPECTS OF ENSURING OF ENSURING THAT MITIGATIVE MEASURES ARE IMPLEMENTED AND THEIR EFFECTIVENESS MONITORED AFTER APPROVAL OF THE EIA.**

##### **10.1.1 OBJECTIVES**

The Environmental Management Plan is developed to ensure that a project is implemented in an environmentally sustainable manner, where all contractors and subcontractors, including consultants, understand the potential environmental risks arising from the project and take appropriate actions to minimize those risks. EMP also ensures that the project implementation is carried out in accordance with the planned design and by taking appropriate mitigation measures to reduce adverse environmental impacts during the project's life cycle. The impacts due to this mining project are detailed in Chapter 4 and Mitigation measures at the source level and an overall Management Plan at the site level are elaborated on in this chapter.

##### **10.1.2 BASIC OF EMP**

The Environmental Management Plan for the proposed project activities is formulated taking into considerations the following key environmental issues.

- ✚ Project activities
- ✚ Studies on Environmental Impact Assessment
- ✚ Air & water pollution control
- ✚ Working zone environment improvement
- ✚ Occupational hazards & safety
- ✚ Environmental monitoring facilities
- ✚ Environmental management costs

EMP covers all phases of the project considering the impacts with mitigation measures and monitoring programme. The plan outlines the measures that will be undertaken to ensure compliance with environmental legislations and to minimize adverse impact. Details of EMP measures for implementation in the mine are given below.

**Table 10.1 Environmental Management Plan**

Environmental Parameter	Mitigation Measures
Air	Wet drilling to suppress the dust emission from drill machine
	Regular water sprinkling on haulage road through fixed water sprinkler.
	2.0 KLD of water will be used for dust suppression.
	Avoiding blasting during high wind period, night times and temperature inversion periods.
	Regular grading of haul road to clear accumulation of loose material.
	It will be ensured that vehicles are properly maintained to comply with exhaust emission requirements
	Maintenance as per operator manual of the equipment and machinery in the mines to minimizing air pollution
	Ambient Air Quality Monitoring carried out in the project area and in surrounding villages to access the impact due to the mining activities and the efficacy of the adopted air pollution control measures.
	Afforestation for control of dust.
Surface water	There is Cheyyar River is located at a distance of 2.2 km in South East and Palar River is located at a distance of 7.61 km in North East direction of lease area. Adequate safety distance is left. No dumping of material or discharge will be done in or near the river or water body.
	Surface runoff management structures like garland drain of required length which is connected to a settling pond will be constructed around the quarry to collect the rain water.
	Monthly or after rainfall, inspection will done to ensure performance of water management structures and systems. There is no discharge of any effluent into nearby water bodies.
Ground Water	The quarrying operation is proposed upto a depth of 47 m below ground level, Water table is found at a depth of 66m, hence the project will not intersect the Ground water table during entire quarry period.
Water Consumption and Wastewater generation	Water required for this project will be sourced from vendors.
	Domestic wastewater generation of 1.0 KLD will be treated in septic tank with soak pit.
	Conduct ground water and surface water monitoring for parameters specified by CPCB

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Noise	The workers employed are provided with protection equipment, earmuffs and ear-plugs for the protection from high noise level generated at the mine site wherever required.
	Noise levels are controlled by using optimum explosive charge, proper delay detonators and proper stemming to prevent blow out of holes.
	Development of thick greenbelt all along the safety Zone (7.5 m) of the project area to attenuate the noise and the same will be maintained.
	Preventive maintenance of mining machinery and replacement of worn-out accessories to control noise generation.
	Annual ambient noise level monitoring are carried out in the project area and in surrounding villages to assess the impact due to the mining activities and the efficacy of the adopted noise control measures. Additional noise control measures will be adopted if required as per the observations during monitoring.
Ground Vibration and Fly Rock Control	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.
	Will be Ensured that blast holes are adequately stemmed for the depth of the hole and stemmed with suitable angular material.
	To be Undertake noise or vibration monitoring.
Land Environment	At conceptual stage, the mining pits will be converted into Rain Water Harvesting pit. Remaining area will be converted into greenbelt area.
	No external dumping i.e., outside the project area. The entire material will be sold.
	Garland drains with catch pits / settlement traps to be provided all around the project area to prevent run off affecting the surrounding lands.
	The periphery of Project area will be planted with thick plantation to arrest the fugitive dust, which will also act as acoustic barrier.
	Frequent Soil and ground water testing as per Environmental Monitoring Plan.

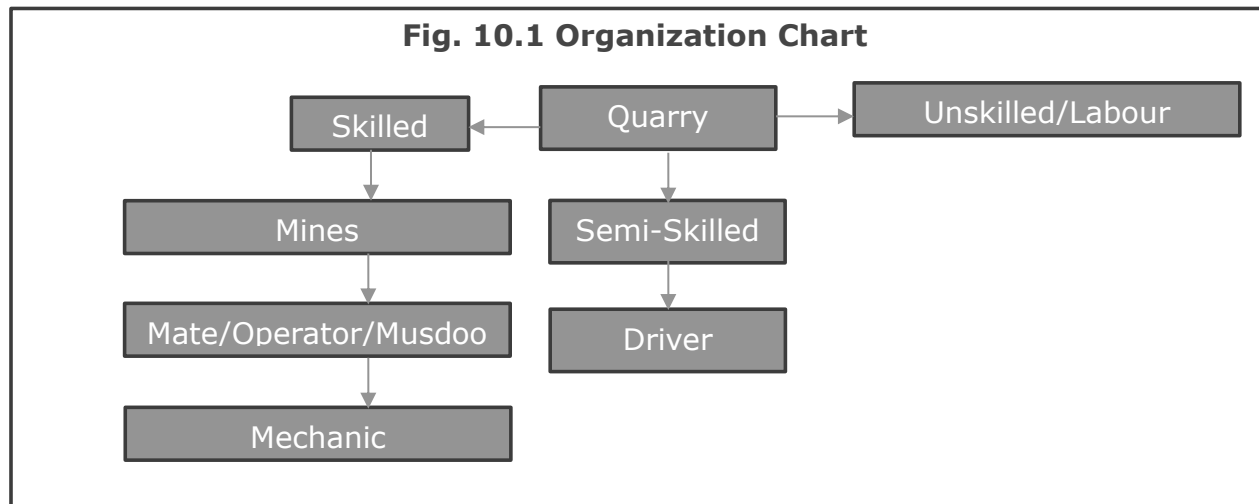
Top Soil / Overburden	There is no overburden anticipated during the quarrying operation.
Biological Environment	During mining, thick plantation will be carried out on the mentioned safety zone areas.
	The main attributes that retard the survival of sapling is fugitive dust, this fugitive dust can be controlled by water sprinkling on the haul roads and installing a sprinkler unit near the newly planted area.
	Regular review on Green belt development programme.
	Year wise greenbelt development plan mentioned in Chapter III will be monitored.

### **10.1.3 ADMINISTRATION AND TECHNICAL SETUP**

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.



1	Skilled	Mines Manager	1 No
		Foreman/Mate	2 Nos
		Operator	6 Nos
		Mechanic	1 No
2	Semi-Skilled	Diver	3 Nos
3	Un-skilled	Labours	12 Nos
<b>Total</b>			<b>25 Nos</b>

#### **10.1.4 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 & Gravel Quarry of Thiru.M.N.Balasundaram, S/o.Natarajan 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.

#### **10.1.5 OCCUPATIONAL SAFETY & HEALTH MANAGEMENT**

Occupational safety and health are very closely related to productivity and a good employer-employee relationship. The main factors affecting occupational health in quarries are fugitive dust and noise. Safety of employees during quarrying operations and maintenance of mining equipment will be taken care of as per the Mines Act 1952 and Rule 29 of the Mines Rules 1955. To avoid any adverse effect on the health of workers due to dust, noise, and vibration, sufficient measures have been provided. The health status of workers in the mine will be regularly monitored under an occupational surveillance programme. Under this programme, all employees are subjected to a detailed medical examination at the time of employment. Before the induction of employees, a pre-medical checkup is done. In addition, a periodical medical checkup will be done annually for all employees.

#### **10.1.6 COST OF ENVIRONMENTAL CONTROL MEASURES**

The effective implementation of EMP is not only reduce pollution load and comply the regulatory requirement but also increase productivity and improve marketability of product. The capital and recurring cost of EMP for the cluster of mines has been given in below table.

**Table 10.2 - Environmental Management Plan Budget**

SI .No	Budget planned for	Capital Cost Amount (INR)	Recurring Cost/Annum Amount (INR)
1	Air Environment	10,04,000	11,28,000
2	Noise Environment	50,000	5,47,000
3	Water Environment	2,39,000	2,45,000
4	Implementation of EC, Mining Plan & DGMS Condition	16,64,000	12,48,00
5	Green Belt	4,20,000	60,000
6	Additional Key EMP Expenses	5,50,000	10,000
<b>Total</b>		<b>39,27,000</b>	<b>32,38,000</b>

#### **10.1.7 CONCLUSION**

Various aspects of mining activities were considered, and related impacts were evaluated. Considering all the possible ways to mitigate the Environmental concerns, an Environmental Management Plan was prepared, and INR 306.44 lakhs has been allocated for the same. The EMP is dynamic, flexible, and subjected to periodic review. For projects where major environmental impacts are associated, EMP will be under regular review. Thus, the proper steps will be taken to accomplish all the goals mentioned in the EMP, and the project will have a positive impact on the study area.

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## CHAPTER 11

### SUMMARY & CONCLUSION

#### 11.1 OVER ALL JUSTIFICATION FOR IMPLEMENTATION OF THE PROJECT

##### INTRODUCTION

Thiru.M.N.Balasundaram, S/o.Natarajan has obtained Precise Area Communication Letter from Deputy Director, Department of Geology and Mining, Tiruvannamalai to quarry out 2,12,855 m<sup>3</sup> of Rough Stone and 15,912 m<sup>3</sup> from an extent of 3.87.5 Ha located in S. F. Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B in Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State.

As per EIA notification, 2006 and its subsequent amendments the proposed "Rough Stone and Gravel Quarry" of Thiru.M.N.Balasundaram, S/o.Natarajan mines cluster falls under Schedule 1(a) of EIA Notification and its subsequent amendments the project comes under Category B1. The ToR for preparation of EIA/EMP report of the project was approved vide ToR Identification No. TO24B0108TN5397062N, dated 14.05.2024. This report has been prepared in line with the approved TOR for production of maximum excavation of 2,12,855 m<sup>3</sup> of Rough Stone and 15,912 m<sup>3</sup> gravel.

S.No.	Description	Status/Remarks
1.	Sector	Non-coal mining
2.	Category of the project	B1
3.	Proposed mineral	Rough Stone & Gravel quarry
4.	Type of Lease	New Project
5.	Extent of the lease	3.87.5 Ha
6.	Proposed depth of Mining	47m BGL
7.	Method of mining	Opencast mechanized
8.	Proposed lease period	5 Years
9.	Proposed Environmental Clearance	5 Years
10.	Proposed production quantity for five years	Rough Stone: 2,12,855 m <sup>3</sup> Gravel: 15,912 m <sup>3</sup>

## **LOCATION**

This project site is located in Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State with Latitude 12°42'45.97"N to 12°42'52.67"N and Longitude 79°43'25.08"E to 79°43'33.64"E. with Survey of India Topo Sheet No. 57 P/10. To conduct the study, the proposed mine lease area (core zone) and an impact zone of 10 km radius (called buffer zone) around the proposed mine site were considered. The EIA report is based on three months baseline data (i.e. March 2024 to May 2024)

### **11.1.1 GEOLOGY**

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 N40°E – S40°W with dipping towards SE70°.

### **11.1.2 PROJECT DESCRIPTION**

This is a proposed Rough Stone and Gravel quarry by Opencast-Mechanized mining method with drilling and blasting. The quarrying is restricted up to a depth of 47m below ground level. The geological method is estimated to be 13,79,140 m<sup>3</sup> of Rough Stone and 48,088 m<sup>3</sup> Gravel. The mineable reserve calculated by deducting 7.5 m, 10m and 50m safety distance and bench loss. The mineable reserves is 2,12,855 m<sup>3</sup> of Rough Stone and 15,912 m<sup>3</sup> of Gravel which will be recovered at the rate of 100% recovery upto a depth of 47m Below ground level for the period of five years.

- It is proposed to quarry out rough stone and Gravel with 5m bench height, 5m width with 80° slope using conventional Open cast Mechanized method. The quarry operation involves shallow jack hammer drilling, slurry blasting, excavation, Loading and transportation of Rough Stone and Gravel.
- There is no overburden anticipated during entire rough stone and Gravel quarrying operation.

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S.No.	Type of Detail	Description
1	Sector	1(a) Non coal mining
2	Fresh/Existing project	New Project
3	Category	B1
4	Nature of mineral	Minor Mineral
5	Production	5 years
6	Life	Rough Stone - 2,12,855 m <sup>3</sup> Gravel - 15,912 m <sup>3</sup>
7	Waste generation and management	Nil
8	Bench height and width	Proposed bench height & width is 5.0m respectively and number of proposed benches is 10 Nos (1+9).
9	Ultimate pit depth	47 m BGL
10	End use	The excavated Rough Stone and Gravel is used for construction industries for Government & Public sector projects besides catering domestic housing and infrastructure projects in and around the district.

### 11.1.3 PROJECT REQUIREMENTS

The requirements of the project is given below.

S.No.	Nature of requirement	Description
1	Water requirement	Total water requirement of 6.0 KLD which will be procured from the outside agencies. 2.0 KLD drinking water requirement, green belt development is 2.0 KLD and dust suppression is 2.0 KLD.
2	Power requirement	No electricity is needed for mining operations, for office demands, it will be met from the state grid.
3	Manpower requirement	Permanent employees - 10, temporary employees - 15
4	Financial requirement	The total project cost as per PFR will be INR 306.44 lakhs including Operational cost, Fixed Asset cost and EMP cost
5	Funds for Socio economic development	INR 10 Lakhs is allocated. In addition, any demand raised by people during public hearing will also be met.

#### 11.1.4 DESCRIPTION OF LEASE AREA

**Table 11.1 Description of the lease area**

S.No.	Areas	Distance from project site		
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	Nil within 15km radius		
2	Areas which are important or sensitive for ecological reasons			
A	Wetlands, water courses or other water bodies,	<b>Water bodies</b>	<b>Distance</b>	<b>Direction</b>
		Canal	Adjacent	N
		Tank	120m	E
		Tank	425m	SW
		Tank	850m	SE
		Tank	720m	S
		Suruttal Lake	2.76km	N
		Cheyyar River	2.2km	SE
		Palar River	7.61km	NE
		Arapakkam Lake	4.16km	NE
		Mangal Lake	4.64km	W
		Kannikulam Lake	4.75km	SE
		Adavapakkam Lake	5.03km	SE
		Marudham Big Lake	7.02km	SE
Uthiramerur Lake	7.42km	S		
Mamandur Tank	7.49km	NW		
B	Coastal zone, biospheres,	Nil within 10km radius		
C	Mountains, forests	Nil within 10km Radius Marudham R.F – 7.04km (SE) Karikili Birds Sanctuary (17.17km - SE) & Vedanthangal Birds Sanctuary (22.90 km - SE)		

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3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, overwintering, migration	Nil within 15km radius
4	Inland, coastal, marine or underground waters	Nil within 15km radius
5	State, National boundaries	Nil within 15km radius
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	Nil within 15km radius
7	Defense installations	Nil within 15km radius
8	Densely populated or built-up area	Mamandur (6.75km, NW)
9	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	Mamandur (6.75km, NW)
10	Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	Nil
11	Areas already subjected to pollution or environmental damage. (those where existing legal environmental standards are exceeded)	Nil
12	Areas susceptible to natural hazard which could cause the project to present environmental problems (earth quakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions) similar effects	No. The area is not prone to earthquakes, floods, etc.

The features in the study area are given below.

The baseline data collection for meteorology, air, water, noise and soil environments have been carried out during March to May 2024.

Air, water, noise and soil samples are collected and analyzed through NABL accredited lab.

## **11.2 EXPLANATION OF HOW ADVERSE EFFECTS HAVE BEEN MITIGATED**

### 11.2.1 AIR ENVIRONMENT

The air monitoring have been carried out in 6 locations and the results are given below.

S. No.	Station Code	Locations	Distance & Direction	Coordinates
1	AAQ 1	Proposed Mine Site	Core Zone	12°42'50.15"N 79°43'28.67"E
2	AAQ 2	Arasanipalai	0.71 km, SE	12°42'31.88"N 79°43'47.64"E
3	AAQ 3	Chithalapakkam	1.17 km, E	12°43'2.37"N 79°44'11.3"E
4	AAQ 4	Ezacheri	1.27 Km, NW	12°43'10.28"N 79°42'46.22"E
5	AAQ 5	Pavoor	2.36 Km, SW	12°42'3.96"N 79°42'20.85"E
6	AAQ6	Punnai	1.98 Km, S	12°41'45.35"N 79°43'10.68"E

Station ID	Min	Max	Avg.
<b>Particulate matter PM<sub>10</sub> - (µg/m<sup>3</sup>)</b>			
AAQ-1	56.9	76.2	66.55
AAQ-2	51.3	66.4	58.85
AAQ-3	48.3	58.7	53.50
AAQ-4	46.0	55.2	50.60
AAQ-5	40.9	54.7	47.80
AAQ-6	42.9	52.1	47.50
<b>CPCB NAAQS 2009 for PM<sub>10</sub> - 100 µg/m<sup>3</sup></b>			
<b>Particulate matter PM<sub>2.5</sub> (µg/m<sup>3</sup>)</b>			
AAQ-1	26.8	35.8	31.30
AAQ-2	23.6	30.6	27.10
AAQ-3	22.74	27.6	25.17
AAQ-4	20.69	24.83	22.76
AAQ-5	18.5	24.9	21.70
AAQ-6	20.5	25.0	22.75
<b>CPCB NAAQS 2009 for PM<sub>2.5</sub> - 60 µg/m<sup>3</sup></b>			
<b>Sulphur Di-oxide as SO<sub>2</sub> (µg/m<sup>3</sup>)</b>			
AAQ-1	5.1	6.8	5.95
AAQ-2	5	6.1	5.55
AAQ-3	4.2	6.1	5.15
AAQ-4	4	5.5	4.75
AAQ-5	2.9	4.3	3.63
AAQ-6	2.9	5.2	4.05
<b>CPCB NAAQS 2009 for SO<sub>2</sub> - 80 µg/m<sup>3</sup></b>			

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Station ID	Min	Max	Avg.
<b>Oxide of Nitrogen as NO<sub>2</sub> (µg/m<sup>3</sup>)</b>			
AAQ-1	7.4	13.8	10.60
AAQ-2	6.6	11.6	9.10
AAQ-3	5.8	11	8.40
AAQ-4	5.7	10.6	8.15
AAQ-5	6.4	8.5	7.45
AAQ-6	6.5	8.8	7.65
<b>CPCB NAAQS 2009 for NO<sub>2</sub> – 80 µg/m<sup>3</sup></b>			

All the values of pollutant concentrations were found to be within the NAAQS Standards.

### **WATER ENVIRONMENT**

Table 11.3 Results of Ground Water sampling Analysis in 6 locations							IS:10500:2012	
	W1	W2	W3	W4	W5	W6	Desir able	Permi ssible
Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agree able	Agreea ble
Turbidity	<1	<1	<1	<1	<1	<1	Agree able	Agreea ble
pH at 25 °C	7.59	7.62	7.05	6.60	7.06	6.98	6.5 - 8.5	No Relaxa tion
Electrical Conductivity	753.9	1352	1579	2255	1627	2268	1	5
Total Dissolved Solids	450	810	950	1350	974	1362	500	2000
Total hardness as CaCO <sub>3</sub>	293	309	519	582	586	576	1	15
Calcium as Ca	79.2	66.5	124	130	165	141	200	600
Magnesium as Mg	22.8	34.2	50.4	61.8	41.8	53.8	200	600
Calcium as CaCO <sub>3</sub>	198	166	309	325	412	352	75	200
Magnesium as CaCO <sub>3</sub>	95.0	143	210	257	174	224		
Total alkalinity as CaCO <sub>3</sub>	283	424	384	436	291	420		
Chloride as Cl-	90.5	195	264	394	277	456	250	1000
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)	30	100
Sulphates as SO <sub>4</sub> <sup>2-</sup>	45.6	210	229	365	247	354	45	No Relaxa tion
Iron as Fe	0.05	0.11	0.06	0.04	0.08	0.05	200	400
Nitrate as NO <sub>3</sub>	2.34	4.35	1.98	6.89	5.64	4.62	1	No Relaxa tion
Fluoride as F	0.42	0.47	0.44	0.52	0.54	0.59	0.1	0.3
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)	Not Specified	Not Specified

All the values were found to be within permissible limits

### 11.2.2 NOISE ENVIRONMENT

Noise levels were measured in 6 locations and the results are given below.

S. No	Location	Day equivalent	Night equivalent	Day equivalent limits by CPCB	Night equivalent limits by CPCB
1	Proposed Mine Site	43.8	38.6	75	70
2	Arasanipalai	48.1	37.7		
3	Chithalapakkam	46.1	37.7		
4	Ezacheri	47.3	38.3		
5	Pavoor	49.1	39.8		
6	Punnai	45.4	44.1		

### 11.2.3 SOIL ENVIRONMENT

Soil samples are collected from 6 locations and the results are given below.

S.No	Parameter	Unit	S1	S2	S3	S4	S5	S6
1	pH at 25 °C	-	6.78	6.66	7.26	7.05	7.56	6.96
2	Electrical Conductivity	µmhos/cm	70.24	158.80	104.30	110.60	174.10	95.64
3	Dry matter content	%	95.68	94.67	96.14	97.84	90.70	97.78
4	Water Content	%	4.32	5.33	3.86	2.16	9.30	2.22
5	Organic Matter	%	1.25	1.95	2.09	1.68	2.09	1.65
6	Soil texture	-	sandy clay	clay	silt loam	loam	SILTY CLAY	SILTY CLAY
7	Grain Size Distribution	%	61.00	37.76	17.89	36.47	5.86	6.48
	i. Sand							
8	ii. Silt							
9	iii. Clay							
10	Phosphorous as P	mg/kg	0.69	0.78	1.32	0.96	1.75	1.11
11	Sodium as Na	mg/kg	745	998	1020	812	656	1042
12	Potassium as K	mg/kg	366	1056	976	765	794	896
13	Nitrogen and Nitrogenous Compounds	mg/kg	232	364	297	255	366	455
14	Total Soluble Sulphate	%	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)
15	Porosity	%	20.7	24.4	23.1	21.6	20.5	22.3
16	Water Holding Capacity	Inches/foot	38	36	40	42	40	36



#### 11.2.4 BIOLOGICAL ENVIRONMENT

##### FLORA

For measuring the extent of flora present in the study area, the area is divided in to 4 quadrants. The flora population in each quadrant is summed up for the total population in the study area. Field survey is done. Erukku, Aavarai and Nayuruvi are found in lease area. In the buffer zone, common trees like Neem, papaya, mango, teak, etc and shrubs like Avarai, Aloe vera, etc, climbers like Kovai,jasmine etc are found.

##### FAUNA

In the study area, commonly found animals like dogs, cats, bush rat, cows, birds like crow, Myna, Sparrow, etc were found.

#### 11.2.5 LAND USE

The land use land cover data is found using the LANDSAT – 9 satellite imagery. The number of bands used are 11. The land use pattern is given below:

**Table No. 11.6: Major Land Use Units of the Study Area in Percentage**

S. No	1st Level Classification	Area in (sq.km)	Percentage (%)	2nd Level Classification	Area in (sq.km)	Percentage (%)
1	Built-up or habitation	40.19	12.44	Residential	35.19	10.89
				Commercial/Industrial	5.0	1.55
2	Agriculture	184.1	57.00	Crop/fallow land	184.1	57.00
3	Water bodies	82.2	25.45	Reservoir/Lake /Pond	59.97	18.57
				River/Stram	22.23	6.88
4	Waste Land	8.63	2.67	Open without scrub	2.43	0.75
				Open with scrub	6.20	1.92
5	Mines	7.01	2.17	Mines	7.01	2.17
6	Forest	0.87	0.27	Forest	0.87	0.27
<b>Total</b>		<b>323</b>	<b>100</b>	<b>Total</b>	<b>323</b>	<b>100</b>

### **11.2.6 SOCIO ECONOMIC ENVIRONMENT**

The socio-economic environment of the study area is studied by conducting primary sites through site visits and conducting sample surveys. The secondary data obtained from Census 2011 is also used.

The following data area collected from secondary data.

- Demographic pattern.
- Health pattern
- Occupational structure.
- Amenities available.

The expert visited 5 villages in the study area namely Arasanipalai, Chithalapakkam, Ezacheri, Pavoor and Punnai villages. Discussions were held with the people from nearby locality to study the social and economic conditions prevailing in the area. The expert also visited nearby hospitals, primary health centers and Tiruvannamalai. The following observations were made.

Primary schools are available in many villages. For hospital facilities, people in the locality have to go to hospital in Kanchipuram which is about 8.5 km from the lease area. Major schools with higher secondary and senior secondary schools are located in Kanchipuram. The major sithalapakkam Union located in the area is Tiruvannamalai. Facilities like petrol pump stations, ATM facility are available in Kanchipuram

### **11.2.7 HYDROGEOLOGY OF THE LEASE AREA**

Since There is Cheyyar River is located at a distance of 2.2 km in South East and Palar River is located at a distance of 7.61 km in North East direction of lease area.

is studied in detail using satellite imagery.

There is Cheyyar River is located at a distance of 2.2 km in South East and Palar River is located at a distance of 7.61 km in North East direction of lease area. But there is no running water currently in the river. Only during monsoons, water gets stagnated at a few places.

There are many tanks located in the study area, which are mostly dry throughout the year. These tanks get water only during monsoons. The factors may be monsoon failure, insufficient rainfall, poor rain water management and water consuming patterns.

### **11.2.8 GROUND WATER STUDY**

For Ground water study, satellite imagery is used. Water levels from monitoring levels are collected through imaging. The pre-monsoon and post-monsoon data are collected and the results are analyzed.

During field visit, it is observed that water is available in wells only after monsoon. The yield is obtained at deep levels only.

As far as the mining lease area is considered, the area is rocky and no major seepage is envisaged. The production quantity is very less and the depth proposed is 47m BGL. Hence, there will not be any major impact due to mining on water levels or ground water levels in the area.

### **ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES**

Environmental impacts on the following environments are identified.

- Land environment
- Water environment
- Vegetation
- Fauna
- Air environment
- Noise environment
- Socio-economic impacts

### **11.2.9 LAND ENVIRONMENT: IMPACT AND MITIGATION MEASURES**

The major impact due to this project on land environment is the change in land use. Since this quarry is a small one and the production is less, mining activity will be carried out upto 47 m BGL. Other than quarrying of minerals, no other change will be done since there is no dumping. To prevent soil erosion during monsoon season, garland drain will be constructed with silt traps. At the mine closure stage 2.27.0 Ha of lease area will be left as rain water harvesting pond 1.57.5 Ha will be developed with green belt. For this, plants like Pungai, Vagai, Vembu, Manjal konrai, Naval, Puvarasu, etc are selected. A total of 2000 trees are planned to be planted. Spacing will be 3m x 3m.

### **11.2.10 WATER ENVIRONMENT: IMPACT AND MITIGATION MEASURES**

There is no water body present inside the lease area. The entire water requirement for the project is 6.0 KLD which will be sourced from outside agencies. Negligible sewage will be generated, for which a septic tank with soak pit will be set up.

During monsoon season, the excess rain water, if any, will be led through garland drain of 0.6m width and 0.3 m depth to the collection pond with silt traps.

Since the mining operation will be limited upto depth of 47 m (BGL), there will not be any seepage. However, the rain water percolation and collection of water from seepage shall be less than 300 lpm and it shall be pumped out periodically by a stand by diesel powered Centrifugal pump motivated with 7.5H.P.Motor. The quality of water is expected to be potable. Hence, water stored in the quarry pit will be pumped into the adjacent agricultural fields. Further the water can also be used for plantation purposes

The major water bodies found in the buffer zone are.

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<b>Water bodies</b>	<b>Distance</b>	<b>Direction</b>
Canal	Adjacent	N
Tank	120m	E
Tank	425m	SW
Tank	850m	SE
Tank	720m	S
Suruttal Lake	2.76km	N
Cheyyar River	2.2km	SE
Palar River	7.61km	NE
Arapakkam Lake	4.16km	NE
Mangal Lake	4.64km	W
Kannikulam Lake	4.75km	SE
Adavapakkam Lake	5.03km	SE
Marudham Big Lake	7.02km	SE
Uthiramerur Lake	7.42km	S
Mamandur Tank	7.49km	NW

Since these water bodies are located outside the lease area and there is no discharge of effluent or any untreated water from the mines will be made in to these water bodies, there is no major impact. For the canal, adequate safety distance is left. The proponent will restrict the mining operation only within the lease and no other work will be carried out near the canal or any area outside the lease.

It is planned to carryout appropriate rainwater harvesting schemes and artificial recharge schemes in the area.

- Rain water falling in the quarry will be collected efficiently through garland drains.
- Water thus collected will be passed through collection tank with silt traps. This water can be used by the proponent for water sprinkling and for green belt purposes.
- Excess water after desiltation will be provided to downstream users, if any

### **11.2.11 BIOLOGICAL ENVIRONMENT: IMPACT AND MITIGATION MEASURES**

#### **Impacts**

- Fauna is affected due to noise and vibration.
- Dust generation due to mining activities
- Change in land use of the lease area
- Accidental falling of animals

#### **Mitigation measures**

- 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.
- To reduce dust generation, mist sprayers will be used. During transportation, the material will be covered with tarpaulin. Water sprinkling will be done to reduce generation of pollutants
- After the mine closure stage, the mine pit will be left as rain water collecting tank, which can attract bird population in the nearby areas.
- To prevent entry of animals, the mining area will be properly fenced.

### **11.2.12 AIR ENVIRONMENT: IMPACT AND MITIGATION MEASURES**

The major air pollutants due to mining operations are fugitive emissions like PM<sub>10</sub>, PM<sub>2.5</sub>. Other than these pollutants, gaseous emissions of sulfur dioxide (SO<sub>2</sub>) and oxides of nitrogen (NO<sub>x</sub>) due to excavation/loading equipment and vehicles plying on haul roads are the cause of air pollution in the project area.

The major impacts are Dust emission due to drilling, blasting and transportation. The major mitigation measures include Using Wet drilling methods, Allowing drilling only with PPE, Carrying out blasting only during specified times, Avoiding blasting during unfavorable weather conditions, Using explosives of good quality, Using mist sprayers Regular wetting of transport, Covering the materials carried in tippers with tarpaulin, Proper maintenance of vehicles used for transportation, Conducting regular emission tests for vehicles used for transport Development of greenbelt is proposed in the safety zone of 7.5m, 10m and 50m barriers in the lease area.

The anticipated data is calculated using AERMOD software and the projected values are found to be within limits.

### **11.2.13 NOISE ENVIRONMENT: IMPACT AND MITIGATION MEASURES**

#### **Impacts**

- ✦ Noise generation in mining is due to operation like drilling, blasting and transportation of minerals within and outside the lease area.
- ✦ As per DGMS (Directorate General of Mines Safety) and OSHA (Occupational Safety and Health Administration) limits, the acceptable noise level is 85 dB(A) for an exposure period of 8 hours.
- ✦ Exposure to loud noise can also cause high blood pressure, heart disease, sleep disturbances, and stress. Noise pollution also impacts the health and well-being of wildlife.
- ✦ Noise exceeding prescribed limits may cause impairment like abnormal loudness perception, tinnitus, which causes a persistent high-pitched ringing in the ears, paracusis or distorted hearing

#### **Mitigation measures**

- ✦ As the distance between the source and receptor increases, the noise level also decreases. Hence, there will be a natural attenuation
- ✦ The proposed has planned to develop green belt in the periphery of the lease area, which diminishes sound volume by dampening them.
- ✦ All the equipment/machinery/trucks involved will be properly maintained to control noise generation
- ✦ Conducting regular health checkups for employees involved
- ✦ Employees will be made to work on shifts to reduce their exposure time
- ✦ Providing earplugs to all employees

By adopting these measures, the noise levels will be maintained well within MoEF & CC limits since the baseline value is low.

#### **11.2.14 VIBRATION: IMPACT AND MITIGATION MEASURES**

##### **Impacts**

- ✚ 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

##### **Mitigation measures**

- ✚ 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 with in standard as prescribed by the DGMS and MOEF & CC.
- ✚ Shallow depths jackhammer drilling and blasting is proposed to be carried out with minimum use of explosive
- ✚ Supervising blasting by competent and statutory foreman/ mines manager

#### **11.2.15 SOCIO ECONOMIC ENVIRONMENT**

##### **Impact and Mitigation measures**

No land is acquired from anyone. No rehabilitation is needed. Hence, there is no negative impact. The proponent has planned to spend INR 10,00,000 for CER activities. This amount will be subjected to change after public hearing.

#### **11.2.16 OCCUPATIONAL HEALTH**

##### **Impacts**

Dust generation due to drilling and blasting, Noise generation due to drilling and blasting, unexpected accidents. Continuous exposure to dust causes Pneumonia, Tuberculosis, Rhematic arthritis and Segmental Vibration, Short term impact will be lack of sleep, high blood pressure and heart ailments. Long term exposure may lead to partial or permanent deafness, Risks include fly rocks, cracks or fissures due to improper mining methods



### **Mitigation measures**

- Using dust suppression measures like water spraying on roads to reduce rise of air pollutants
- Providing green belt for air pollutant and noise attenuation
- Ensuring slope stability
- Employing only trained professionals for blasting
- Conducting Pre-Medical Examination for employees before inducting
- Conducting periodical Medical Examination once in 6 months.
- Making all first aid kits available in mines office
- Keeping fire extinguisher in place
- Educating the employees about how to handle unexpected happenings
- Posting information containing emergency contact numbers in mines office
- By adopting all these measures, the safety of the employees working in the quarry will be ensured.

### **11.2.17 ENVIRONMENTAL MONITORING PROGRAMME**

Monitoring is done to measure the efficiency of control measures implemented. Regular monitoring of various environmental parameters like air, water, noise and soil environments is needed to assess the status of environment during the project operation. A schedule is framed with timeline to monitor various parameters during the operation of the project. To evaluate the effectiveness of environmental management programme, regular monitoring of the important environmental parameters will be taken up. Air monitoring will be carried out once in 3 months, water sample will be collected once in a season, noise will be monitored once in 3 months, soil samples will be analyzed once per season. For EMP, a budget of INR 218.19 Lakhs is allocated.

### **11.2.18 PROJECT BENEFITS**

#### **Financial benefits**

- This project will contribute financially through payment of taxes like royalty, GST, etc
- The project will also contribute via CSR.
- The demands of people during public hearing will also be considered by the project proponent

#### **Social benefits**

- This project provides employment to 25 people directly. Local people will be hired for unskilled labour.
- Through CSR, nearby schools, hospitals will be benefitted.
- For CSR, INR 10,00,000 is allocated.
- Based on the demand of the people during public hearing, further funds will be allocated, if necessary.
- Various aspects of mining activities were considered and related impacts were evaluated. Considering all the possible ways to mitigate the environmental concerns Environmental Management Plan was prepared and 218.19 lakhs for the five years has been allocated as EMP cost. The EMP is dynamic, flexible and subjected to periodic review. For project where the major environmental impacts are associated, EMP will be under regular review. Thus, the proper steps will be taken to accomplish all the goals mentioned in the EMP and the project will bring the positive impact in the study area.

\*\*\*\*\*

## CHAPTER 12


### DISCLOSURE OF CONSULTANTS

*Global Mining Solutions is a NABET Accredited EIA consultant as per NABET certificate NABET/EIA/2326/IA 0110. The registered office of Global Mining Solutions is at Plot No.6, S.F.No.13/2 A2, VS City, RC Chettypatty, Kottamettupatty, Omalur, Salem, Tamil Nadu state.*

*Declaration by Experts contributing to the proposed Rough Stone & Gravel Quarry over an extent of 3.87.5 Ha, while total cluster area of 10.33.5 Ha at Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State.*

*I, hereby, certify that I was a part of the EIA team that developed the above EIA.*

EIA Coordinator Name: M. Manikandan

  
Signature & Date

Period of involvement: March 2024 to May 2024.

**Contact information:**


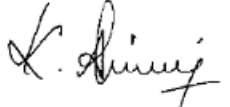





**M/s Global Mining Solutions**

**Plot No.6, SF No. 13/2, A2, VS City, RC Chettypatty,**

**Kottamettupatty, Omalur,**

**Salem, Tamil Nadu – 636 455**

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**



<b>S. No.</b>	<b>Functional areas</b>	<b>Name of the expert/s</b>	<b>Involvement (period and task**)</b>	<b>Signature and Date</b>
1	AP	Dhanalakshmi Ramanathan	Assessment of existing air quality, Impact of the project on ambient air and suggested mitigation measures for air pollution. <u>Period: March 2024 to May 2024.</u>	
2	WP	Abirami Kaliaperumal	Assessment of existing water quality, impact of the project on surface and ground water quality, suggested mitigation measures for minimizing the impact. <u>Period: March 2024 to May 2024.</u>	
3	SHW	Ramadoss N	Assessment of waste generated from the project, suggested waste management practices. <u>Period: March 2024 to May 2024.</u>	
4	SE	Sarasvathy K	Baseline SE studies. Data compilation and assessment. Impact of the project on SE status of the area. Formulation of CER plan. <u>Period: March 2024 to May 2024.</u>	
5	EB	Saravanan S	Baseline data collection of related to ecology of the area. <u>Period: March 2024 to May 2024.</u>	
6	HG	Ravinthiran N	Hydrogeological feature of the area. Ground water depth and impact of project on ground water of the area. <u>Period: March 2024 to May 2024.</u>	
7	AQ	Srilatha Thiruveedhula	Air quality modeling utilizing the area source model. Predication of the ground level concentration of the dust. Suggesting suitable mitigation measures. <u>Period: March 2024 to May 2024.</u>	

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

8	NV	Dhanalakshmi Ramanathan	Ambient noise study of the area. Incremental noise generation due to quarry operation and impact of the noise due to the project.  <u>Period: March 2024 to May 2024.</u>	R.Dhamy
9	LU	Dhanalakshmi Ramanathan	Preparation of land use map based on satellite imagery. Land use classification and analysis. Impact prediction of the project on the surrounding land environment.  <u>Period: March 2024 to May 2024.</u>	R.Dhamy
10	RH	S.V. Prashant	Identification of the Risk related to the mining activities. Preparation of emergency disaster management plan. Plan for supply of safety equipment for the worker.  <u>Period: March 2024 to May 2024.</u>	S.Prashant
11	SC	Shisupal Sing	Soil monitoring, secondary data collection on soil type, soil management practices, utilization of topsoil.  <u>Period: March 2024 to May 2024.</u>	Shisupal Sing
12	GEO	Valliappan Meyyappan	Geological map, stability of quarry and dump, management plan for mine stability, after use of mining quarry and geological feature of the area.  <u>Period: March 2024 to May 2024.</u>	Valliappan Meyyappan

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

**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	<u>March 2024 to May 2024</u>	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	<u>March 2024 to May 2024</u>	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	

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

**TM-FAA:**

S. No	Name of TM (FAA)	Functional Area	Approved FAE (to work under)	Period of involvement	Type of work	Signature
1	Suresh	WP	<i>Abirami Kaliaperumal</i>	<u>March 2024 to May 2024</u>	Associated with the expert in assessing existing water quality, studying impact of the project on surface and ground water quality, suggesting mitigation measures for minimizing impact	<i>M. Suresh D</i>
		AP	<i>Dhanalakshmi Ramanathan</i>		Associated with expert in assessing existing air quality, impact of the project on ambient air and suggesting mitigation measures for air pollution	
2	S. Kamaraj	SC	Shishupal Singh	<u>March 2024 to May 2024</u>	Associated with the expert in Soil monitoring, secondary data collection on soil type, soil management practices, utilization of top soil	<i>S. Kamaraj</i>

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**


		RH	S.V.Prashant		Associated with the expert in Identification of the Risk related to the mining activities. Preparation of emergency disaster management plan. Plan for supply of safety equipment for the workers	
3.	S. Asan Ali	WP	<i>Abirami Kaliaperumal</i>	<u>March 2024 to May 2024</u>	Associated with the expert in assessing existing water quality, studying impact of the project on surface and ground water quality, suggesting mitigation measures for minimizing impact	<i>S. Asan ali</i>
		GEO	<i>Valliappan Meyyappan</i>		Associated with the expert in preparing Geological map, assessing stability of quarry slope faces and dump,	



**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

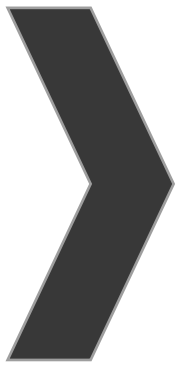
					management plan for mine stability, after use of mining quarry and geological features of the area
		AP	Dhanalakshmi Ramanathan		Associated with expert in assessing existing air quality, impact of the project on ambient air and suggesting mitigation measures for air pollution
		NV	Dhanalakshmi Ramanathan		Associated with the expert 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.

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

4.	Mownica. B	AP	Dhanalakshmi Ramanathan	<u>March 2024 to May 2024</u>	Associated with expert in assessing existing air quality, impact of the project on ambient air and suggesting mitigation measures for air pollution	Mownica. B
		NV	Dhanalakshmi Ramanathan		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.	
5.	G.Balasubramani	GEO	Valliappan Meyyappan	<u>March 2024 to May 2024</u>	with the expert in preparing Geological map, assessing stability of quarry slope faces and dump, management	

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.M.N.BALASUNDRAM OVER AN EXTENT OF 3.87.5 HA LOCATED AT S.F.NOS. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B OF SITHALAPAKKAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

					plan for mine stability, after use of mining quarry and geological features of the area	
			Dhanalakshmi Ramanathan		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



सत्यमेव जयते

**File No: 10696**  
**Government of India**  
**Ministry of Environment, Forest and Climate Change**  
**(Issued by the State Environment Impact Assessment**  
**Authority(SEIAA), TAMIL NADU)**

\*\*\*



Dated 14/05/2024



To,

MANGADU BALASUNDHARAM  
MANGADU BALASUNDHARAM  
Thiru.M.N.Balasundram, S/o. Natarajan, No.72, Main Road, Mangadu, Kundrathur Taluk,  
Kancheepuram District. , Tiruvannamalai , TIRUVANNAMALAI, TAMIL NADU, Tiruvannamalai ,  
600122  
balasundaramn87@gmail.com

**Subject:** Grant of Terms of Reference under the provision of the EIA Notification 2006-regarding.

**Sir/Madam,**

This is in reference to your application for Grant of Terms of Reference under the provision of the EIA Notification 2006-regarding in respect of project Rough Stone and Gravel Quarry of over an extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District by Thiru.M.N.Balasundram submitted to Ministry vide proposal number SIA/TN/MIN/459416/2024 dated 02/04/2024.

**Ref:**

1. Online proposal No. SIA/TN/MIN/459416/2024, dt: 22/01/2024.
2. Your application submitted for Terms of Reference dated: 13.02.2024.

2. The particulars of the proposal are as below :

(i) TOR Identification No.	TO24B0108TN5397062N
(ii) File No.	10696
(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 Thiru.M.N.Balasundram
(viii) Name of Company/Organization	MANGADU BALASUNDHARAM
(ix) Location of Project (District, State)	TIRUVANNAMALAI, TAMIL NADU
(x) Issuing Authority	SEIAA
(xii) Applicability of General 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-TN for an appraisal by the State Environment Impact Assessment Authority(SEIAA) Appraisal Committee (SEIAA) in the SEIAA under the provision of EIA notification 2006 and its subsequent amendments.
4. The above-mentioned proposal has been considered by State Environment Impact Assessment Authority(SEIAA) in the meeting held on 03/05/2024. 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 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 State Environment Impact Assessment Authority(SEIAA) Appraisal Committee hereby decided to grant Terms of Reference for instant proposal of M/s. MANGADU BALASUNDHARAM 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.
10. The TORs with public hearing prescribed shall be valid for a period of three years from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.

**Copy To**

1. The Additional Chief Secretary to Government, Environment, Climate Change and Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9.
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.
3. The Chairman, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai - 600 032.
4. The APCCF (C), Regional Office, MoEF & CC (SZ), 34, HEPC Building, 1<sup>st</sup> & 2<sup>nd</sup> Floor, Cathedral Garden Road, Nungambakkam, Chennai - 34.
5. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC, Paryavaran Bhavan, CGO Complex, New Delhi - 110 003.
6. The District Collector, Tiruvannamalai District.
7. Stock File.

**Annexure 1**

**Specific Terms of Reference for (Mining Of Minerals)**

**1. Seac Conditions - Site Specific**

S. No	Terms of Reference
1.1	<p>1. For the existing quarry, the PP shall obtain a letter from the concerned AD (Mines) which shall also stipulate the following information:</p> <ol style="list-style-type: none"> <li>i. Original pit dimension of the existing quarry</li> <li><b>ii. Quantity achieved Vs EC Approved Quantity</b></li> <li>iii. Balance Quantity as per Mineable Reserve calculated.</li> <li>iv. Month wise Production details</li> <li>v. Mined out Depth as on date Vs EC Permitted depth</li> <li>vi. Details of illegal/illicit mining carried out, if any</li> <li>vii. Non-compliance/Violation in the quarry during the past working.</li> <li>viii. Quantity of material mined out outside the mine lease area (or) in the adjacent quarry/land.</li> <li>ix. Existing condition of Safety zone/benches</li> <li>x. Details of any penalties levied on the PP for any violation in the quarry operation by the Department of Geology and Mining.</li> </ol> <p>2. The PP shall submit the Certified Compliance Report (CCR) obtained from IRO(SZ), MoEF&amp;CC with <b>the status of non-compliance</b>, and to furnish <b>mitigation measures/remedial action plan with the budget allocation</b> for the non-compliance stated in the CCR.</p> <p>3. The PP shall complete the fencing, tree plantation and photographs, videos of the same shall be furnished.</p> <p>4. The PP shall mark the DGPS reference pillars painted with blue &amp; white colour indicating the safety barrier of 7.5 m to be left under the Rule 13 (1) of MCDR, 1988 within the lease boundary and protective bunds, and provide the details during the EIA appraisal.</p> <p>5. The Proponent shall complete the garland drainage around the boundary of the proposed quarry and the photographs indicating the same shall be shown during the EIA appraisal.</p> <p>6. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc located within 1 km of the proposed quarry.</p> <p>7. The Proponent shall justify the selection of the site for carrying out the stone quarrying with the total volume arrived for the excavation &amp; production adequate details such as lithology of the deposit, reserve estimation, place for waste dump/mined mineral storage, end-use of mined materials, identified potential customers/end-users and travel path.</p> <p>8. 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 with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, Schools/Colleges 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.</p> <p>9. The proponent shall furnish photographs and video showing the adequate fencing, green belt along the periphery including replantation of existing trees &amp; safety distance between the adjacent quarries &amp; water bodies nearby provided as per the approved mining plan.</p> <p>10. During the EIA appraisal, the PP shall furnish the affidavit stating that he will not employ any external agency for carrying out the blasting operation in the proposed quarry and he shall also install the temporary (or) permanent magazine approved by the concerned licensing authority <b>before the execution of the lease</b>, for storing the authorized explosives &amp; detonators separately in accordance with the Explosive Rules, 2008.</p> <p>11. During the EIA appraisal, the PP shall furnish the affidavit stating that he will appoint a First Class/Second Class Mine Manager for managing the quarrying operations before obtaining the CTO from the TNPCB. Further, the PP will also send the 'Notice of Opening' indicating the appointment of such Statutory officials and the proposed usage of HEMM shall be sent to the Director of Mines Safety, Chennai Region of the Mine under the provisions of MMR 1961 atleast 30 days before the commencement of the mining operation after the execution of lease, if the EC is granted.</p> <p>12. <b>Since the structures including the houses are situated within a radial distance of 500 m,</b></p>

S. No	Terms of Reference
	<p>the PP shall carry out the scientific studies <b>to design the controlled blast parameters</b> for reducing the cumulative blast-induced ground/air- vibrations and eliminating the fly rock from the blasting operations carried out in the cluster of quarries located in the region, and <b>subsequently with proper validation of the design through trial blasts</b> in any of the existing &amp; operating quarries to monitor the PPV produced from the blasting near the houses (280m) and village (520 m), after obtaining the prior permission from the DMS / Chennai Region in accordance with DGMS Circular No. 7 of 1997, by involving anyone of these reputed Research and Academic Institution such as CSIR-Central Institute of Mining &amp; Fuel Research / Dhanbad, NIRM/Bangalore, IIT (ISM)/Dhanbad, IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. A copy of such scientific study report shall be submitted to the SEIAA, MoEF as a part of EIA study during the appraisal and to the DMS/DGMS-Chennai Region while submitting the ‘Notice of Opening’, without any deviation.</p> <p>13. Since the quarrying operations are proposed in an existing pit possessing the quarry wall of 27 m depth without adequate bench formations in accordance with the provisions of MMR, 1961, the PP shall carry out the scientific studies to assess the slope stability of the existing quarry wall and working benches for spelling out the stabilization measures to ensure the safety of the persons to be employed in the proposed quarry, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining &amp; Fuel Research / Dhanbad, NIRM/Bangalore, IIT (ISM)/Dhanbad, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. A copy of such scientific study report shall be submitted to the SEIAA, MoEF as a part of EIA study during the appraisal and to the DMS/DGMS-Chennai Region while submitting the ‘Notice of Opening’, without any deviation.</p> <p>14. The PP shall carry out a comprehensive study indicating the Travelling route as proposed pertaining to the traffic surveys and Axle load surveys and demand forecasting for the next 10 years in the cluster area including the Traffic Volume, Identification of possible improvements in the existing alignment and bypassing congested locations with alternatives, investigation of required sub-grade and sub-soil characteristics and strength for road and embankment design and sub soil investigation, identification of sources of construction material, etc. Further, the study shall also consider the local and slow traffic which may need segregation from the main traffic and provision of service roads (or) physical barrier including fencing, wherever necessary to improve efficiency and safety, particularly the trucks plying through the schools/hospitals/villages.</p> <p>15. The PP shall prepare the Standard Operating Procedures (SoP) for carrying out the ‘Best Mining Practices’ in the areas of drilling, blasting excavation, transportation and green belt development and provide the same during the EIA appraisal.</p> <p>16. 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.</p>

**2. Seiaa Specific Condition:**

S. No	Terms of Reference
2.1	1. The Annual peak RoM production not exceeding <b>43440 cu.m</b> of Rough stone and <b>15912 cu.m</b> of Gravel to an ultimate depth of <b>47m BGL</b> .

**Standard Terms of Reference for (Mining of minerals)**

1.



S. No	Terms of Reference
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.
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 modeling 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.
1.3	Propoer KML file with pin drop and coordinate of mine at 500-1000 m interval be provided
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
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.
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.
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 lengthe, quantity and quality of water to be diverted
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.
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.
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.

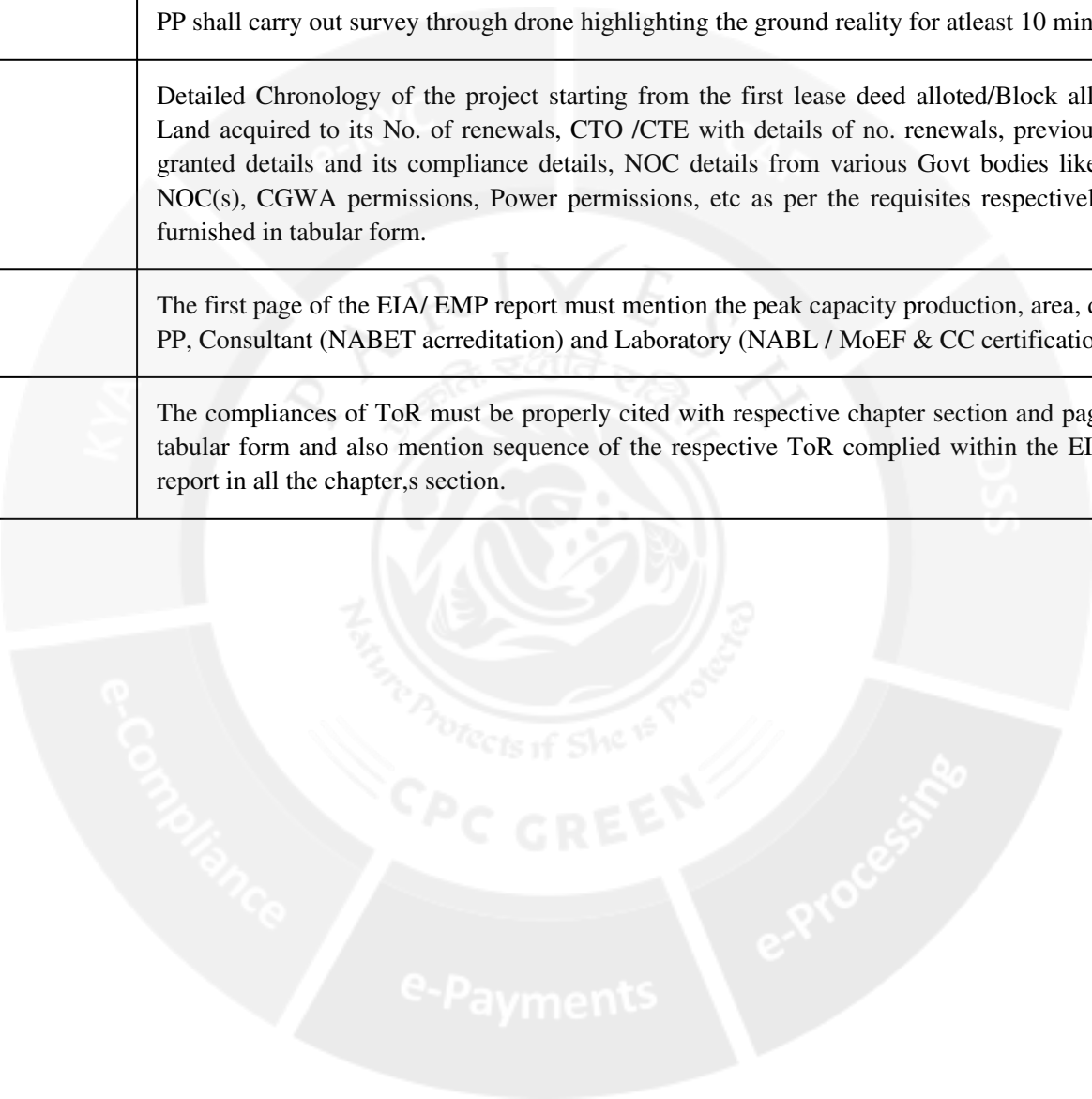
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1.11	<p>A detailed Site plan of the mine showing the proposed break-up of the land for mining operations such as the quarry area, OB dumps, green belt, safety zone, buildings, infrastructure, Stockyard, township/colony (within and adjacent to the ML), 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.</p>																																																						
1.12	<p>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</p> <table border="1" data-bbox="379 689 1471 996"> <thead> <tr> <th>S.N</th> <th>ML/Project use</th> <th>Land Area Surface Rights(ha)</th> <th>Area under Surface Rights(ha)</th> <th>Area Under Mining Rights(ha)</th> <th>Area under Both (ha)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Agricultural land</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>Forest Land</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>Grazing Land</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>Settlements</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>5</td> <td>Others (specify)</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <table border="1" data-bbox="379 1064 1236 1299"> <thead> <tr> <th>S.N.</th> <th>Details</th> <th>Area (ha)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Buildings</td> <td></td> </tr> <tr> <td>2</td> <td>Infrastructure</td> <td></td> </tr> <tr> <td>3</td> <td>Roads</td> <td></td> </tr> <tr> <td>4</td> <td>Others (specify)</td> <td></td> </tr> <tr> <td></td> <td>Total</td> <td></td> </tr> </tbody> </table>	S.N	ML/Project use	Land Area Surface Rights(ha)	Area under Surface Rights(ha)	Area Under Mining Rights(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	Infrastructure		3	Roads		4	Others (specify)			Total	
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1.13	<p>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 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.</p>																																																						
1.14	<p>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&amp;CC certification of the respective laboratory and NABET accreditation of the consultant to be provided.</p>																																																						
1.15	<p>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</p>																																																						

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	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.
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.
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.
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.
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.
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
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.
1.23	Study on land subsidence including modeling for prediction, mitigation/prevention of subsidence, continuous monitoring measures, and safety issues should be carried out.

S. No	Terms of Reference
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.
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
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
1.27	PP to evaluate the green house emission gases from the mine operation and corresponding carbon absorption plan.
1.28	Site specific Impact assessment with its mitigation measures, Risk Assessment and Disaster Preparedness and Management Plan should be provided.
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.
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.
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.
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.
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 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.
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.
1.35	Cost of EMP (capital and recurring) should be included in the project cost and for progressive and final mine closure plan.

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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.																																																
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.																																																
1.38	Corporate Environment Responsibility:																																																
1.39	a) The Company must have a well laid down Environment Policy approved by the Board of Directors.																																																
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.																																																
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.																																																
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.																																																
1.43	e) Environment Managment Cell and its responsibilities to be clearly spleel out in EIA/ EMP report																																																
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1.45	Status of any litigations/ court cases filed/pending on the project should be provided.																																																
1.46	PP shall submit clarification from DFO that mine does not falls under corridors of any National Park and Wildlife Sanctuary with certified map showing distance of nearest sanctuary.																																																
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.																																																
1.48	<p>Details on the Forest Clearance should be given as per the format given:</p> <table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"></td> <td style="width: 15%;">Total ML</td> <td style="width: 15%;">Total</td> <td style="width: 15%;">Date</td> <td style="width: 15%;">Extent</td> <td style="width: 15%;">ofBalance</td> <td style="width: 15%;">area</td> <td style="width: 15%;">forStatus of appl For</td> </tr> <tr> <td></td> <td>Project Area</td> <td>Forest</td> <td>of FC</td> <td>Forest</td> <td>which FC is yet to</td> <td>obtained</td> <td>be diversion of forest</td> </tr> <tr> <td></td> <td>(ha)</td> <td>land (ha)</td> <td></td> <td>Land</td> <td></td> <td></td> <td>land</td> </tr> <tr> <td></td> <td></td> <td>If more than one</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>provide details of</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>each FC</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		Total ML	Total	Date	Extent	ofBalance	area	forStatus of appl For		Project Area	Forest	of FC	Forest	which FC is yet to	obtained	be diversion of forest		(ha)	land (ha)		Land			land			If more than one								provide details of								each FC					
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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
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. 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
1.52	Detailed Chronology of the project starting from the first lease deed allotted/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.
1.53	The first page of the EIA/ EMP report must mention the peak capacity production, area, detail of PP, Consultant (NABET accreditation) and Laboratory (NABL / MoEF & CC certification)
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.



**SEAC SPECIFIC CONDITIONS:**

1. The PP shall furnish the letter obtained from the AD (Mines) indicating the existing pit dimensions and pit conditions showing the details on mine having worked during the earlier lease period.
2. The PP shall furnish 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.
3. The PP shall provide individual notice regarding the Public Hearing to the nearby house owners located in the vicinity of the project site.
4. The Proponent shall justify the selection of the site for carrying out the stone quarrying with the total volume arrived for the excavation & production adequate details such as lithology of the deposit, reserve estimation, place for waste dump/mined mineral storage, end-use of mined materials, identified potential customers/end-users and travel path.
5. The PP shall also justify the selection of mining methodology (conventional or non-conventional) adopting blasting techniques/non-explosive techniques with proper ground reality & laboratory testing.
6. The proponent shall submit the “Blast Design Parameters for controlling the vibration and fly rock from the quarry blasting” considering the existence of sensitive structures including habitations within 500 m from the lease boundary.
7. The PP shall justify the estimation of HEMM population for excavation and transportation in the proposed quarries with proper calculation methodology adopted.
8. The PP shall enumerate the environmental settings situated within a radial distance of 1 km such rivers/water bodies/reserve forests/ grazing land/existence of the hospitals and educational institutions/structures.
9. The PP shall provide the details of the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.
10. 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 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.

11. The PP shall submit a 'Slope Stability Action Plan' for the proposed quarry where the proposed depth exceeds 30 m and it shall cover the aspects of stability of quarry walls including the access ramp keeping the benches intact.
12. If the blasting operation is to be carried out, the PP shall present a conceptual design for carrying out the NONEL initiation based controlled blasting operation including the line drilling & muffle blasting techniques and a Simulation Model indicating the anticipated Blast-induced Ground Vibration levels in the proposed quarry as stipulated by the DGMS Circular No.7 of 1997, during the EIA Proposal.
13. 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.
14. The PP shall give an affidavit stating that no contractual persons provided by the explosive suppliers will be employed for carrying out the blasting operations in the proposed quarry.s
15. The PP shall also give an affidavit that no highly sensitive structure such as fire-cracker manufacturing units, Gas godown/explosive Magazine, LPG Bottling Units, etc are located within a radial distance of 300 m from the lease boundary of the proposed quarry.
16. 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 20 m from the blast site.
17. 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.
18. The PP shall provide the environmental mitigation measures implemented for the crusher(s) located within the mining lease.
19. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,
  - a. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
  - b. Quantity of minerals mined out.



- c. Highest production achieved in any one year
  - d. Detail of approved depth of mining.
  - e. Actual depth of the mining achieved earlier.
  - f. Name of the person already mined in that leases area.
  - g. If EC and CTO already obtained, the copy of the same shall be submitted.
  - h. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
20. 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.
21. 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).
22. The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,
23. 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.
24. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
25. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.

26. 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.
27. 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.
28. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
29. 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.
30. 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.
31. 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.
32. If the Village road/State highway/National highway are located within a radial distance of 500 m from the lease boundary of the quarry proposal, the PP shall carry out traffic studies to indicate impact on local transport infrastructure due to the Project and mitigation measures.
33. A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.
34. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
35. Public Hearing points raised and commitments of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same

should be provided and also incorporated in the final EIA/EMP Report of the Project and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.

36. The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.
37. The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.
38. 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.
39. 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.
40. Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site-specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner
41. 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.
42. 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.
43. 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.
44. 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.

45. 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.
46. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
47. 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.
48. 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.
49. 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.
50. 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.

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

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

1. Project name and location (Village, District, State, Industrial Estate (if applicable)).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.

7. Details of village map, “A” register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be submitted along with EIA report.
9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.
10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of its acquisition, nearby (in 2-3 km.) water body, population, within 10km other industries, forest , eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population
21. Emergency preparedness plan in case of natural or in plant emergencies
22. Issues raised during public hearing (if applicable) and response given
23. CER plan with proposed expenditure.
24. Occupational Health Measures
25. Post project monitoring plan
26. The project proponent shall carry out detailed hydro geological study through

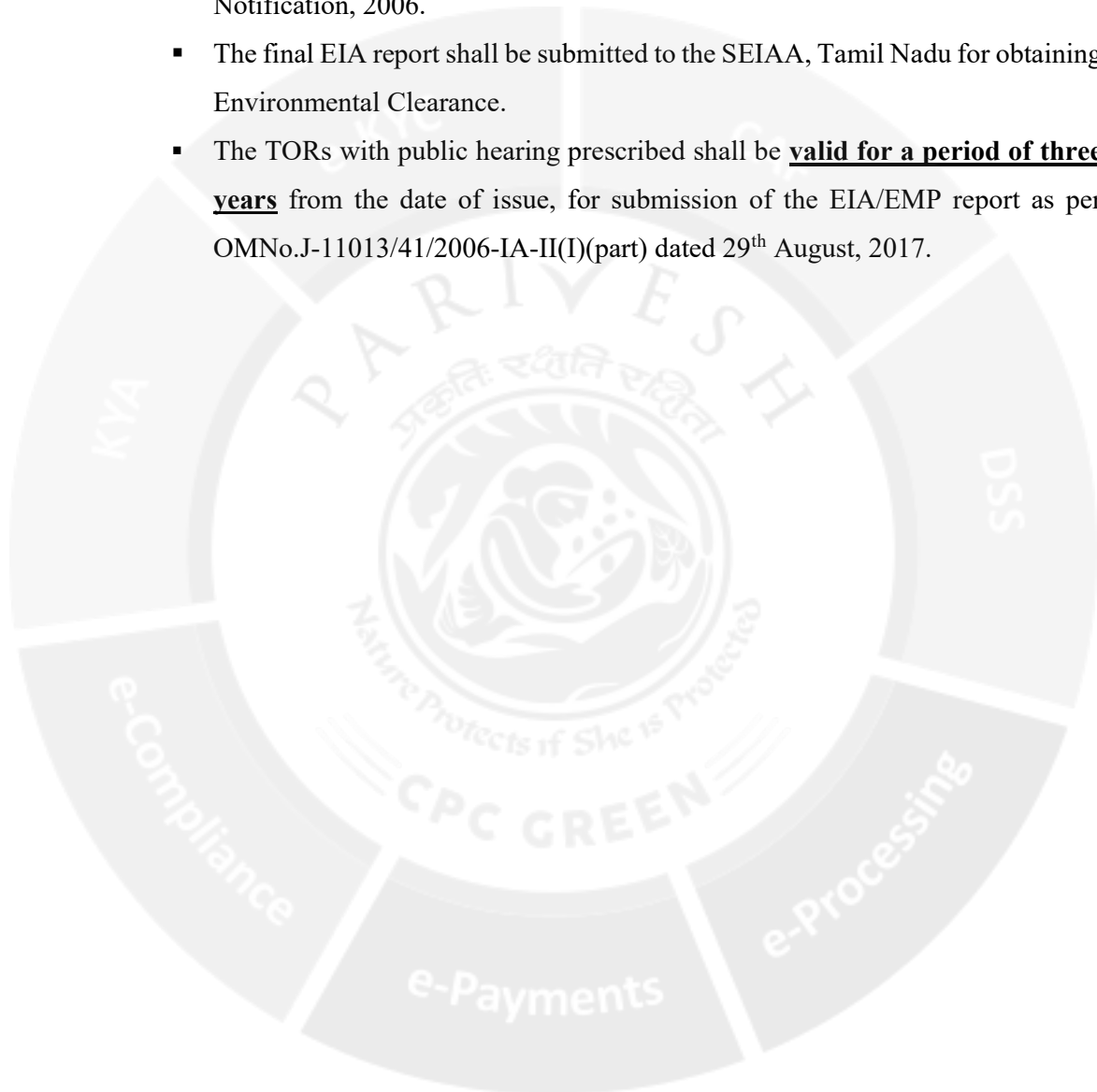
intuitions/NABET Accredited agencies.

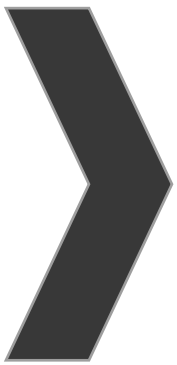
27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.
29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
30. Reserve funds should be earmarked for proper closure plan.
31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC.2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.

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

- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
- d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.
- e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J -11013/77/2004-IA-II(I) dated 2<sup>nd</sup> December, 2009, 18<sup>th</sup> March 2010, 28<sup>th</sup> May 2010, 28<sup>th</sup> June 2010, 31<sup>st</sup> December 2010 & 30<sup>th</sup> 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 29<sup>th</sup> August, 2017.





**ANNEXURE-2**



நக.எண்:429/கனிமம்/2022

துணை இயக்குநர்

புவியியல் மற்றும் தனி வரலாறு  
திருவண்ணாமலை 4.

நாள்: 11.2023

## அறிவிக்கை

பொருள்: கனிமங்களும் குவாரிகளும் - சிறுகனிமம் - திருவண்ணாமலை மாவட்டம் - வெம்பாக்கம் வட்டம் - சித்தலப்பாக்கம் கிராம பட்டா புல எண்கள். 8/1A (0.90.0) மற்றும் சிலவற்றின் மொத்தப் பரப்பு 3.87.5 ஹெக்டேர் பரப்பில் சாதாரணகல் மற்றும் கிராவல் வெட்டியெடுக்க - குவாரி குத்தகை உரிமம் வழங்கக்கோரி திரு.M.N.பாலசுந்தரம் த/பெ. நடராஜன், என்பவர் விண்ணப்பம் செய்தது - பரிந்துரை அறிக்கை வரப்பெற்றது - சுரங்கத் திட்டம் (Mining Plan) தயார் செய்து சமர்ப்பிக்க கோருவது - தொடர்பாக.

- பார்வை:
1. திரு.M.N.பாலசுந்தரம் த/பெ. நடராஜன், எண்.72, மெயின் ரோடு, மாங்காடு, குன்றத்தூர் வட்டம், காஞ்சிபுரம் மாவட்டம் என்பவரின் விண்ணப்ப நாள்:21.08.2023.
  2. இவ்வலுவலக கடிதம் நக.எண்.429/கனிமம்/2023, நாள்.21.08.2023.
  3. சார் ஆட்சியர் செய்யார் அவர்களின் கடிதம் நக.அ5/4297/2023 நாள்.20.10.2023.
  4. உதவி புவியியலாளர் மற்றும் தனி வருவாய் ஆய்வாளர் புவியியல் மற்றும் சுரங்கத்துறை, திருவண்ணாமலை அவர்களின் புலத்தணிக்கை அறிக்கை நாள்.01.11.2023.
  5. அரசாணை (MS)எண்.169 தொழில்துறை (எம்.எம்.சி)1) துறை நாள்.04.08.2020.
  6. தொடர்புடைய ஆலணங்கள்.

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திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், சித்தலப்பாக்கம் கிராம பட்டா புல எண்கள். 8/1A (0.90.0), 8/1B (0.56.0), 8/1C (0.15.0), 8/1D (0.08.0), 8/1E (0.25.5), 8/1F (0.19.5), 8/1G (0.65.5), 8/1H (0.13.5), 8/1I (0.26.0), 8/1J (0.08.0), 8/1K (0.01.5), 8/1L (0.23.5), 8/1M (0.04.0), 8/3A (0.16.5) மற்றும் 8/3B (0.15.0) ஆகியவற்றின் மொத்தப்பரப்பு 3.87.5 ஹெக்டேரில் சாதாரணகல் மற்றும் கிராவல் வெட்டியெடுக்க 5 ஆண்டுகளுக்கு குவாரிக்குத்தகை உரிமம் வழங்கக்கோரி திரு.M.N.பாலசுந்தரம் த/பெ. நடராஜன், என்பவர் அளித்த பார்வை (I)-ல் கண்ட விண்ணப்பத்தின் மீது பார்வை 2-ல் காணும் இவ்வலுவலக கடிதம் மூலம் சார் ஆட்சியர் அவர்களை அறிக்கை அனுப்பி வைக்க கோரப்பட்டது.

2. அதனைத்தொடர்ந்து (3)-ல் கண்ட சார் ஆட்சியர் செய்யார் மற்றும் பார்வை 4-ல் காணும் திருவண்ணாமலை மாவட்ட புவியியல் மற்றும் சுரங்கத்துறை, துணை இயக்குநர் அலுவலக உதவி புவியியலாளர் மற்றும் தனி வருவாய் ஆய்வாளர் ஆகியோர் அளித்த பரிந்துரை அறிக்கைகள் பரிசீலிக்கப்பட்டது.

3. திரு.M.N.பாலசுந்தரம் த/பெ. நடராஜன், என்பவர் சாதாரணக்கற்கள் மற்றும் கிராவல் வெட்டியெடுக்க 5 ஆண்டுகளுக்கு குவாரிக்குத்தகை உரிமம் வழங்கக்கோரி விண்ணப்பித்துள்ள திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், சித்தலப்பாக்கம் கிராம பட்டா புல எண்கள். 8/1A (0.90.0), 8/1B (0.56.0), 8/1C (0.15.0), 8/1D (0.08.0), 237 1E (0.25.5), 8/1F (0.19.5), 8/1G (0.65.5), 8/1H (0.13.5), 8/1I (0.26.0), 8/1J (0.08.0), 8/1K (0.01.5), 8/1L (0.23.5), 8/1M (0.04.0),

8/3A (0.15.5) மற்றும் 8/3B (0.15.0) ஆகியவற்றின் மொத்தப்பரப்பு 3.87.5 ஹெக்டேர் நிலப்பரப்பில் எவ்வித தடையும் இன்றி குவாரிப்பணி செய்ய வாய்ப்பு உள்ளதால், மேற்படி நிலை விண்ணப்பதாரர் திரு.M.N.பாலசுந்தரம் த/பெ. நடராஜன், என்பவருக்கு சாதாரணதகவல் மற்றும் கிராவல் மண் வெட்டி எடுக்க குவாரி குத்தகை உரிமம் வழங்க பரிந்துரை செய்யப்பட்ட 3.87.5 ஹெக்டேர் பரப்பினை கற்குவாரி செய்ய உகந்த புலம் (Precise Area) என தீர்மானித்து கீழ்க்கண்ட நிபந்தனைகளுக்கு உட்பட்டு அறிவிப்பு செய்யப்படுகிறது.

#### நிபந்தனைகள்

- 1) விண்ணப்ப புலத்திற்கு வடக்கில் புல எண் 6 மற்றும் 10-ல் கீழ்க்குமேற்காக செல்லும் கால்வாய்க்கு 50மீ பாதுகாப்பு இடைவெளி விடவேண்டும்.
- 2) விண்ணப்ப புலத்திற்கு மேற்கில் புல எண் 7-ல் வடக்குதெற்காக செல்லும் பாதை மற்றும் தெற்கில் புல எண் 8/2-ல் கீழ்க்குமேற்காக செல்லும் வண்டிபாதை புறம்போக்குக்கு 10மீ பாதுகாப்பு இடைவெளி விடவேண்டும்.
- 3) அருகில் உள்ள பட்டா நிலங்களுக்கு 7.5மீ மற்றும் அரசு புறம்போக்கு நிலங்களுக்கு 10மீ பாதுகாப்பு இடைவெளி விடவேண்டும்.
- 4) பொதுமக்களுக்கும் அருகிலுள்ள நிலங்களுக்கும் எவ்வித பாதிப்பும் ஏற்படுத்தக்கூடாது.
- 5) குவாரிப்பணி தொடங்குவதற்கு முன்பாக குவாரியை சுற்றி முள் கம்பிவேலி அமைத்து குவாரிப்பணி தொடங்க வேண்டும்.
- 6) முறைப்படியும், விஞ்ஞானபூர்வமாகவும் குவாரிப்பணி செய்யவேண்டும்.
- 7) சான்றிதழ் பெறப்பட்ட போர்மேன், வெடிப்பாளர் மற்றும் சுரங்க மேலாளர் மூவம் முறையே குவாரிப்பணி செய்யப்பட வேண்டும்.
- 8) குவாரிப்பணி தொடங்குவதற்கு முன் சுரங்க பாதுகாப்பு இயக்குநர், சென்னை அவர்களுக்கு தகவல் தெரிவிக்கப்பட வேண்டும்.
- 9) பாறைகளைத் தகர்க்க கைத்துளைப்பான்களை கொண்டு பாறைகளை துளையிட்டு குழைவாவை வெடிபொருட்கள் பயன்படுத்த வேண்டும்.

4. தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதிகள் 41 மற்றும் 42-ன்படி கல் மற்றும் இதர சிறு கனிமங்களுக்கு குவாரி குத்தகை உரிமம் வழங்கும் முன்பு ஒப்புதல் பெறப்பட்ட சுரங்கத்திட்ட அறிக்கை மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மை சான்று பெறப்பட வேண்டும் என வரையறுக்கப்பட்டுள்ளது.

5. எனவே, திரு.M.N.பாலசுந்தரம் த/பெ. நடராஜன், என்பவர் ஒப்புதல் பெறப்பட்ட சுரங்கத்திட்ட அறிக்கை மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மைச் சான்றினை பெற்று சமர்ப்பிக்கும் பட்சத்தில் திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், சித்தலப்பாக்கம் கிராம பட்டா புல எண்கள் 8/1A (0.90.0), 8/1B (0.56.0), 8/1C (0.15.0), 8/1D (0.08.0), 8/1E (0.25.5), 8/1F (0.19.5), 8/1G (0.65.5), 8/1H (0.13.5), 8/1I (0.26.0), 8/1J (0.08.0), 8/1K (0.01.5), 8/1L (0.23.5), 8/1M (0.04.0), 8/3A (0.16.5) மற்றும் 8/3B (0.15.0) ஆகியவற்றின் மொத்தப்பரப்பு 3.87.5 ஹெக்டேர் பரப்பில் கற்குவாரி செய்ய தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி எண் 19(1) மற்றும் 20-ன்கீழ் 5 ஆண்டுகளுக்கு குத்தகை உரிமம் வழங்க உரிய நடவடிக்கை மேற்கொள்ளப்படும் என்ற விவரம் தெரிவிக்கப்படுகிறது.

6. மேலும், இவ்வறிவிப்பு கிடைக்கபெற்ற 90 நாட்களுக்குள் மேற்கொள்ள நிபந்தனைகளையும் குறிக்கும் வகையில் வரைவு சுரங்கத்திட்ட அறிக்கை தயார் செய்து துணை இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை திருவண்ணாமலை அவர்களிடம் ஒப்புதல் பெற சமர்ப்பிக்குமாறு அறிவுறுத்தப்படுகிறது.

துணை இயக்குநர்,

புவியியல் மற்றும் சுரங்கத்துறை,  
திருவண்ணாமலை.

பெறுநர்:

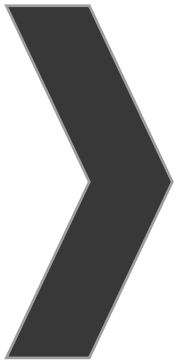
திரு.M.N.பாலசுந்தரம்

த/பெ. நடராஜன்,

எண்.72, மெயின் ரோடு,

மாங்காடு, குன்றத்தூர் வட்டம்,

காஞ்சிபுரம் மாவட்டம்.



**ANNEXURE-3**

From

Thiru.A.Perumal, M.Sc., M.Phil.,  
Deputy Director,  
Geology and Mining,  
Tiruvannamalai - 4.

To

Thiru.M.N.Balasundaram,  
S/o. Natarajan,  
No.72 Main Road,  
Mangadu, Kundrathur Taluk,  
Kanchipuram District.

**Rc.No.429/Kanimam/2023, dated: 29.11.2023**

Sir,

Sub: Quarries and Minerals – Minor Mineral Rough Stone and Gravel – Tiruvannamalai District – Vembakkam Taluk – Chithalapakkam village – Patta SF.Nos.8/1A (0.90.0) & etc., over an extent 3.87.5 hecets., - Application preferred by Thiru.M.N.Balasundaram S/o. Natarajan – **Precise area communicated – Submission of Mining Plan for approval** - Approved - Regarding.

- Ref: 1. Application from Thiru.M.N.Balasundaram S/o. Natarajan, dated.21.08.2023  
2. Precise Area Communication Notice Rc.No.429/Kanimam/2023, dated.08.11.2023  
3. Mining Plan submitted by Thiru.M.N.Balasundaram S/o. Natarajan dated.28.11.2023.

\*\*\*\*\*

In the reference 2<sup>nd</sup> cited, the Deputy Director, Geology and Mining Tiruvannamalai has communicated the SF.Nos.8/1A (0.90.0), 8/1B (0.56.0), 8/1C (0.15.0), 8/1D (0.08.0), 8/1E (0.25.5), 8/1F (0.19.5), 8/1G (0.65.5), 8/1H (0.13.5), 8/1I (0.26.0), 8/1J (0.08.0), 8/1K (0.01.5), 8/1L (0.23.5), 8/1M (0.04.0), 8/3A (0.16.5) & 8/3B (0.15.0) over an extent 3.87.5 hecets., of Chithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District as precise area to the applicant **Thiru.M.N.Balasundaram S/o. Natarajan** for grant of quarry lease for quarrying Rough Stone and Gravel for a period of 5 years with a direction to produce an approved mining plan in respect of the **precise area as per Rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959** by incorporating the conditions stipulated in the Deputy Director, Geology and Mining Tiruvannamalai letter dated 08.11.2023.

2. In response to the precise area communication letter issued by the Deputy Director, Geology and Mining, Tiruvannamalai the applicant has prepared the draft Mining Plan through the Recognized Qualified Person for approval vide reference 3<sup>rd</sup> cited.

3. The draft mining plan submitted in respect of the precise area communication has been examined with reference to the provisions of Rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959 and the followings are observed.

- i) The boundary Co-ordinates (GPS readings) for the entire boundary pillars of the area have been incorporated and shown in the mining plan.

- ii) All the conditions stipulated in the Deputy Director, Geology and Mining Letter Re.No.429/Kanimam/2023 dated:08.11.2023 have been incorporated in the mining plan.
- iii) The reserves estimated in the mining plan is

Depth in Mts.	Geological reserves in Cu.m	Mineable Reserves in Cu.m
47m below ground level (2m Gravel + 45m Rough Stone)	Rough Stone : 13,79,140 Gravel : 48,088	Rough Stone : 2,12,855 Gravel : 15,912

4. In the light of the above, in exercise of the powers conferred under Rule 41 (7) of Tamil Nadu Minor Mineral Concession Rules, 1959 the mining plan in respect of Rough Stone quarry of Thiru.M.N.Balasundaram S/o. Natarajan is approved subject to the following conditions.

- The mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such Laws are made by the Central Government, State Government or any other authority.
- The approval of the mining plan does not in any way imply the approval of the Government it terms of 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, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Indian Explosives Act, 1884 (Central Act IV of 1884) and the rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.
- The mining Plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- Quarrying operations and production shall be carried out as per the approved Mining Plan and the applicant shall be liable to pay the cost of mineral if there is any deviation in the quantum indicated in the approved year wise quantum of production and any such cases as on date are to be dealt with as per Court direction.

**5. Further, other quarries situated within 500 mts radial distance are as follows.**

**i) Existing Quarries**

Sl. No.	Name of the Owner (Tvl.)	Village & S.F. Nos.	Extent in Hect.	Lease Period	Remarks
1.	Thiru.R.Elumalai S/o.Rajagopal, No.20, Pillaiyar koil street, Arasanipalai village, Vembakkam Taluk.	Ezhacheri & 62/ 1A ,1B ,2C,2D,4 5,6,7,9,10,11	1.24.0	02.11.2021 to 01.11.2031	Existing Quarry
2.	Thiru.P.Sanker S/o. Ponnappan, No.1/63 Pillaiyar koil street, Erumaiyur village, Thirumudivakkam, Chennai	Ezhacheri & 21/2F, 2G, 2H, 2I , 2J & 2K	2.09.5	02.11.2021 to 01.11.2031	Existing Quarry



3.	Thiru.R.Monishkumar, s/o Rajendiran, No.35/88, Rajaji Street, Chengalpattu.	Ezhacheri & 16/5A, 16/5B, 19/1B3, 4A1, 4B1, 4C1, 4D1, 5A, 5B1, 21/1C, 1D, 1E, 1F, 22/2B	3.12.5	02.11.2021 to 01.11.2031	Existing Quarry
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ii) **Abandoned quarries**

Sl. No.	Name of the Owner (Tvl.)	Village & S.F. Nos.	Extent in Hect.	Lease Period	Remarks
1.	B. Deenan , No.79, Gajapathi Street, Sanai Nagar, Chennai	Ezhacheri & 25/2	1.00.5	19.3.2010 to 18.3.2015	Expired Quarry
2.	R.Seenuvasan, Road Street, Arasanipalai village, Vembakkam Taluk	Ezhacheri & 65/4, 5, 7, 8A, 66/4	3.42.0	27.06.2014 to 26.06.2019	Expired Quarry
3.	B. Deenan , No.79, Gajapathi Street, Sanai Nagar, Chennai	Ezhacheri & 65/6	0.95.5	20.07.2018 to 01.03.2021	Expired Quarry


iii) **Present Proposed Quarries**

Sl. No	Name of the Owner (Tvl)	Village & S.F. Nos.	Extent in Hect.
1	Thiru.M.N.Balasundaram, S/o. Natarajan, No.72 Main Road, Mangadu, Kundrathur Taluk, Kanchipuram District.	Chithalapakkam 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A & 8/3B	3.87.5

iv). **Future Proposed quarries**

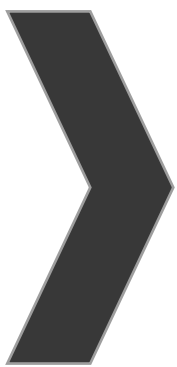
Sl. No	Name of the Owner (Tvl)	Village & S.F. Nos.	Extent in Hect.
---Nil---			

**Encl:** 2 Copies of Approved Mining Plan.

  
 Deputy Director,  
 Geology and Mining,  
 Tiruvannamalai.

**Copy submitted to:**

1. The Chairman, SEIAA,  
Tamil Nadu, 3<sup>rd</sup> 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 SITHALAPAKKAM 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 : VEMBAKKAM  
VILLAGE : SITHALAPAKKAM  
S.F.NOS : 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F,  
8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L,  
8/1M, 8/3A AND 8/3B  
EXTENT : 3.87.5Ha

### ECO-FRIENDLY



### SUSTAINABILITY



### SAFETY



### FOR

### APPLICANT

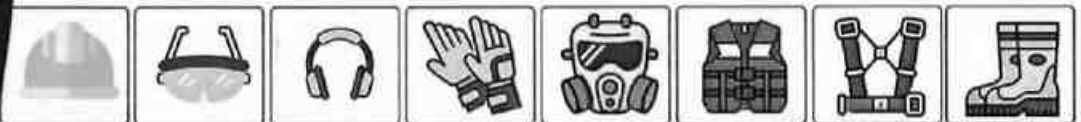
THIRU. M.N.BALASUNDARAM,  
S/o.Natarajan,  
No.72, Main Road,  
Mangadu, Kundrathur Taluk,  
Kancheepuram District.

### PREPARED BY

C.Natarajan, M.Sc.,M.Phil.,  
Qualified Person

No.93/36E2, Subramaniyar Kovil Street,  
Omalar Taluk, Salem District, Tamil Nadu,  
Pin code-636 455.

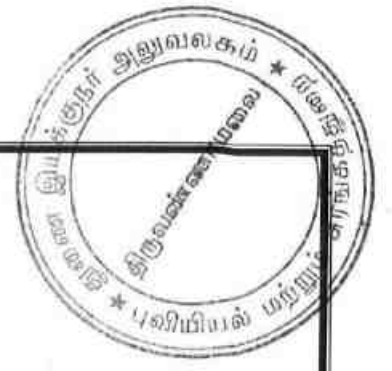
Mobile: 97502 23535 & 94446 54520.



(PPE)



M.N.Balasundaram,  
S/o.Natarajan,  
No.72, Main Road,  
Mangadu, Kundrathur Taluk,  
Kancheepuram District.



### **CONSENT LETTER FROM THE APPLICANT**

The Mining Plan in respect of **Rough Stone and Gravel** quarry over an extent of 3.87.5hectares of Patta lands in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State has been prepared by

**C.Natarajan, M.Sc.,M.Phil.,**

#### **Qualified Person**

I request the Deputy 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.

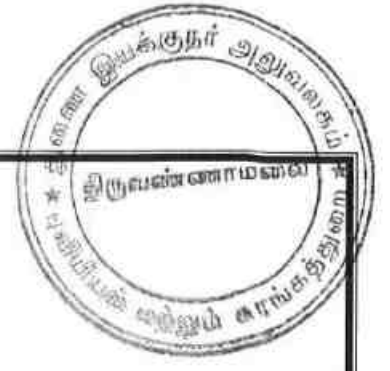
Signature of the Applicant

  
M.N.Balasundaram

Place: Kancheepuram

Date: 09.11.2023

M.N.Balasundaram,  
S/o.Natarajan,  
No.72, Main Road,  
Mangadu, Kundrathur Taluk,  
Kancheepuram District.



**DECLARATION**

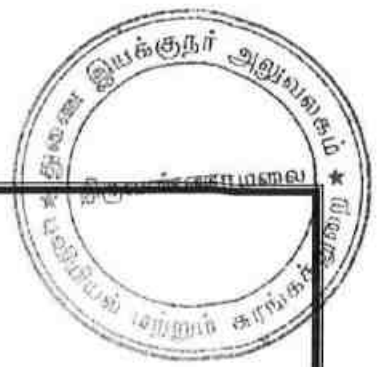
The Mining Plan in respect of **Rough Stone and Gravel** quarry over an extent of 3.87.5hectares of Patta lands in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State 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

  
M.N.Balasundaram

Place: Kancheepuram

Date: 09.11.2023



**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 Minor Minerals Conservation and Development Rules, 2010 (MMCDR) have been observed in the Mining Plan for the grant of **Rough Stone and Gravel** quarry lease over an extent of 3.87.5hectares of Patta lands in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State applied by Thiru.M.N.Balasundaram, 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.,**

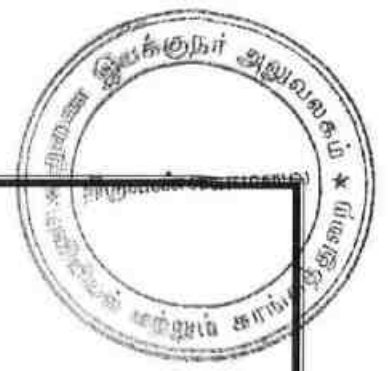
**Qualified Person**

**C.NATARAJAN M:Sc.,M.Phil.,**

**Qualified Person**

Place: Salem

Date: 10.11.2023



**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 3.87.5hectares of Patta lands in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State for Thiru.M.N.Balasundaram 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

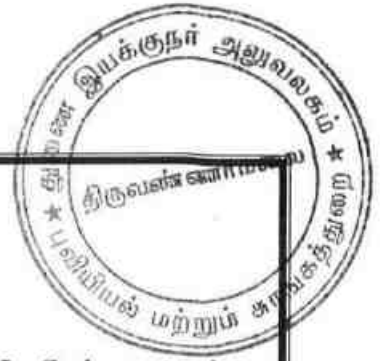
Signature of Qualified Person.

  
**C.Natarajan, M.Sc.,M.Phil.,**

**Qualified Person**  
**C.NATARAJAN M.Sc.,M.Phil.,**  
**Qualified Person**

Place: Salem

Date: 10.11.2023



## CERTIFICATE

Certified that I, C.Natarajan, residing at No.93/36 E2, Subramaniyar Kovil Street, Omalur Taluk, Salem District, Tamil Nadu, Pin Code-636 455. 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 3.87.5Ha of (Patta lands) in S.F.Nos.8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, by Thiru.M.N.Balasundaram, 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: 10.11.2023



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## MINING PLAN FOR MINOR MINERALS

### ROUGH STONE AND GRAVEL

Over an extent of 3.87.5hectares of Patta land in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B of Sithalapakkam Village, Vembakkam 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 Thiru.M.N.Balasundram, S/o. Natarajan, residing at No.72, Main Road, Mangadu, Kundrathur Taluk, Kancheepuram District.
2. The application was processed by the Deputy Director, Department of Geology and Mining, Tiruvannamalai, and passed an order vide Rc.No. 429/Kanimam/2022 dated 08.11.2023 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 3.87.5 hectares of Patta lands in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B of Sithalapakkam Village, Vembakkam 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 applicant should be maintained with a 50m safety distance for the canal passing east west direction in SF No. 6 and 10 on the northern side of the lease applied area.





- b) The applicant should be maintained with a 10m safety distance from the foot path passing north - south direction in S.F.No.7 of western side of the quarry lease applied area and 10m safety distance provided cart track passing east west direction in S.F.No.8/2 of southern side.
  - c) A safety distance of 7.5m should be provided for patta land and 10m safety distance should be left out for the adjacent government lands.
  - d) Applicant should not cause any hindrance to public and adjacent lands.
  - e) Barbed wire fencing should be erected all along the boundary of the lease granted area before quarrying operation.
  - f) Quarrying operation should be done proper scientific method only.
  - g) The applicant will engage should have valid certified persons (Mines Manager, Foreman, Mate).
  - h) Before the quarrying operation applicant will intimate to the Director of Mines safety, Chennai.
  - i) Applicant should use jackhammer and mild explosive during blasting in quarry.
4. Geological Resources is estimated at 13,79,140m<sup>3</sup> of Rough stone and 48,088m<sup>3</sup> of gravel formation and Mineable Reserves is estimated at 2,12,855m<sup>3</sup> of Rough Stone, and 15,912m<sup>3</sup> 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. Production Schedule is proposed production of 2,12,855m<sup>3</sup> of Rough Stone, and 15,912m<sup>3</sup> 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 engage 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 6.7Kms 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	:	Sithalapakkam	
b.	Name of the Panchayat Union	:	Mamandur	
c.	The proposed total Minable Reserves	:	2,12,855m <sup>3</sup> of Rough Stone, 15,912m <sup>3</sup> of gravel formation	
d.	The proposed quantity of reserves (level of production) for Five years to be mined is (Recoverable reserves)	:	2,12,855m <sup>3</sup> of Rough Stone, 15,912m <sup>3</sup> of gravel formation	
e.	Total extent of the area	:	3.87.5Ha	
f.	Proposed Period of mining	:	Five Years	
g.	Existing depth	:	27m below ground level	
h.	Proposed Depth of mining	:	47m 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 and 80° Slope 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. 26,25,000/- Rs. 52,00,000/- Rs. 6,20,000/- Total Project cost = Rs. 84,45,000/-	
l.	The area applied for lease is bounded by thirteen corners and the coordinates are clearly marked in plate no II.			
	Corners	Co-ordinates	Distance between the corners	
		Latitude	Longitude	
	1	12° 42' 47.08"N	79° 43' 25.48"E	1-2 = 122.8m
	2	12° 42' 51.06"N	79° 43' 25.08"E	2-3 = 45.0m
	3	12° 42' 52.52"N	79° 43' 25.22"E	3-4 = 23.0m
	4	12° 42' 52.24"N	79° 43' 25.93"E	4-5 = 80.4m
	5	12° 42' 52.67"N	79° 43' 28.56"E	5-6 = 49.6m
	6	12° 42' 52.51"N	79° 43' 30.19"E	6-7 = 47.6m
	7	12° 42' 51.90"N	79° 43' 31.64"E	7-8 = 60.2m
	8	12° 42' 51.48"N	79° 43' 33.59"E	8-9 = 98.4m
	9	12° 42' 48.28"N	79° 43' 33.64"E	9-10 = 56.4m
	10	12° 42' 48.24"N	79° 43' 31.77"E	10-11 = 69.8m
	11	12° 42' 45.97"N	79° 43' 31.70"E	11-12 = 50.8m
	12	12° 42' 46.97"N	79° 43' 30.36"E	12-13 = 62.6m
	13	12° 42' 47.33"N	79° 43' 28.32"E	13-1 = 86.0m



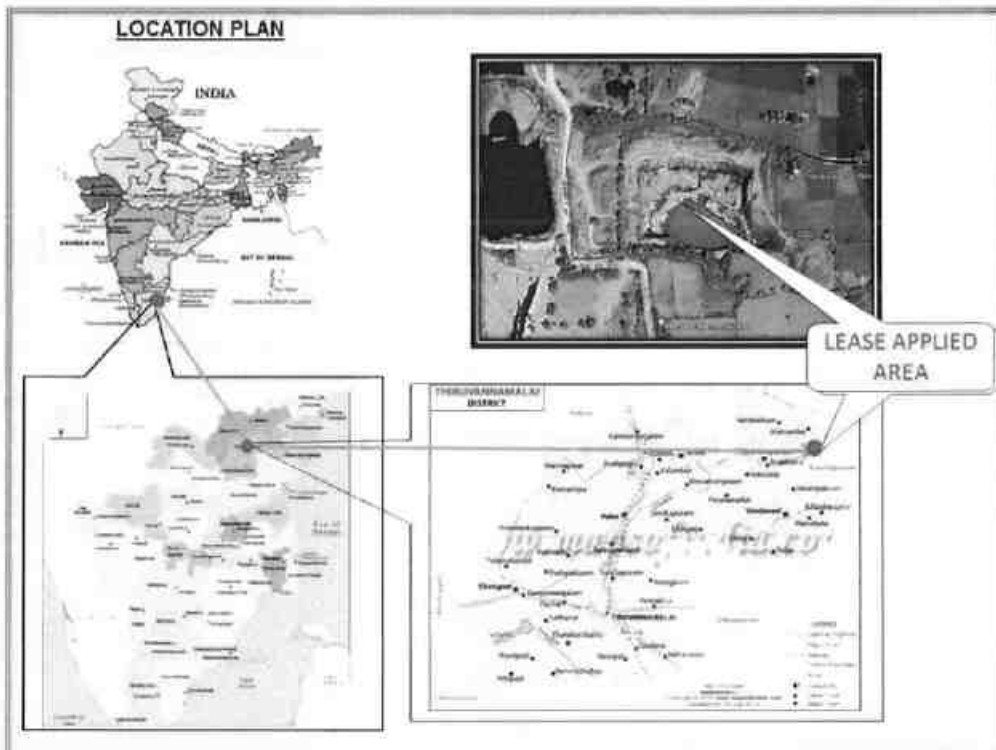
**2.0 General Information:**

2.1	a.	Name of the Applicant	: Thiru.M.N.Balasundram,
	b.	Address of the Applicant with phone No and e-mail id if any	: S/o. Natarajan, No.72, Main Road, Mangadu, Kundrathur Taluk, Kancheepuram District. Pin code: 600122 Cell No.: 9710922234.
	c.	Status of the Applicant	: Individual
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 Deputy Director, Department of Geology and Mining, Tiruvannamalai, Rc.No. 429/Kanimam/2022 dated 08.11.2023.
	c.	Period of permission / lease granted	: The Deputy Director, Department of Geology and Mining, Tiruvannamalai, has grant of lease period for <b>five years</b> .
	d.	Name and Address of the QP preparing Mining Plan	: <b>C.Natarajan, M.Sc.,M.Phil., Qualified Person</b> No.93/36E2, Subramaniyar Kovil Street, Omalur Taluk, Salem District, Tamil Nadu, Pin-636 455. Mobile: 97502 23535 & 94446 54520.



### 3.0 Location:

S.No	Details of the Area:	
1	Corner Coordinates	Latitude : 12°42'45.97"N to 12°42'52.67"N Longitude : 79°43'25.08"E to 79°43'33.64"E
2	Toposheet Number	57 P/10
3	The altitude of the area	90m (MSL)
4	Extent	3.87.5Ha
5	Survey Nos	8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B
6	Village	Sithalapakkam
7	Taluk	Vembakkam
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 jointly registered in the name of applicant Thiru.Balasundram, Thiru.Sankar, Thiru.Baskar, and Thiru.Dinesh, vide patta nos.159 and 108, the applicant has obtained consent from the other pattadars, please refer annexure No: IV and VII.
c.	Toposheet No. with Latitude and Longitude	:	Topo Sheet No: 57 P/10 Latitude: 12°42'45.97"N to 12°42'52.67"N Longitude: 79°43'25.08"E to 79°43'33.64"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 Bagavandapuram – Arasanipalai road on western side of the area. The Nearest Railway line is Kancheepuram – Chengalpattu line which is about 12.5Km on the Northeastern side of the area.



Fig. Location of the lease Applied Area



**PART - A**

**4.0 Geology and Mineral Reserves:**

4.1	a. Topography	<p>: ➤ The area applied for quarry lease is exhibits almost plain topography covered by Gravel formation. The massive Charnockite formation is noticed below 2m (Avg) Gravel and sloping towards Southeastern side of the area, the altitude of the area is above 90m (maximum) from MSL.</p> <p>➤ No major river is found nearby the lease applied area.</p> <p>➤ Water table is found at a depth of 66m in summer and 63m in rainy seasons.</p> <p>➤ Temperature of the area is reported to be 18<sup>0</sup>C to a maximum of 42<sup>0</sup>C during summer.</p> <p>➤ Rainfall of this area is about 800mm to 900 mm during the both NE &amp; SW monsoons.</p>
	b. General Geology of the Area	<p>: 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.</p> <p>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.</p> <p>The strike of the Charnockite formation is N40<sup>0</sup>E - S40<sup>0</sup>W with dipping towards SE70<sup>0</sup>.</p>





			<p>The general geological succession of the area is given as under.</p> <table border="0"> <tr> <td style="text-align: center;"><b>AGE</b></td> <td style="text-align: center;">-</td> <td style="text-align: center;"><b>ROCK TYPE</b></td> </tr> <tr> <td>Recent</td> <td></td> <td>Gravelly soil</td> </tr> <tr> <td></td> <td style="text-align: center;">Unconformity</td> <td></td> </tr> <tr> <td>Archaean</td> <td></td> <td>Dolerite dyke Charnockite. Peninsular Gneissic complex and Calc Gneiss</td> </tr> </table>	<b>AGE</b>	-	<b>ROCK TYPE</b>	Recent		Gravelly soil		Unconformity		Archaean		Dolerite dyke Charnockite. Peninsular Gneissic complex and Calc Gneiss
<b>AGE</b>	-	<b>ROCK TYPE</b>													
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 existing quarry pit.												
4.3	a.	Estimation of Reserves	<p>The Geological and Recoverable reserves are estimated by cross sectional method.</p> <p>Totally four sections have been drawn, one section drawn length wise as (X-Y) and another three sections drawn width wise as (A-B), (C-D) &amp; (E-F) to cover maximum area considered for lease.</p> <p>The Plans and Sections have been drawn with a scale of 1:1000 and 1:500 respectively. Please refer plate No.III.</p>												

**a. Geological Resources**

The quarrying is restricted up to a depth of 47m below ground level only. Availability of Resources is given below.

Table No-1

section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m <sup>3</sup>	Gravel formation in m <sup>3</sup>	Geological Resources of Rough stone in m <sup>3</sup>
XY-AB	I	77	158	2	24332	24332	
	II	77	158	5	60830		60830
	III	77	158	5	60830		60830
	IV	77	158	5	60830		60830
	V	77	158	5	60830		60830
	VI	77	158	5	60830		60830
	VII	77	158	5	60830		60830
	VIII	77	158	5	60830		60830
	IX	77	158	5	60830		60830
	X	77	158	5	60830		60830
<b>Total</b>						<b>24332</b>	<b>547470</b>





XY-CD	I	136	58	2	15776	15776	
	II	136	58	5	39440		39440
	III	136	58	5	39440		39440
	IV	136	59	5	40120		40120
	V	136	60	5	40800		40800
	VI	136	60	5	40800		40800
	VII	136	166	5	112880		112880
	VIII	136	166	5	112880		112880
	IX	136	166	5	112880		112880
	X	136	166	5	112880		112880
<b>Total</b>					<b>15776</b>	<b>652120</b>	
XY-EF	I	38	105	2	7980	7980	
	II	38	105	5	19950		19950
	III	38	105	5	19950		19950
	IV	38	105	5	19950		19950
	V	38	105	5	19950		19950
	VI	38	105	5	19950		19950
	VII	38	105	5	19950		19950
	VIII	38	105	5	19950		19950
	IX	38	105	5	19950		19950
	X	38	105	5	19950		19950
<b>Total</b>					<b>7980</b>	<b>179550</b>	
<b>Grand Total</b>					<b>48088</b>	<b>1379140</b>	

Gravel Formation : 48,088m<sup>3</sup>

The Geological Resources of Rough stone : 13,79,140m<sup>3</sup>

**b. Already excavated**

The area has been quarried in earlier operation the existing pit dimension are given below.

Table No-2

Pit No	length (Max) in(m)	Width (Max) in (m)	Depth (Max) in (m)
I	137	97	27m below ground level



**c. Available Mineable Reserve**

The available mineable reserve calculated by deducting 7.5m, 10m & 50m safety distance and bench loss.

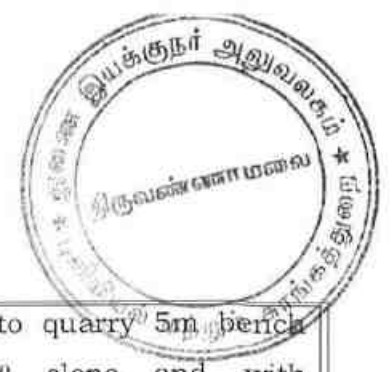
Table No-3

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m <sup>3</sup>	Gravel in m <sup>3</sup>	Mineable Reserves of Rough stone in m <sup>3</sup>
XY-AB	I	67	97	2	12998	12998	
	II	64	91	5	29120		29120
	III	57	78	5	22230		22230
	IV	51	65	5	16575		16575
	V	44	52	5	11440		11440
	VI	38	39	5	7410		7410
	VII	31	26	5	4030		4030
	VIII	25	13	5	1625		1625
<b>Total</b>						<b>12998</b>	<b>92430</b>
XY-CD	VII	125	67	5	41875		41875
	VIII	119	54	5	32130		32130
	IX	111	41	5	22755		22755
	X	98	28	5	13720		13720
<b>Total</b>							<b>110480</b>
XY-EF	I	31	47	2	2914	2914	
	II	28	41	5	5740		5740
	III	22	28	5	3080		3080
	IV	15	15	5	1125		1125
<b>Total</b>						<b>2914</b>	<b>9945</b>
<b>Grand Total</b>						<b>15912</b>	<b>212855</b>

The available mineable reserve is computed as 2,12,855m<sup>3</sup> of Rough stone and 15,912m<sup>3</sup> of Gravel formation upto a depth of 47m below ground level only.

**5.0 Mining:**

5.1	Method of Mining	of	:	<ol style="list-style-type: none"> <li>1. Opencast method of semi mechanized mining with 5.0m height 5m width and 80° slope of the bench.</li> <li>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.</li> </ol>
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5.2	Mode of Working	<p>: The rough stone is proposed to quarry 5m bench height, 5m width with 80° slope and with conventional opencast semi-Mechanized method.</p> <p>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.</p> <p>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.</p> <p>Occasionally hydraulic excavators are attached with rock breakers for fragmentation to avoid secondary blasting.</p> <p>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.</p>
5.3	Proposed bench height & Width	<p>: Quarrying of Rough Stone is proposed bench height of 5m and bench width of 5m.</p>
5.4	Details of Overburden / Mineral Production proposed for the first 5 years.	<p>: 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.</p>



**The Yearwise Production and Development Table**

Table No -4

Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m <sup>3</sup>	Gravel in m <sup>3</sup>	Mineable reserve of Rough stone in m <sup>3</sup>
I	XY-EF	I	31	47	2	2914	2914	
		II	28	41	5	5740		5740
		III	22	28	5	3080		3080
		IV	15	15	5	1125		1125
	XY-AB	I	67	97	2	12998	12998	
		II	64	91	5	29120		29120
		III	10	78	5	3900		3900
<b>Total</b>							<b>15912</b>	<b>42965</b>
II	XY-AB	III	47	78	5	18330		18330
		IV	51	65	5	16575		16575
		V	24	52	5	6240		6240
<b>Total</b>								<b>41145</b>
III	XY-AB	V	20	52	5	5200		5200
		VI	38	39	5	7410		7410
		VII	31	26	5	4030		4030
	XY-CD	VII	80	67	5	26800		26800
<b>Total</b>								<b>43440</b>
IV	XY-CD	VII	45	67	5	15075		15075
		VIII	100	54	5	27000		27000
<b>Total</b>								<b>42075</b>
V	XY-CD	VIII	19	54	5	5130		5130
		IX	111	41	5	22755		22755
		X	98	28	5	13720		13720
	XY-AB	VIII	25	13	5	1625		1625
<b>Total</b>								<b>43230</b>
<b>Grand Total</b>							<b>15912</b>	<b>212855</b>

The applicant has proposed to carry out 2,12,855m<sup>3</sup> of Rough stone and 15,912m<sup>3</sup> of Gravel formation upto a depth of 47m 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
	1	Jack hammer	4
	2	Compressor	1
		Dia Hole mm	Make
		32	Atlas Copco
		Motive power	Compressed air
			Diesel Drive
b.	Loading	:	Excavator of 0.90m <sup>3</sup> bucket capacity (with Rock breaker attachment) (1No).



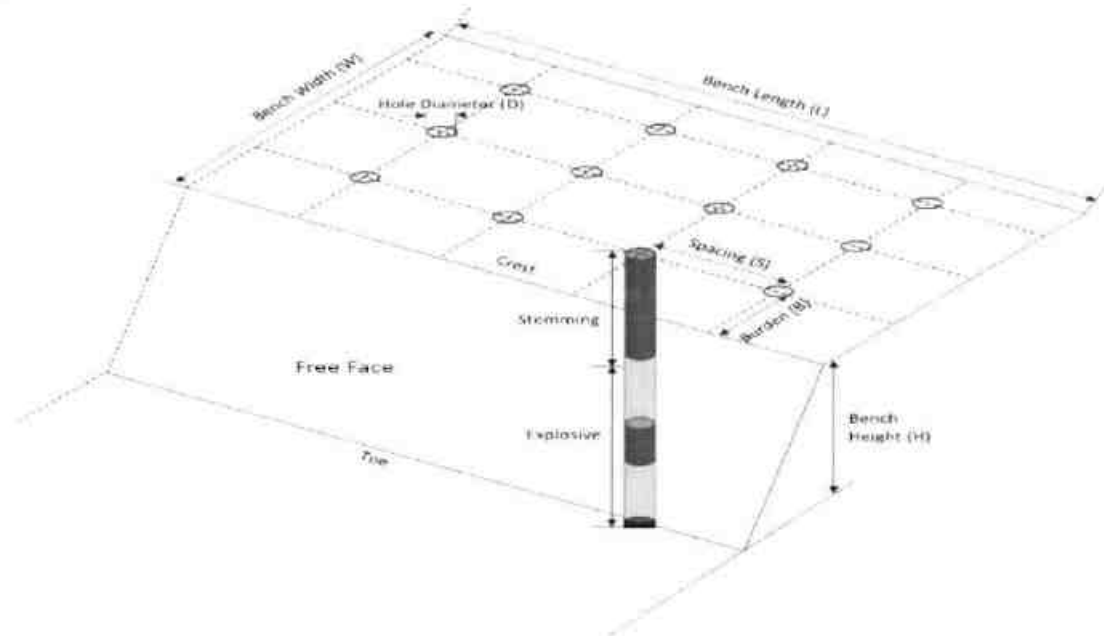
	c.	Transportation	:	Tipper 3Nos (5/10Ts) capacity.												
5.6		Disposal of Overburden	:	The overburden in the form of Gravel, after the excavation gravel will be directly loaded into tipper to the needy buyers for road project and construction works for filling and leveling of low lying areas.												
5.7		Brief Note on Conceptual Mining Plan for the entire lease period	:	<p>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.</p> <p>Ultimate pit size is designed based on certain practical factors such as the economical depth of mining, safety zones, permissible areas etc.</p> <p>Ultimate Pit dimension is given as under,</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="4">Ultimate Pit dimension (M)</th> </tr> <tr> <th>Pit No</th> <th>Length (max) in (m)</th> <th>Width (Avg) in (m)</th> <th>Depth(max) in(m)</th> </tr> </thead> <tbody> <tr> <td>I</td> <td>234</td> <td>97</td> <td>47</td> </tr> </tbody> </table> <p>Afforestation has been proposed on all along the boundary barrier by planting trees.</p> <p>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.</p>	Ultimate Pit dimension (M)				Pit No	Length (max) in (m)	Width (Avg) in (m)	Depth(max) in(m)	I	234	97	47
Ultimate Pit dimension (M)																
Pit No	Length (max) in (m)	Width (Avg) in (m)	Depth(max) in(m)													
I	234	97	47													



**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	<p>: &gt; Controlled blasting measures will be adopted for minimizing ground vibration and fly rock.</p> <p>&gt; 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.</p> <table border="1" data-bbox="790 593 1364 795"> <tr> <td>Number of holes</td> <td>: 124</td> </tr> <tr> <td>Powder factor</td> <td>: 6Ts/Kg of explosives</td> </tr> <tr> <td>Total explosive required</td> <td>: 62Kg slurry explosives</td> </tr> <tr> <td>Charge / hole</td> <td>: 0.5Kg</td> </tr> <tr> <td>Blasting time</td> <td>: 12-2 Pm</td> </tr> </table>	Number of holes	: 124	Powder factor	: 6Ts/Kg of explosives	Total explosive required	: 62Kg slurry explosives	Charge / hole	: 0.5Kg	Blasting time	: 12-2 Pm
Number of holes	: 124											
Powder factor	: 6Ts/Kg of explosives											
Total explosive required	: 62Kg slurry explosives											
Charge / hole	: 0.5Kg											
Blasting time	: 12-2 Pm											
6.4	Storage of Explosives and safety measures to be taken while blasting.	<p>: &gt; 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.</p> <p>&gt; <b>The applicant ensure that will appoint the Mate (Should have Valid Blaster Certificate) during Blasting Operation.</b></p>										
<b>7.0 Mine Drainage:</b>												
7.1	Depth of Water table	<p>: The ground water table is reported as 66m below ground level. In the proposed mining plan only 47m below ground level depth has been envisaged as workable depth for safe &amp; economic quarrying for the entire lease period. Hence the quarrying operation may not affect the ground water.</p>										
7.2	Arrangement and Places where the mine water is finally proposed to be discharged	<p>: 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</p>										





**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 LT/HT power line situated within a radius of 50m.
8.3	Water bodies (River, Pond, Lake, Odai, Channel etc)	:	There is Canal Passing on northern side of the area and is 50m safety distance maintained from canal. There is odai passing on eastern and southwestern side of the area and is 310m and 380m away from the area, There is tank situated on eastern and southwestern side of the area and is 110m and 410m away from the area.
8.4	Archaeological / Historical Monuments	:	There are no Archaeological / Historical Monuments within a radius of 300m.
8.5	Road (NH, SH, Village Road etc)	:	The National Highway (NH-132B) Kancheepuram – Chengalpattu about 11Km on northeastern side of the area. The State Highway (SH-118A) Kancheepuram – Uthiramerur is about 3Km on eastern 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

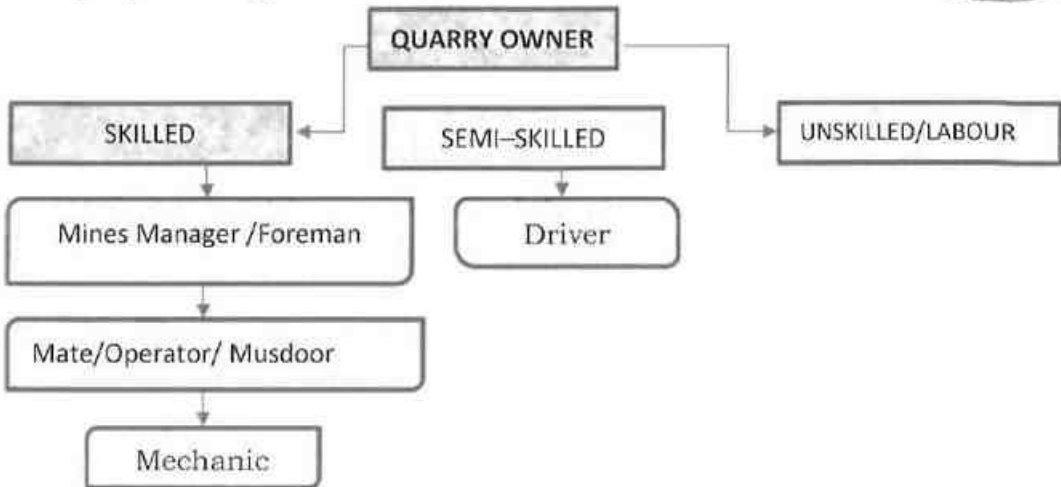




**9.0 Employment Potential & Welfare Measures:**

9.1 Employment Potential (Management & Supervisory personal)

**The proposed organization chart**



1.	Skilled	Mines Manager	1 No.
		Foreman / Mate	2 No.
		Operator	6 No.
		Mechanic	1 No.
2.	Semi-skilled	Driver	3 No.
3.	Unskilled	Labours	12Nos
Total =			25Nos

Allowing 10% absentee, the no. of men of roll will be around 22.

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 vendors in sithalapakkam village which is about 1.0km on northeastern side of the area.



b.	Sanitary facilities	: Semi-permanent latrines & urinals shall be maintained at convenient places for use of labourers 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 11.5Km (NW) in Kancheepuram 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 labourers 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	<p>: 1. The area exhibits almost plain topography covered by Gravel formation.</p> <p>2. Quarrying operation is proposed up to a depth of 47m below ground level for the proposed mining plan period.</p> <p>3. Fluctuation of Water table in this area is in between 66m and 63m during a year.</p> <p>4. This region receives the average annual rainfall of 800mm to 900mm. The surrounding area is practiced by the seasonal cultivation.</p> <p>The existing land use pattern is given as under.</p> <p align="center">Table No-5</p> <table border="1" data-bbox="699 929 1412 1187"> <thead> <tr> <th>Sl. No.</th> <th>Land Use</th> <th>Present Area (Ha)</th> <th>Area in use during the quarrying period (Ha)</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Quarrying Pit</td> <td>1.33.0</td> <td>2.27.0</td> </tr> <tr> <td>2.</td> <td>Infrastructure</td> <td>Nil</td> <td>0.01.0</td> </tr> <tr> <td>3.</td> <td>Roads</td> <td>0.01.0</td> <td>0.02.0</td> </tr> <tr> <td>4.</td> <td>Green Belt</td> <td>0.02.0</td> <td>1.57.5</td> </tr> <tr> <td>5.</td> <td>Unutilized</td> <td>2.51.5</td> <td>Nil</td> </tr> <tr> <td></td> <td><b>Total =</b></td> <td><b>3.87.5</b></td> <td><b>3.87.5</b></td> </tr> </tbody> </table>	Sl. No.	Land Use	Present Area (Ha)	Area in use during the quarrying period (Ha)	1.	Quarrying Pit	1.33.0	2.27.0	2.	Infrastructure	Nil	0.01.0	3.	Roads	0.01.0	0.02.0	4.	Green Belt	0.02.0	1.57.5	5.	Unutilized	2.51.5	Nil		<b>Total =</b>	<b>3.87.5</b>	<b>3.87.5</b>
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10.2	Water Regime	<p>: Water table in this area is noticed at a depth of 66m and presently, in the proposed mining plan only 47m below ground level depth has been envisaged as workable depth for safe &amp; economic quarrying for the entire lease period. hence, it will not affect the ground water depletion of this area.</p>																												
10.3	Flora and Fauna	<p>: 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.</p>																												
10.4	Climatic conditions	<p>: Generally subtropical climatic condition prevails throughout the year and there is no sharp variation in climate.</p> <p>This District receives rain both in south west and north east monsoon.</p> <p>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.</p>																												



10.5	Human Settlement	<p>: The nearest habitations with the population is given as under.</p> <p style="text-align: center;">Table No-6</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">S. No</th> <th style="width: 35%;">Name of the Village</th> <th style="width: 30%;">Approximate distance &amp; Direction from lease applied area</th> <th style="width: 30%;">Approximate population</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Sithalapakkam</td> <td>1.0km - NE</td> <td>800</td> </tr> <tr> <td>2.</td> <td>Bagavandapuram</td> <td>1.7km - NW</td> <td>450</td> </tr> <tr> <td>3.</td> <td>Arasanipalayam</td> <td>600m - SE</td> <td>600</td> </tr> <tr> <td>4.</td> <td>Periya ezhacheri</td> <td>1.5Km-SW</td> <td>700</td> </tr> </tbody> </table>	S. No	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population	1.	Sithalapakkam	1.0km - NE	800	2.	Bagavandapuram	1.7km - NW	450	3.	Arasanipalayam	600m - SE	600	4.	Periya ezhacheri	1.5Km-SW	700
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10.6	Plan for Air, Dust Suppression	<p>: 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.</p>																				
10.7	Plan for Noise Control	<p>: 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.</p>																				
10.8	Environmental Impact Assessment Statement Describing Impact on mining on the next Five years	<p>: 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.</p>																				



10.9	Proposal for Waste Management	:	There is no waste anticipated in this rough stone quarry operation.
10.10	Proposal of Reclamation of Land affected during mining activities and at the end of mining.	:	In the proposed mining plan 47m 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 47m (Max) 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 & 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 15750Sqm area is proposed to use under afforestation by planting 1890nos 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		
	<b>A. Fixed Asset Cost:</b>		
	1. Land Cost (600000/1Ha)=	:	Rs. 23,25,000
	2. First aid room and accessories	:	Rs.1,00,000
	3. Labour Shed	:	Rs.1,00,000
	4. Sanitary Facility	:	Rs.1,00,000
	<b>Total=</b>		<b>Rs.26,25,000/-</b>
	<b>B. Operational Cost:</b>		
	1. Machineries	:	Rs.50,00,000-
	2. Fencing cost	:	Rs. 2,00,000
	<b>Total</b>	:	<b>Rs.52,00,000/-</b>



<b>C.EMP Cost:</b>		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/-
<b>Expenditure</b>		
1. Drinking water facility	:	Rs.1,00,000/-
2. Sanitary Arrangements	:	Rs. 50,000/-
3. Safety kids	:	Rs. 50,000/-
4. Water sprinkling	:	Rs. 1,00,000/-
5. Afforestation	:	Rs. 2,00,000/-
<b>Total=</b>		<b>Rs. 6,20,000/-</b>
<b>Total Project Cost (A+B+C)</b>	:	<b>Rs. 84,45,000/-</b>
<b>CSR Cost(2% of Total Project Cost)</b>	:	<b>Rs. 1,68,900/-</b>

**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 restoration/ 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 extract the 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 : 10.11.2023

**This Mining Plan Is Approved**  
**Subject to the Conditions/Stipulation**  
**Indicated In The Mining Plan Approval**  
**Letter No. 429/mines/2023 Dt: 29.11.2023**  
**Office Of The Deputy Director Of**  
**Geology And Mining, Tiruvannamalai.**

This Mining Plan is approved based on incorporation of the particulars specified in the letter of the Commissioner of Geology and Mining, Chennai Lr.No: 3868/LC/2012, Dated: 19-11-2012 and subject to further fulfillment of the conditions laid down under Tamil Nadu Minor Mineral Concession Rules, 1959.

  
Deputy Director  
Dept.of Geology and Mining  
Tiruvannamalai.





நக.எண்:429/கனிமம்/2022

துணை இயக்குநர்

புவியியல் மற்றும் தனி வரலாற்று  
திருவண்ணாமலை 4.

நாள்: 11.2023

## அறிவிக்கை

பொருள்: கனிமங்களும் குவாரிகளும் - சிறுகனிமம் திருவண்ணாமலை மாவட்டம் - வெம்பாக்கம் வட்டம் - சித்தலப்பாக்கம் கிராம பட்டா புல எண்கள். 8/1A (0.90.0) மற்றும் சிலவற்றின் மொத்தப் பரப்பு 3.87.5 ஹெக்டேர் பரப்பில் சாதாரணகல் மற்றும் கிராவல் வெட்டியெடுக்க - குவாரி குத்தகை உரிமம் வழங்கக்கோரி திரு.M.N.பாலசுந்தரம் த/பெ. நடராஜன், என்பவர் விண்ணப்பம் செய்தது - பரிந்துரை அறிக்கை வரப்பெற்றது - சுரங்கத் திட்டம் (Mining Plan) தயார் செய்து சமர்ப்பிக்க கோருவது - தொடர்பாக.

- பார்வை:
1. திரு.M.N.பாலசுந்தரம் த/பெ. நடராஜன், எண்.72, மெயின் ரோடு, மாங்காடு, குன்றத்தூர் வட்டம், காஞ்சிபுரம் மாவட்டம் என்பவரின் விண்ணப்ப நாள்:21.08.2023.
  2. இவ்வலுவலக கடிதம் நக.எண்.429/கனிமம்/2023, நாள்.21.08.2023.
  3. சார் ஆட்சியர் செய்யார் அவர்களின் கடிதம் நக.அ5/4297/2023 நாள்.20.10.2023.
  4. உதவி புவியியலாளர் மற்றும் தனி வருவாய் ஆய்வாளர் புவியியல் மற்றும் சுரங்கத்துறை, திருவண்ணாமலை அவர்களின் புலத்தணிக்கை அறிக்கை நாள்.01.11.2023.
  5. அரசாணை (MS)எண்.169 தொழில்துறை (எம்.எம்.சி)1) துறை நாள்.04.08.2020.
  6. தொடர்புடைய ஆலணங்கள்.

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திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், சித்தலப்பாக்கம் கிராம பட்டா புல எண்கள். 8/1A (0.90.0), 8/1B (0.56.0), 8/1C (0.15.0), 8/1D (0.08.0), 8/1E (0.25.5), 8/1F (0.19.5), 8/1G (0.65.5), 8/1H (0.13.5), 8/1I (0.26.0), 8/1J (0.08.0), 8/1K (0.01.5), 8/1L (0.23.5), 8/1M (0.04.0), 8/3A (0.16.5) மற்றும் 8/3B (0.15.0) ஆகியவற்றின் மொத்தப்பரப்பு 3.87.5 ஹெக்டேரில் சாதாரணகல் மற்றும் கிராவல் வெட்டியெடுக்க 5 ஆண்டுகளுக்கு குவாரிக்குத்தகை உரிமம் வழங்கக்கோரி திரு.M.N.பாலசுந்தரம் த/பெ. நடராஜன், என்பவர் அளித்த பார்வை (I)-ல் கண்ட விண்ணப்பத்தின் மீது பார்வை 2-ல் காணும் இவ்வலுவலக கடிதம் மூலம் சார் ஆட்சியர் அவர்களை அறிக்கை அனுப்பி வைக்க கோரப்பட்டது.

2. அதனைத்தொடர்ந்து (3)-ல் கண்ட சார் ஆட்சியர் செய்யார் மற்றும் பார்வை 4-ல் காணும் திருவண்ணாமலை மாவட்ட புவியியல் மற்றும் சுரங்கத்துறை, துணை இயக்குநர் அலுவலக உதவி புவியியலாளர் மற்றும் தனி வருவாய் ஆய்வாளர் ஆகியோர் அளித்த பரிந்துரை அறிக்கைகள் பரிசீலிக்கப்பட்டது.

3. திரு.M.N.பாலசுந்தரம் த/பெ. நடராஜன், என்பவர் சாதாரணக்கற்கள் மற்றும் கிராவல் வெட்டியெடுக்க 5 ஆண்டுகளுக்கு குவாரிக்குத்தகை உரிமம் வழங்கக்கோரி விண்ணப்பித்துள்ள திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், சித்தலப்பாக்கம் கிராம பட்டா புல எண்கள். 8/1A (0.90.0), 8/1B (0.56.0), 8/1C (0.15.0), 8/1D (0.08.0), 276 8/1E (0.25.5), 8/1F (0.19.5), 8/1G (0.65.5), 8/1H (0.13.5), 8/1I (0.26.0), 8/1J (0.08.0), 8/1K (0.01.5), 8/1L (0.23.5), 8/1M (0.04.0),



8/3A (0.15.5) மற்றும் 8/3B (0.15.0) ஆகியவற்றின் மொத்தப்பரப்பு 3.87.5 ஹெக்டேர் நிலப்பரப்பில் எவ்வித தடையும் இன்றி குவாரிப்பணி செய்ய வாய்ப்பு உள்ளதால், மேற்படிமலை விண்ணப்பதாரர் திரு.M.N.பாலசுந்தரம் த/பெ. நடராஜன், என்பவருக்கு சாதாரணதகவல் மற்றும் கிராவல் மண் வெட்டி எடுக்க குவாரி குத்தகை உரிமம் வழங்க பரிந்துரை செய்யப்பட்ட 3.87.5 ஹெக்டேர் பரப்பினை கற்குவாரி செய்ய உகந்த புலம் (Precise Area) என தீர்மானித்து கீழ்க்கண்ட நிபந்தனைகளுக்கு உட்பட்டு அறிவிப்பு செய்யப்படுகிறது.

#### நிபந்தனைகள்

- 1) விண்ணப்ப புலத்திற்கு வடக்கில் புல எண் 6 மற்றும் 10-ல் கீழ்க்குமேற்காக செல்லும் கால்வாய்க்கு 50மீ பாதுகாப்பு இடைவெளி விடவேண்டும்.
- 2) விண்ணப்ப புலத்திற்கு மேற்கில் புல எண் 7-ல் வடக்குதெற்காக செல்லும் பாதை மற்றும் தெற்கில் புல எண் 8/2-ல் கீழ்க்குமேற்காக செல்லும் வண்டிபாதை புறம்போக்குக்கு 10மீ பாதுகாப்பு இடைவெளி விடவேண்டும்.
- 3) அருகில் உள்ள பட்டா நிலங்களுக்கு 7.5மீ மற்றும் அரசு புறம்போக்கு நிலங்களுக்கு 10மீ பாதுகாப்பு இடைவெளி விடவேண்டும்.
- 4) பொதுமக்களுக்கும் அருகிலுள்ள நிலங்களுக்கும் எவ்வித பாதிப்பும் ஏற்படுத்தக்கூடாது.
- 5) குவாரிப்பணி தொடங்குவதற்கு முன்பாக குவாரியை சுற்றி முள் கம்பிவேலி அமைத்து குவாரிப்பணி தொடங்க வேண்டும்.
- 6) முறைப்படியும், விஞ்ஞானபூர்வமாகவும் குவாரிப்பணி செய்யவேண்டும்.
- 7) சான்றிதழ் பெறப்பட்ட போர்மேன், வெடிப்பாளர் மற்றும் சுரங்க மேலாளர் மூவம் முறையே குவாரிப்பணி செய்யப்பட வேண்டும்.
- 8) குவாரிப்பணி தொடங்குவதற்கு முன் சுரங்க பாதுகாப்பு இயக்குநர், சென்னை அவர்களுக்கு தகவல் தெரிவிக்கப்பட வேண்டும்.
- 9) பாறைகளைத் தகர்க்க கைத்துளைப்பான்களை கொண்டு பாறைகளை துளையிட்டு குழைவாவை வெடிபொருட்கள் பயன்படுத்த வேண்டும்.

4. தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதிகள் 41 மற்றும் 42-ன்படி கல் மற்றும் இதர சிறு கனிமங்களுக்கு குவாரி குத்தகை உரிமம் வழங்கும் முன்பு ஒப்புதல் பெறப்பட்ட சுரங்கத்திட்ட அறிக்கை மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மை சான்று பெறப்பட வேண்டும் என வரையறுக்கப்பட்டுள்ளது.

5. எனவே, திரு.M.N.பாலசுந்தரம் த/பெ. நடராஜன், என்பவர் ஒப்புதல் பெறப்பட்ட சுரங்கத்திட்ட அறிக்கை மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மைச் சான்றினை பெற்று சமர்ப்பிக்கும் பட்சத்தில் திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், சித்தலப்பாக்கம் கிராம பட்டா புல எண்கள் 8/1A (0.90.0), 8/1B (0.56.0), 8/1C (0.15.0), 8/1D (0.08.0), 8/1E (0.25.5), 8/1F (0.19.5), 8/1G (0.65.5), 8/1H (0.13.5), 8/1I (0.26.0), 8/1J (0.08.0), 8/1K (0.01.5), 8/1L (0.23.5), 8/1M (0.04.0), 8/3A (0.16.5) மற்றும் 8/3B (0.15.0) ஆகியவற்றின் மொத்தப்பரப்பு 3.87.5 ஹெக்டேர் பரப்பில் கற்குவாரி செய்ய தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி எண் 19(1) மற்றும் 20-ன்கீழ் 5 ஆண்டுகளுக்கு குத்தகை உரிமம் வழங்க உரிய நடவடிக்கை மேற்கொள்ளப்படும் என்ற விவரம் தெரிவிக்கப்படுகிறது.

6. மேலும், இவ்வறிவிப்பு கிடைக்கபெற்ற 90 நாட்களுக்குள் மேற்கொள்ள நிபந்தனைகளையும் குறிக்கும் வகையில் வரைவு சுரங்கத்திட்ட அறிக்கை தயார் செய்து துணை இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை திருவண்ணாமலை அவர்களிடம் ஒப்புதல் பெற சமர்ப்பிக்குமாறு அறிவுறுத்தப்படுகிறது.

துணை இயக்குநர்,

புவியியல் மற்றும் சுரங்கத்துறை,  
திருவண்ணாமலை.

பெறுநர்:

திரு.M.N.பாலசுந்தரம்

த/பெ. நடராஜன்,

எண்.72, மெயின் ரோடு,

மாங்காடு, குன்றத்தூர் வட்டம்,

காஞ்சிபுரம் மாவட்டம்.



**ANNEXURE 11**

ச.எண். 125

கிராமம்

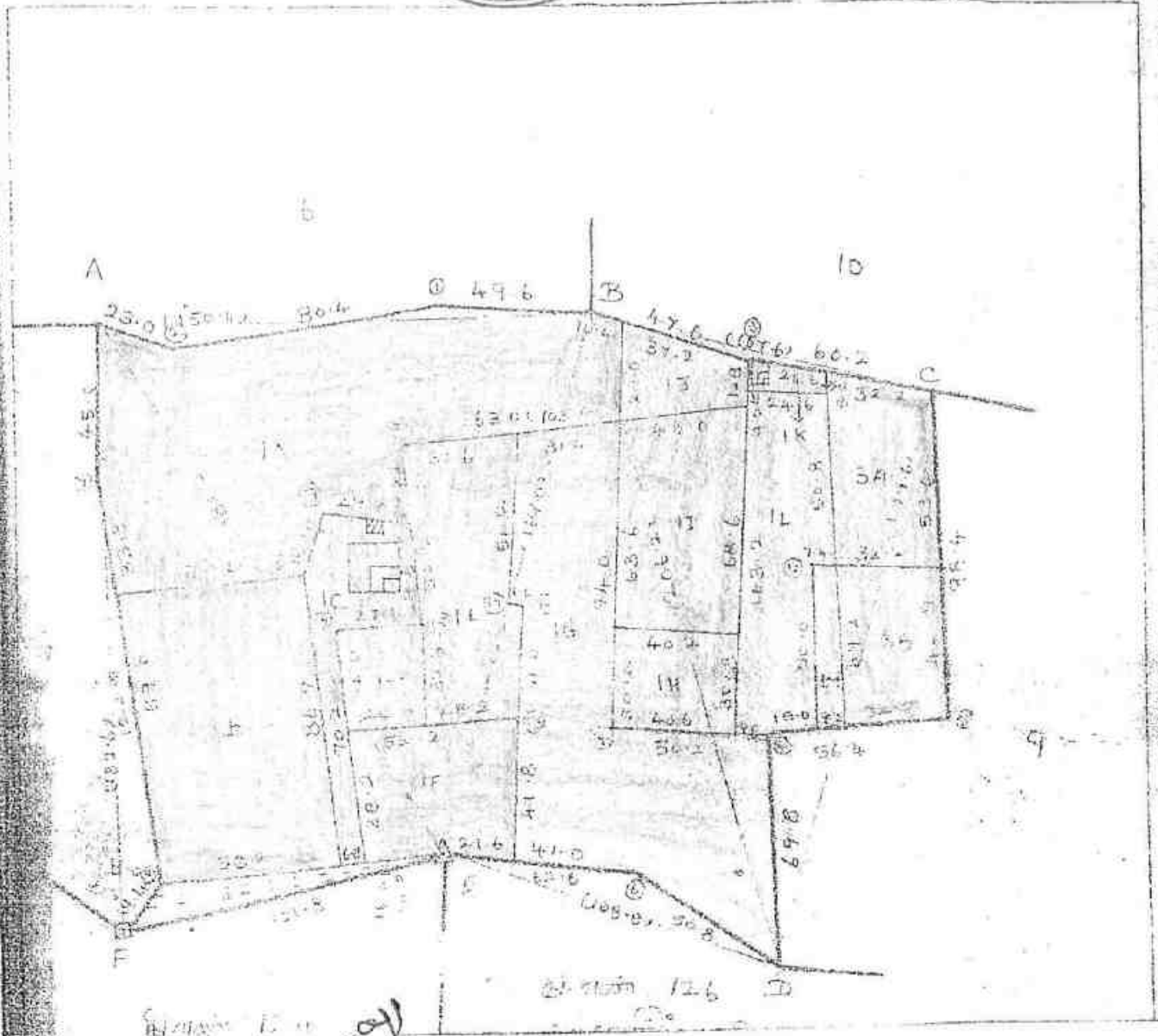
வெளித்தொலைப்பாக்கம்

ச.எண். 8

460 ஏக்கர் 8

புப்பு: வெக்கூர்

3 - ஊ. 93.5



**LEASE APPLIED AREA**

C	182.6
D	167.4
44.8	3
B	
4.6	2
A	
189.2	
126.4	
C	

*[Handwritten signature]*

கிராம நிர்வாக அலுவலர்  
 88. சித்தாலபாக்கம்  
 90. அரசாணிப்பாளை  
 91. வயலாத்தூர்  
 வேம்பாக்கம் வட்டம், தி.ம.க.ல.ம.

*[Handwritten signature]*  
 19/08/23

கிராம நிர்வாக அலுவலர்  
 88. சித்தாலபாக்கம்  
 90. அரசாணிப்பாளை  
 91. வயலாத்தூர்  
 வேம்பாக்கம் வட்டம், தி.ம.க.ல.ம.



ANNEXURE IV

தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருவண்ணாமலை

வருவாய் கிராமம் : சித்தலப்பாக்கம்



உரிமையாளர்கள் பெயர்

- |    |             |      |             |
|----|-------------|------|-------------|
| 1. | நடராஜன்     | மகன் | பாலசுந்தரம் |
| 2. | நடராஜன்     | மகன் | சங்கர்      |
| 3. | நடராஜன்     | மகன் | பாஸ்கர்     |
| 4. | பாலசுந்தரம் | மகன் | தினேஷ்      |

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்டர் - ஏர்	ரூ - பை	ஹெக்டர் - ஏர்	ரூ - பை	ஹெக்டர் - ஏர்	ரூ - பை	
8	1A	0 - 90.00	5.68	--	--	--	--	9251/1421--- -- 20-03-2012
8	1B	0 - 56.00	3.54	--	--	--	--	9251/1421--- -- 20-03-2012
8	1C	0 - 15.00	0.95	--	--	--	--	A1417/1283-- --- 08-10- 2007
8	1D	0 - 8.00	0.51	--	--	--	--	A1417/1283-- --- 08-10- 2007
8	1E	0 - 25.50	1.61	--	--	--	--	A1417/1283-- --- 08-10- 2007
8	1F	0 - 19.50	1.23	--	--	--	--	A1417/1283-- --- 08-10- 2007
8	1G	0 - 65.50	4.15	--	--	--	--	A1417/1283-- --- 08-10- 2007
8	1H	0 - 13.50	0.85	--	--	--	--	A1417/1283-- --- 08-10- 2007
8	1I	0 - 26.00	1.64	--	--	--	--	A1417/1283-- --- 08-10- 2007
8	1J	0 - 8.00	0.51	--	--	--	--	A1417/1283-- --- 08-10- 2007
9	4	0 - 26.00	1.69	--	--	--	--	9251/1421--- -- 20-03-2012
9	8	0 - 31.00	1.97	--	--	--	--	9251/1421--- -- 20-03-2012
		3 - 84.00	24.33					



தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருவண்ணாமலை

வருவாய் கிராமம் : சித்தலப்பாக்கம்



வட்டம் : வெம்பாக்கம்

பட்டா எண் : 108

உரிமையாளர்கள் பெயர்

1.	நடராஜன்	மகன்	பாலசுந்தரம்	108
2.	நடராஜன்	மகன்	சங்கர்	108
3.	நடராஜன்	மகன்	பாஸ்கர்	108
4.	பாலசுந்தரம்	மகன்	தினேஷ்	108

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	
8	1K	0 - 1.50	0.09	--	--	--	--	958/1421---- 18-05-2012
8	1L	0 - 23.50	1.49	--	--	--	--	429/1423--- 25-06-2014
8	1M	0 - 4.00	0.25	--	--	--	--	D2003/849--- -- 25-03-2003
8	3A	0 - 16.50	1.43	--	--	--	--	D2003/849--- -- 25-03-2003
8	3B	0 - 15.00	1.30	--	--	--	--	D2003/849--- -- 25-03-2003
		0 - 60.50	4.56					

குறிப்பு2 :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 06/10/125/09108/70589 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 19-08-2023 அன்று 11:44:23 AM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

நில வரித் திட்டத்தின்படி புள்ளிகளின் விபரம்.					கைப்பற்று தாரகடைய பெயரும் எண்ணும் அல்லது அனுபேசக தாரகடைய பெயர்.	சாகுபடி பாளிரின் பெயர்.		முதல் போகம்.				
(1) நில அளவை எண்.	(2) உட்பிரிவு எண்.	(3) பரப்பு.	(4) நீர்வை.	(5) ஒரு போகம் அல்லது இரு போகம்.		(7) நிலத்தின் எந்த பகுதி யாவது சாகுபடியாளர் பயிரிடப்பட்டுள்ளதா.	(8) எந்த மாதத்தில் பயிர் செய்யப்பட்டது எந்த மாதத்தில் அறுவடை செய்யப்பட்டது.	(9) பயிரின் பெயர்.	(10) பயிரான / அறுவடை யான பரப்பு.	(11) உள்ளமைபுள்ள பாய்ச்சல் தூதிரும்.	(12) விளைச்சல் அளவு விழுக்கக் கு.	
8	1A	0.70.0	5.62	159	பாலசாத்தம் (செயல்)							
8	1B	0.56.0	3.57	159	-do-							
8	1C	0.15.0	0.95	159	-do-							
8	1D	0.08.0	0.51	159	-do-							
8	1E	0.25.5	1.61	159	-do-							
8	1F	0.19.5	1.23	159	-do-							
8	1G	0.15.5	1.15	159	-do-							
8	1H	0.13.5	0.85	159	-do-							
8	1I	0.26.0	1.64	159	-do-							
8	1J	0.08.0	0.51	159	-do-							
8	1K	0.01.5	0.09	108	-do-							
8	1L	0.23.5	1.49	108	-do-							
8	1M	0.04.0	0.25	108	-do-							
8	3A	0.16.5	1.43	108	-do-							
8	3B	0.15.0	1.30	108	-do-							



1/4/2022

கிராம நிர்வாக அலுவலர்  
38 சித்தலையூர்  
30 அரசாங்கப்பாளையம்  
31 வயலாக்கா  
மாலைட்டம் - 621 011, தஞ்சாவூர் மாவட்டம்



1	2	3	4	5	6	7	8	9	10		
									கு.பெ. வெ. ஏர்ஸ் கு.பெ.		
4	3	4-3	ர	பு	...	7-3	4	3 85	0 29.5	1 14	106 ஏ. பெருமாள்
									4 15.0	3 07	
5	1	5-1	ர	பு	...	7-3	4	3 85	0 43.5	1 68	175 அருள்மிகு ஸ்ரீ தேவ விநாயகர் சுவாமி கோயில்.
	2	-2	ச	புற	...	..	...	...	0 29.5	...	வண்பா
	3	-3	ர	பு	...	7-3	4	3 85	0 61.5	2 37	175 அருள்மிகு ஸ்ரீ தேவ விநாயகர் சுவாமி கோயில்.
	4	-4	ர	பு	...	7-3	4	3 85	0 76.0	2 93	172 சி. வேணு கவுண்டர். 4000 2099
		-5	ர	பு	...	7-3	4	3 85	1 72.5	6 65	99 வே. பிள்ளையார் கவுண்டர்.
	6	-6	ர	பு	...	7-3	4	3 85	0 53.5	2 06	6 மு. ஆறுமுக கவுண்டர்.
									4 36.5	15 69	
6	...	6	ச	புற	...	...	...	...	0 43.5	...	2A
7	...	7	ச	புற	...	...	...	...	0 28.5	...	2B
8	1A	-1பா	ர	பு	...	7-1	2	6 32	0 90.0	5 68	195 பொ. ஜெய ராம கவுண்டர் (1). ந. வரகம் மாள் (2).
	1B	-1பா	ர	பு	...	7-1	2	6 32	0 56.0	3 54	210 க. குப்பன் (1). சந்திரம் (2). சிட்டுப்பாடி (3).
	1C	-1பா	ர	பு	...	7-1	2	6 32	0 15.0	0 95	237 பொ. ஜெய ராம கவுண்டர் மற்றும் நான்கு பேர்களும்.
	1D	-1பா	ர	பு	...	7-1	2	6 32	0 08.0	0 51	173 பொ. ஜெய ராம கவுண்டர்.





1	2	3	4	5	6	7	8	9	10	
							ந. டை.	தெ. டை.	ந. டை.	
1E	10-1பா	ர	பு	...	7-1	2	6 32	0 25.5	1 61	159 ந. வரதம் மாள்.
1F	-1பா	ர	பு	...	7-1	2	6 32	0 19.5	1 23	173 பொ. ஜெய ராம கவுண்டர்.
1G	-1பா	ர	பு		7-1	2	6 32	0 65.5	4 15	210 க. குப்பன் (1), க. சுந்தரம் (2), க. சிட்டி பாபு (3).
1H	-1பா	ர	பு	...	7-1	2	6 32	0 13.5	0 85	159 ந. வரதம் மாள்.
1I	-1பா	ர	பு		7-1	2	6 32	0 26.0	1 64	173 பொ. ஜெய ராம கவுண்டர்.
1J	-1பா	ர	பு	...	7-1	2	6 32	0 08.0	0 51	210 க. குப்பன் (1), க. சுந்தரம் (2), க. சிட்டி பாபு (3).
1K	-1பா	ர	பு		7-1	2	6 32	0 01.5	0 09	180 ம. மாணிக்கப் பிள்ளை (1); மு. கோவிந்த ராஜ் பிள்ளை (2).
1L	-1பா	ர	பு	...	7-1	2	6 32	0 23.5	1 49	113 ம மாணிக்கப் பிள்ளை.
1M	-1பா	ர	பு	...	7-1	2	6 32	0 04.0	0 25	40 மு கோவிந்த ராஜ் பிள்ளை.
2	-2	ர	பு	...	...	...	...	0 06.0	...	..... வசதிப் பாதை
3A	-3பா	ர	பு	...	7-1	†	8 65	0 16.5	1 43	113 ம. மாணிக்கப் பிள்ளை.
3B	-3பா	ர	பு	...	7-1	†	8 65	0 15.0	1 30	40 மு. கோவிந்த ராஜ் பிள்ளை.
								3 93.5	25 23	
1	9-1	ர	பு	...	7-1	2	6 32	0 08.0	0 51	160 மு. வரதன்.
2	=2	ர	பு	...	7-1	†	8 65	1 01.0	8 72	160
3	=3	ர	பு	...	7-1	2	6 32	0 33.0	2 10	112 ச. மல்லிகா சுப்பிரமணியன் ச. சித்திரவெப்பாக்கம்





தமிழ்நாடு தமிழ்நாடு TAMILNADU

6/4/2023

M.N. Balakundaram

CV 82097  
M. VENUGOPA

Stamp Vendor L. No: 11/CH (S)  
No. 41/22, Kamatchi Amman Kc  
Mangadu, Chennai- 6001

பொது அதிகாரப் பத்திரம்



2023 ஆம் வருடம், ஆகஸ்ட் மாதம், 16-ந் தேதி. காஞ்சிபுரம் மாவட்டம், குன்றத்தூர் வட்டம், மாங்காடு கிராமம், மெயின் ரோடு, எண்.72 வீட்டில் வசிக்கும் காலஞ்சென்ற நடராஜ முதலியார் அவர்களின் குமாரர் திரு M.N. பாலசுந்தரம் ஆகிய உங்களுக்கு,

காஞ்சிபுரம் மாவட்டம், குன்றத்தூர் வட்டம், மாங்காடு கிராமம், மெயின் ரோடு, எண்.72 வீட்டில் வசிக்கும் காலஞ்சென்ற நடராஜ முதலியார் அவர்களின் குமாரர்கள் திரு N. சங்கர் - (1) திரு N. பாஸ்கர் - (2) மேற்படி திரு M.N. பாலசுந்தரம் அவர்களின் குமாரர் திரு M.B. தினேஷ் - (3) ஆகிய நாங்கள் மூவரும் மனப்பூர்வமாய் சம்மதித்து எழுதிக் கொடுத்த பொது அதிகாரப் பத்திரம் என்னவென்றால்,

N.S. N. Suman

N.B. N. Suman

M.B.D. M.B.D.

*Mani*  
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NOTARY  
Poonamallee & Avadi  
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442, M.G. Nagar, 3rd Street,  
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Ph : 044 2649 5034



திருவண்ணாமலை மாவட்டம், செய்யார் வட்டம், (தற்பொழுது வெண்பாக்கம் வட்டம்,) செய்யார் பதிவு மாவட்டம், தூசி சார்பதிவாளர் அலுவலக எல்லைக்குட்பட்ட 125 எண். சித்தாலப்பாக்கம் கிராமம், 108 எண் வட்டாவில் அடங்கிய புஞ்சை சர்வே எண்கள் பின் வருமாறு:-

8/1 A	-	0.90.0 ஏர்ஸ் - ஏக்	2.22	சென்ட்
8/1 B	-	0.56.0 ஏர்ஸ் - ஏக்	1.38	சென்ட்
8/1 C	-	0.15.0 ஏர்ஸ் - ஏக்	0.37	சென்ட்
8/1 D	-	0.08.0 ஏர்ஸ் - ஏக்	0.20	சென்ட்
8/1 E	-	0.25.5 ஏர்ஸ் - ஏக்	0.63	சென்ட்
8/1 F	-	0.19.5 ஏர்ஸ் - ஏக்	0.48	சென்ட்
8/1 G	-	0.65.5 ஏர்ஸ் - ஏக்	1.62	சென்ட்
8/1 H	-	0.13.5 ஏர்ஸ் - ஏக்	0.33	சென்ட்
8/1 I	-	0.26.0 ஏர்ஸ் - ஏக்	0.64	சென்ட்
8/1 J	-	0.08.0 ஏர்ஸ் - ஏக்	0.20	சென்ட்



ஆக 3.27.0 ஏர்ஸ் - ஏக் 8.07 சென்ட் நிலமும், 8/1 C - ல் கிணறு ,3 எச். பி : பம்புசெட் உள்பட நம் நான்கு பெயரிலும் கிரையம் பெற்று அந்த பத்திரம் தூசி சார்பதிவாளர் அலுவலகத்தில் ஆவண எண் 259/2012 - வது நெம்பராக பதிவு செய்யப்பட்டும்

மற்றும்

திருவண்ணாமலை மாவட்டம், செய்யார் வட்டம், (தற்பொழுது வெண்பாக்கம் வட்டம்,) செய்யார் பதிவு மாவட்டம், தூசி சார்பதிவாளர் அலுவலக எல்லைக்குட்பட்ட 125 எண். சித்தாலப்பாக்கம் கிராமம், 108 எண் வட்டாவில் அடங்கிய புஞ்சை சர்வே எண்கள் பின் வருமாறு:-

8/1 K	-	0.01.5 ஏர்ஸ் - ஏக்	0.04	சென்ட்
8/1 L	-	0.23.5 ஏர்ஸ் - ஏக்	0.58	சென்ட்
8/1 M	-	0.04.0 ஏர்ஸ் - ஏக்	0.10	சென்ட்
8/3 A	-	0.16.5 ஏர்ஸ் - ஏக்	0.41	சென்ட்
8/3 B	-	0.15.0 ஏர்ஸ் - ஏக்	0.37	சென்ட்

*C. Mani*  
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 Ph : 044 2649 5054

N.S. N. Shan

N.B

N. Shan

M.B.D

*M.B.D*

ஆக 0.60.5 ஏர்ஸ் - ஏக் 1.50 சென்ட் நிலத்தை நம் நான்கு பெயரிலும் கிரையம் பெற்று அந்த பத்திரம் தூசி சார்பதிவாளர் அலுவலகத்தில் பதிவு எண் 2963/2013- வது நெம்பராக பதிவு செய்யப்பட்டும்

ஆக மொத்தம் 3.87.5 ஏர்ஸ் - ஏக் 9.57 சென்ட்

மேற்படி சொத்தானது நம் அனைவருடைய அனுபோகத்திலும் இருந்து வருகின்றது.

மேற்படி சொத்தினை நாங்கள் வெளியூரில் வசிக்கும் வடுகின்று காரணத்தினாலும், எங்களால் நேரிடையாக பராமரிக்க முடியாத காரணத்தினாலும், தங்களை எங்களுடைய பொது அதிகாரம் பெற்ற ஏஜெண்டாக நியமித்துத் தங்கள் பெயருக்கு இந்த பொது அதிகாரப் பத்திரம் எழுதி கொடுக்கிறோம்.

ஆகையால் இன்று முதல் மேற்கண்ட சொத்தில் தாங்கள் கல்குவாரி நடத்தவும், கல்குவாரி சம்மந்தமான அனைத்து வேலைகளை செய்யவும், மற்றும் மின்சார இணைப்பு பெறவும், கல் குவாரி அமைப்பதற்கான சட்டபடி தேவையான அனைத்து நடவடிக்கைகளையும் தங்கள் பெயரில் பெறவும், இதன் மூலம் தங்களுக்கு முழு அதிகாரம் அளிக்கின்றோம்.

மேலே குறிப்பிடப்பட்டுள்ள கல் குவாரி தங்கள் பெயரில் மேற்படி இடத்தில் நடத்திவர எங்களுக்கு எந்த விதமான ஆட்சேபமும் இல்லை எனவும் இதன்மூலம் உறுதி அளிக்கிறோம்.

மேலே குறிப்பிடப்பட்டுள்ள செயல்கள் அனைத்தையும் சட்டபடி தாங்கள் நடத்தி வரவும், அதற்கான அனைத்து பணிகளையும் செய்ய நாங்கள் முழுமனதுடன் இதன்மூலம் ஒப்புக்கொள்கிறோம்.

தேவைப்படும் பொழுது உங்களுக்கோ அல்லது நீங்கள் குறிப்பிடும் துறைக்கோ நாங்கள் தூசி சார்பதிவாளர் அலுவலகத்தில் பதிவு செய்ய ஒப்பு கொள்கிறோம்.

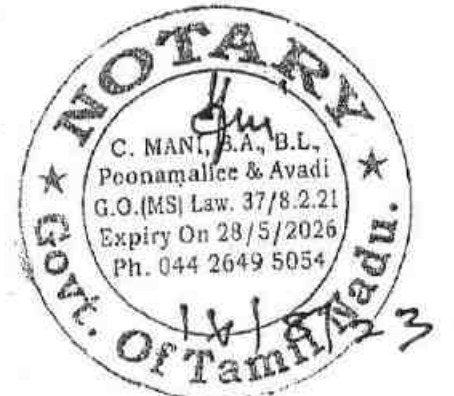
சாட்சிகள்

N.S. N. Suman

N.B. N. S. Suman

M.B.D.

  
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G.O. (MS) Law. 37/21, Exp. 28.5.2026  
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Poonamallee, Chennai - 600 056.  
Ph : 044 2649 5054








**Government of India**

**அரசு**

**அடையாளம்**

பதிவேட்டு எண் / Enrolment No.: 0000/00373/48263

Download Date: 20/07/2021

To  
 மாநாடு  
 M N Balasundharan  
 S/O M Natarajan  
 72, MAIN ROAD, MANGADU  
 Chennai  
 Mangadu  
 Kancheepuram Tamil Nadu - 600122  
 9710922234


Issue Date: 20/07/2021

Signature valid



**உங்கள் ஆதார் எண் / Your Aadhaar No. :**  
**3667 6476 3170**  
 VID : 9180 0839 6741 3421

எனது ஆதார், எனது அடையாளம்



அடையாளம் அடையாளத்திற்கான சான்று கையாள்வதற்கு அல்ல  
 இது உறுதிப்படுத்தப்பட்ட ஆதாரம் ஆகும். இது உறுதிப்படுத்தப்பட்ட ஆதாரம் ஆகும்.  
 இது எலக்ட்ரானிக் செயல்முறை மூலம் தயாரிக்கப்பட்ட கடிதமாகும்.

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- உங்கள் தாது முழுமையாகும் செயல்படும்
- பல்வேறு அரசு மற்றும் அரசு சாரா சேவைகளை சரிவில் செய்து கொள்ள உதவும்.
- உங்கள் மொபைல் எண் மற்றும் மின்னஞ்சல் ஐடியை ஆதாரம் புதுப்பிக்கவும்
- உங்கள் செயலியை பயன்படுத்தி உங்கள் அடையாளம் போலியை ஆதாரம் எடுத்துக் கொள்ளுங்கள்

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**Government of India**

**அரசு**

**அடையாளம்**

Download Date: 20/07/2021



மாநாடு  
 M N Balasundharan  
 பிறந்த நாள்/DOB: 01/10/1956  
 ஆண் / MALE

Issue Date: 20/07/2021

**3667 6476 3170**  
 VID : 9180 0839 6741 3421

எனது ஆதார், எனது அடையாளம்




**Unique Identification Authority of India**

**அரசு**

**அடையாளம்**

Download Date: 20/07/2021

முகவரி:  
 S/O மாநாடு, 72, மெயின் ரோடு,  
 மங்காடு, கிச்சன்பேட்டை, கங்கேபுரம்,  
 தமிழ்நாடு - 600122

Address:  
 S/O M Natarajan, 72, MAIN ROAD,  
 MANGADU, Chennai, Kancheepuram,  
 Tamil Nadu - 600122



**3667 6476 3170**  
 VID : 9180 0839 6741 3421

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

CHETTINAD CEMENT CORPORATION LTD.,

(Regd. Office: RANI SEETHAI HALL BUILDING IV & V FLOORS, SEETHAINAGAR SALAI, MADRAS-600006.)  
WORKS OFFICE: PULIYUR.

TELE: 21144 | PHONE 22744 | KARUR  
21745 |  
GRAM "CEMENT" Puliur C.F.  
Telex: 0459-215.  
STD Code: 04324



All Correspondences to  
Kumararajah Muthiah Nagar,  
PULIYUR CEMENT FACTORY POST 639114.  
(Karur Taluk. Trichy Dt.)

T.RAJU., B.E.,  
MINES MANAGER & DY. GENERAL MANAGER.

21<sup>st</sup> 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, ~~and~~ Quality control and other allied mining activities in the following Pits of our Seethainagar Limestone Mines in Anna District.

<u>Name of the Pit.</u>	<u>Average Raising/day.</u>
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.





# ANNAMALAI UNIVERSITY

## Faculty of Science

The Senate of the Annamalai University hereby makes known that B. Natarajan has been admitted to the Degree of Master of Science (by Examination) in Geology, 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.

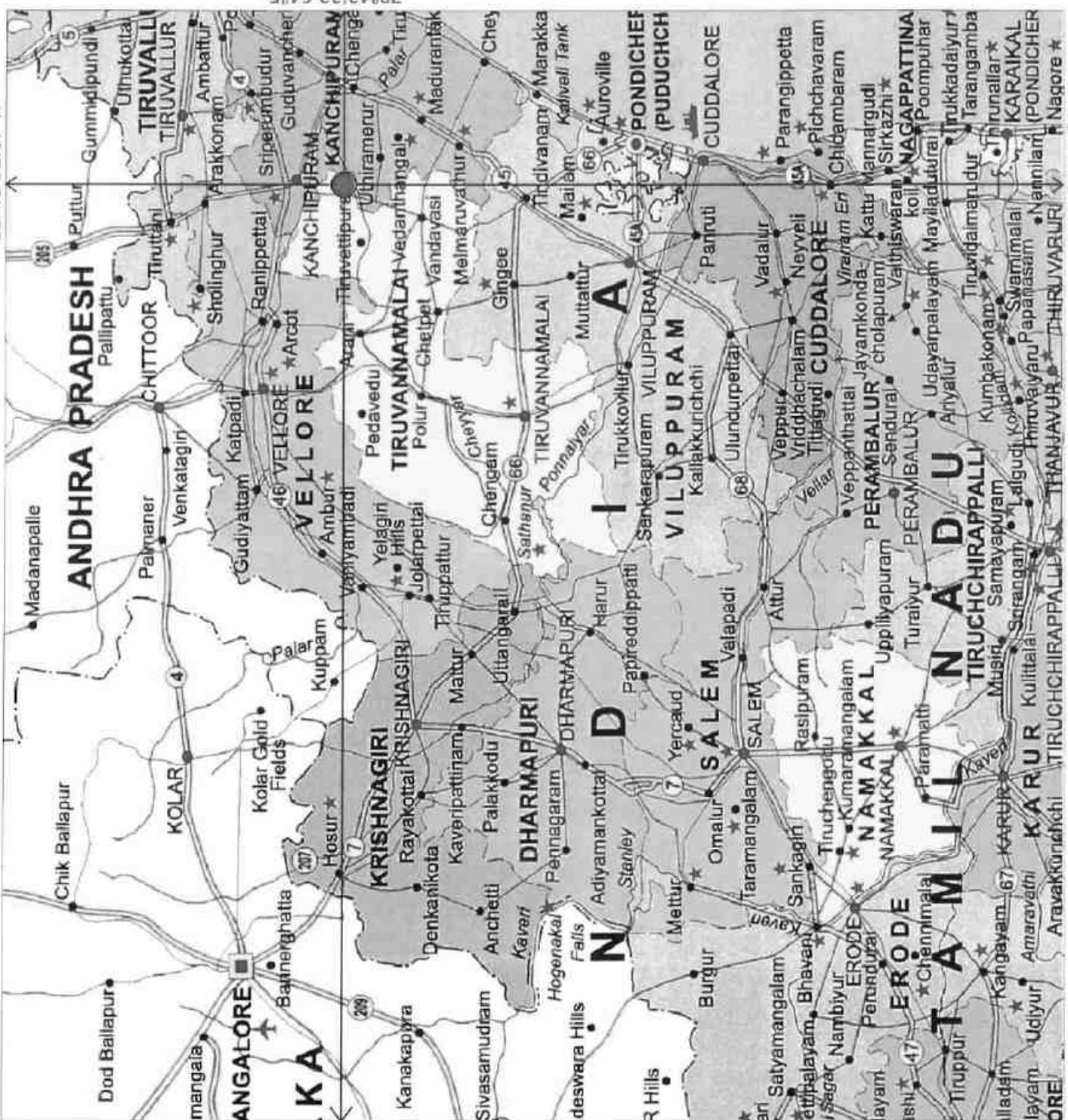
Given under the seal of the University.

Annamalainagar

8th December, 1976.

A. Chandrasekha  
Vice-Chancellor.

12°42'52.67"N



79°43'25.08"E

290

12°42'45.97"N

PLATE NO: I

DATE OF SURVEY: 09/11/2023

APPLICANT:

THIRU.M.N.BALASUNDAKUMAR  
S/o NATARAJAN,  
NO.72, MAIN ROAD,  
MANKADU, KUNDRATHUR TALUK,  
KANCHEEPURAM DISTRICT.

QUARRY LEASE APPLIED AREA:

S.F.NO's : 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F,  
8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L,  
8/1M, 8/3A & 8/3B,  
EXTENT : 3.87.5 Ha,  
VILLAGE : SITHALAPAKKAM,  
TALUK : VEMBAKKAM,  
DISTRICT : TIRUVANNAMALAI.

INDEX

Q. L. APPLIED AREA : ●  
TOPO SHEET NO : 57 P / 10

LATITUDE : 12°42'45.97" N to 12°42'52.67" N

LONGITUDE : 79°43'25.08" E to 79°43'33.64" E

LOCATION PLAN

NOT TO SCALE

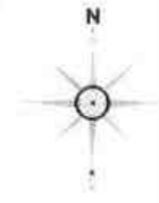
PREPARED BY :

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*  
C. NATARAJAN, M.Sc, M.Phil.,  
QUALIFIED PERSON



PLATE NO-IA  
DATE OF SURVEY : 09.11.2023



**APPLICANT:**  
THIRU.M.N.BALASUNDARAM,  
S/o.NATARAJAN,  
NO.72, MAIN ROAD,  
MANKADU, KUNDRATHUR TALUK,  
KANCHEEPURAM DISTRICT.

**QUARRY LEASE APPLIED AREA:**  
S.F.NO's : 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F,  
8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L,  
8/1M, 8/3A & 8/3B,  
EXTENT : 3.87.5 Ha,  
VILLAGE : SITHALAPAKKAM,  
TALUK : VEMBAKKAM,  
DISTRICT : TIRUVANNAMALAI.

**INDEX**

TOPO SHEET NO : 57 P / 10  
LATITUDE : 12°42'45.97"N to 12°42'52.67"N  
LONGITUDE : 79°43'25.08"E to 79°43'33.64"E

Q.L.APPLIED AREA	
300M RADIUS	
500M RADIUS	
1KM RADIUS	
APPROACH ROAD	
QUARRY ROAD	
CART TRACK	
VILLAGE ROAD	
BARREN LAND	
TREES	
SEASONAL AGRICULTURE	
HABITATIONS	
TANK	
CANAL	
ODAI	
QUARRY PIT	



1. 8miles  
2. Elumalai  
3. Dinam  
4. 8miles  
5.

**LAND USE PATTERN**

DESCRIPTION	AREA IN (%)
ROAD	03
TREES	12
BARREN LAND	32
AGRICULTURE LAND	25
HABITATIONS	10
WATER BODIES	18

**ENVIRONMENTAL PLAN**

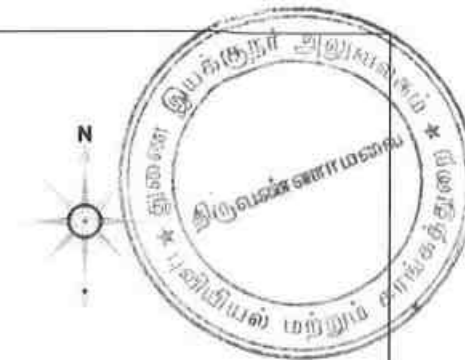
SCALE 1: 10,000

**PREPARED BY:**  
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IN THIS PLATE IS TRUE AND CORRECT TO  
THE BEST OF MY KNOWLEDGE BASED UPON  
THE LEASE MAP AUTHENTICATED BY STATE  
GOVERNMENT

*C. Natarajan*  
C.NATARAJAN, M.Sc, M.Phil.,  
QUALIFIED PERSON

*m.p.p.*





79°42'53.48"E

79°44'05.64"E

12°43'24.52"N

12°42'13.94"N

**PLATE NO-IB**  
DATE OF SURVEY : 09.11.2023

**APPLICANT:**  
THIRU.M.N.BALASUNDARAM,  
S/o.NATARAJAN,  
NO.72, MAIN ROAD,  
MANKADU, KUNDRATHUR TALUK,  
KANCHEEPURAM DISTRICT.

**QUARRY LEASE APPLIED AREA:**  
S.F.NO's : 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F,  
8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L,  
8/1M, 8/3A & 8/3B,  
EXTENT : 3.87.5 Ha,  
VILLAGE : SITHALAPAKKAM,  
TALUK : VEMBAKKAM,  
DISTRICT : TIRUVANNAMALAI.

**INDEX**

TOPO SHEET NO : 57 P/ 10  
LATITUDE : 12°42'45.97"N to 12°42'52.67"N  
LONGITUDE : 79°43'25.08"E to 79°43'33.64"E

Q.L.APPLIED AREA	
300M RADIUS	
500M RADIUS	
1KM RADIUS	
APPROACH ROAD	
QUARRY ROAD	
CART TRACT	
VILLAGE ROAD	

**LAND USE PATTERN**

DESCRIPTION	AREA IN (%)
ROAD	05
TREES	12
BARREN LAND	32
AGRICULTURE LAND	25
HABITATIONS	10
WATER BODIES	18

**SATELLITE IMAGERY MAP**

SCALE 1: 10,000

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

*C. NATARAJAN, M.Sc., M.P., B.L.,*  
QUALIFIED PERSON

*MNTM*

145





PLATE NO-IC  
DATE OF SURVEY : 09.11.2023

APPLICANT:  
THIRU.M.N.BALASUNDARAM,  
S/O.NATARAJAN,  
NO.72, MAIN ROAD,  
MANKADU, KUNDRATHUR TALUK,  
KANCHEEPURAM DISTRICT.

QUARRY LEASE APPLIED AREA:  
S.F.NO's : 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F,  
8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L,  
8/1M, 8/3A & 8/3B,  
EXTENT : 3.87.5 Ha,  
VILLAGE : SITHALAPAKKAM,  
TALUK : VEMBAKKAM,  
DISTRICT : TIRUVANNAMALAI.

**INDEX**

TOPO SHEET NO : 57 P/ 10  
LATITUDE : 12°42'45.97"N to 12°42'52.67"N  
LONGITUDE : 79°43'25.08"E to 79°43'33.64"E

QUARRY LEASE APPLIED AREA



10KM RADIUS



CONVENTIONAL SYMBOLS	
1. Open spaces, etc.	...
2. Culturable lands	...
3. Forest lands	...
4. Water bodies	...
5. Buildings	...
6. Roads	...
7. Railways	...
8. Power lines	...
9. Telephone lines	...
10. Boundaries	...
11. Spot heights	...
12. Contour lines	...
13. Spot heights	...
14. Boundaries	...
15. Spot heights	...
16. Boundaries	...
17. Spot heights	...
18. Boundaries	...
19. Spot heights	...
20. Boundaries	...

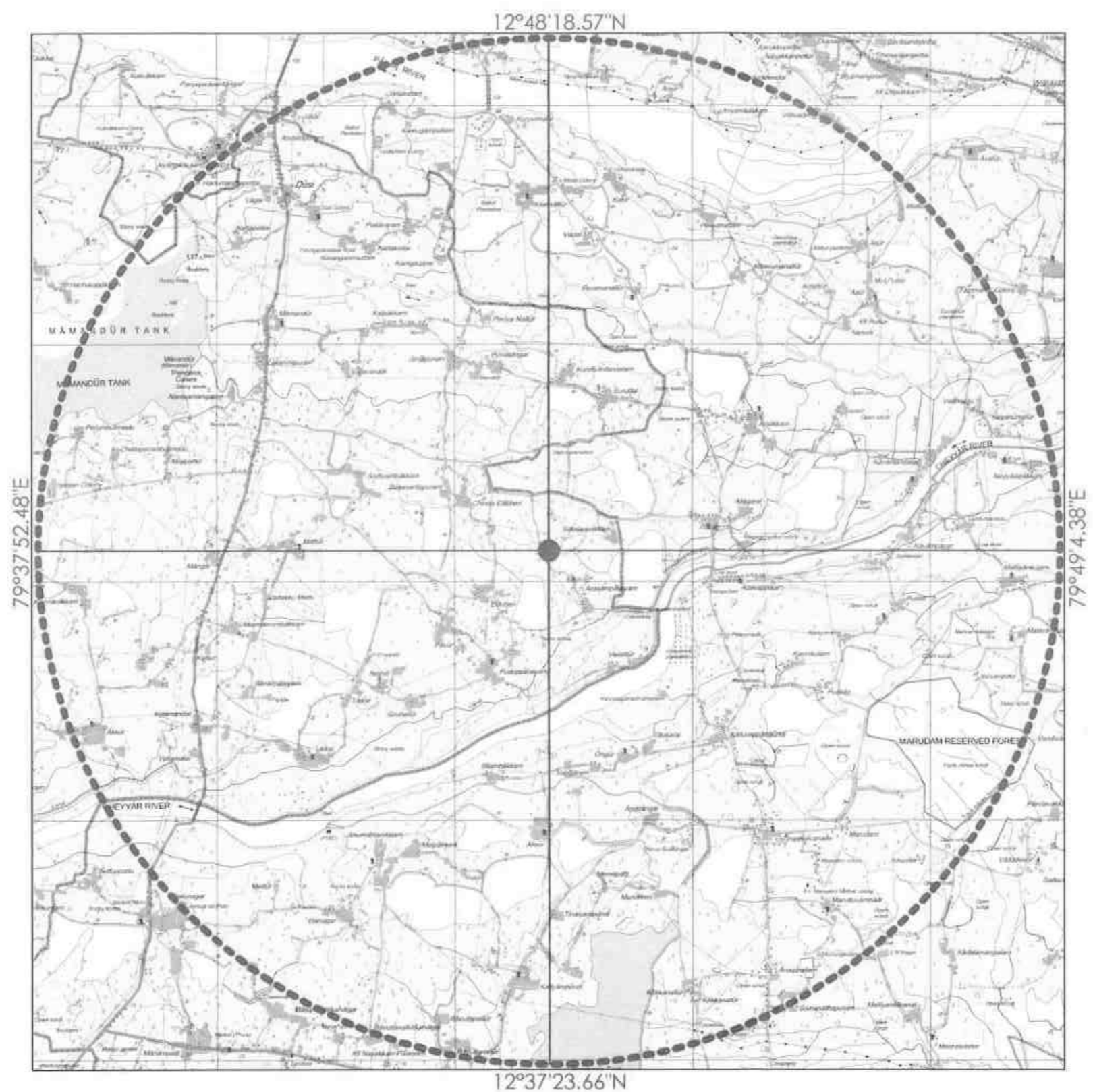
**TOPO SKETCH OF QUARRY LEASE**

**APPLIED AREA FOR  
10Km RADIUS**

SCALE- 1:100000

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*  
C.NATARAJAN, B.Sc., M.Phil.,  
QUALIFIED PERSON



146

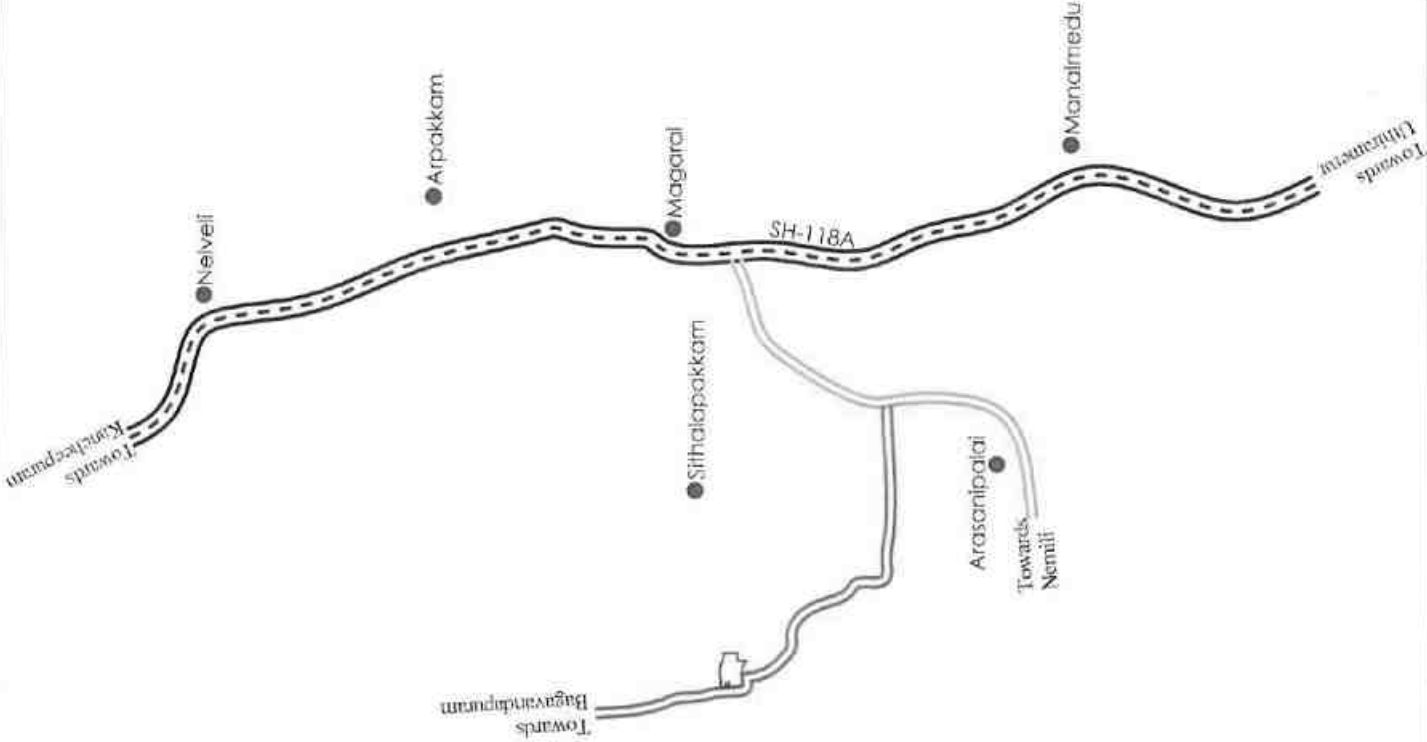
M.N.B.

PLATE NO-ID  
DATE OF SURVEY : 09.11.2023







**APPLICANT:**  
THIRU.M.N.BALASUNDARAN,  
S/o.NATARAJAN,  
NO.72, MAIN ROAD,  
MANKADU, KUNDRATHUR TALUK,  
KANCHEEPURAM DISTRICT.

**QUARRY LEASE APPLIED AREA**  
S.F.NO's : 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F,  
8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L,  
8/1M, 8/3A & 8/3B,  
EXTENT : 3.87.5 Ha.  
VILLAGE : SITHALAPAKKAM,  
TALUK : VEMBAKKAM,  
DISTRICT : TIRUVANNAMALAI.

பி.என். இயக்குநர் அலுவலகம்  
பி.சி.வண்ணசாமிவேலு



**INDEX**

- Q.L.APPLIED AREA 
- STATE HIGHWAY 
- VILLAGE ROAD 
- CART TRACK 
- APPROACH ROAD 
- HABITATIONS 

**KEY PLAN**

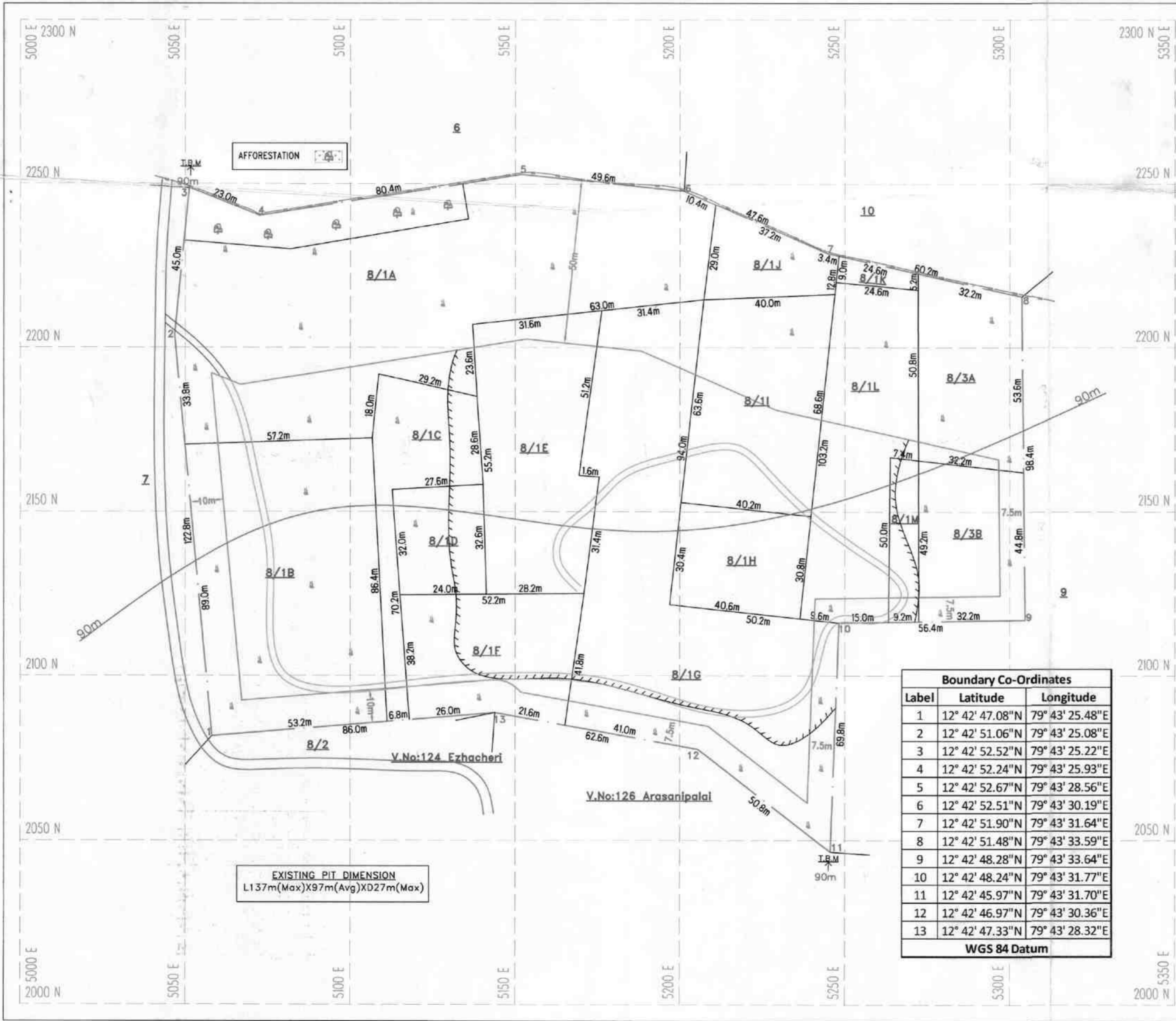
Not To Scale

**PREPARED BY :**

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

GOVERNMENT

*C. GATARAN*  
C. GATARAN, M.Sc., M.Phil.,  
QUALIFIED PERSON



AFFORESTATION

EXISTING PIT DIMENSION  
L137m(Max)X97m(Avg)XD27m(Max)

Boundary Co-Ordinates		
Label	Latitude	Longitude
1	12° 42' 47.08"N	79° 43' 25.48"E
2	12° 42' 51.06"N	79° 43' 25.08"E
3	12° 42' 52.52"N	79° 43' 25.22"E
4	12° 42' 52.24"N	79° 43' 25.93"E
5	12° 42' 52.67"N	79° 43' 28.56"E
6	12° 42' 52.51"N	79° 43' 30.19"E
7	12° 42' 51.90"N	79° 43' 31.64"E
8	12° 42' 51.48"N	79° 43' 33.59"E
9	12° 42' 48.28"N	79° 43' 33.64"E
10	12° 42' 48.24"N	79° 43' 31.77"E
11	12° 42' 45.97"N	79° 43' 31.70"E
12	12° 42' 46.97"N	79° 43' 30.36"E
13	12° 42' 47.33"N	79° 43' 28.32"E

WGS 84 Datum

**PLATE NO-II**  
 DATE OF SURVEY : 09.11.2023

**APPLICANT:**  
 THIRU.M.N.BALASUNDARAM,  
 S/o.NATARAJAN,  
 NO.72, MAIN ROAD,  
 MANKADU, KUNDRATHUR TALUK,  
 KANCHEEPURAM DISTRICT.

**QUARRY LEASE APPLIED AREA:**  
 S.F.NO's : 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F,  
 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L,  
 8/1M, 8/3A & 8/3B.  
 EXTENT : 3.87.5 Ha,  
 VILLAGE : SITHALAPAKKAM,  
 TALUK : VEMBAKKAM,  
 DISTRICT : TIRUVANNAMALAI.

**INDEX**

- Q.L. APPLIED BOUNDARY
- 7.5m, 10m & 50m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- APPROACH ROAD
- QUARRY ROAD
- CART TRACK
- CONTOUR
- SCRUB
- QUARRY PIT
- CANAL

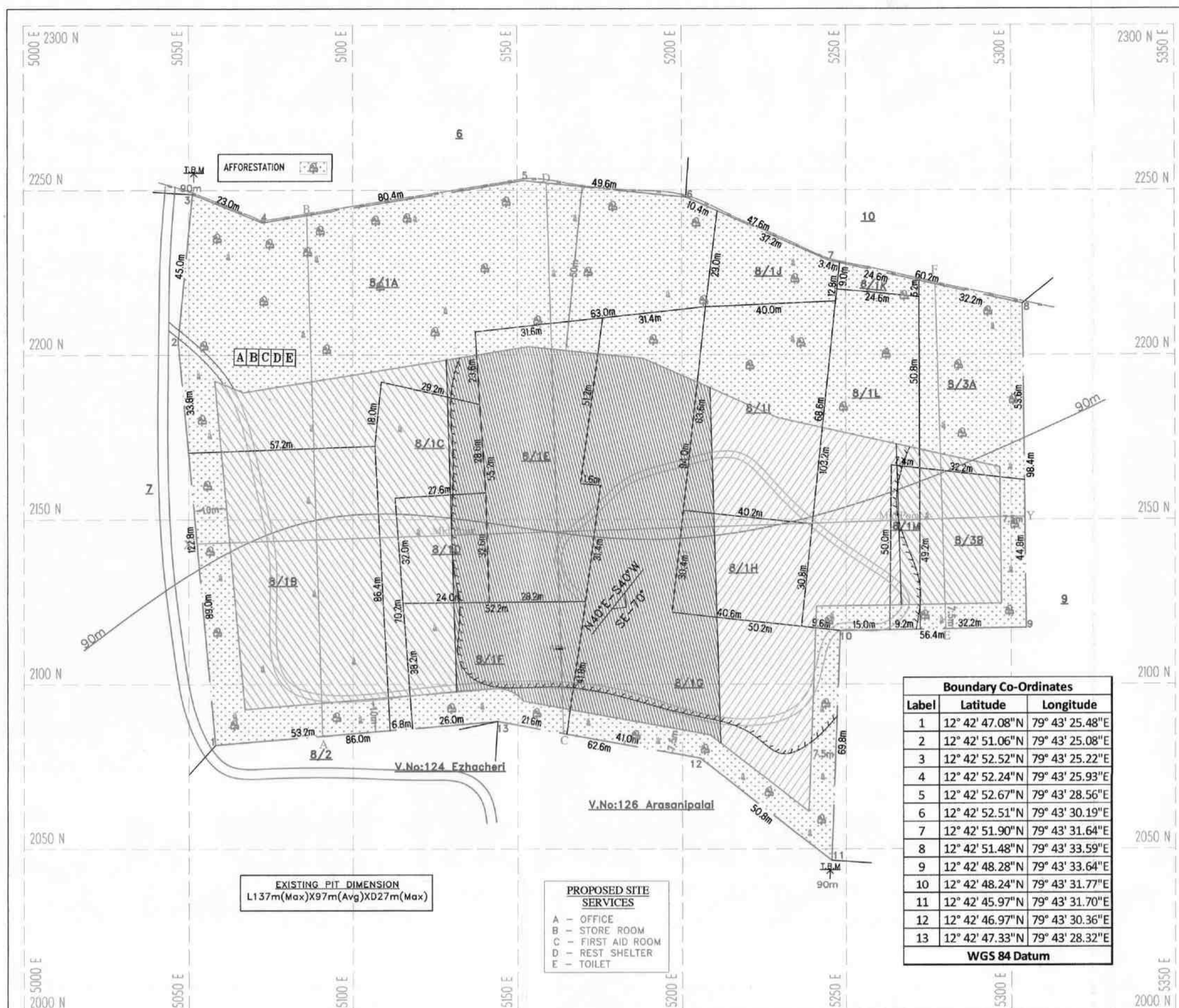
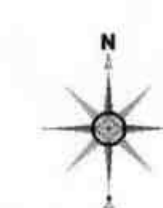
**QUARRY LEASE & SURFACE PLAN**  
 SCALE 1 : 1000

**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

*M.N.Balasundaram*





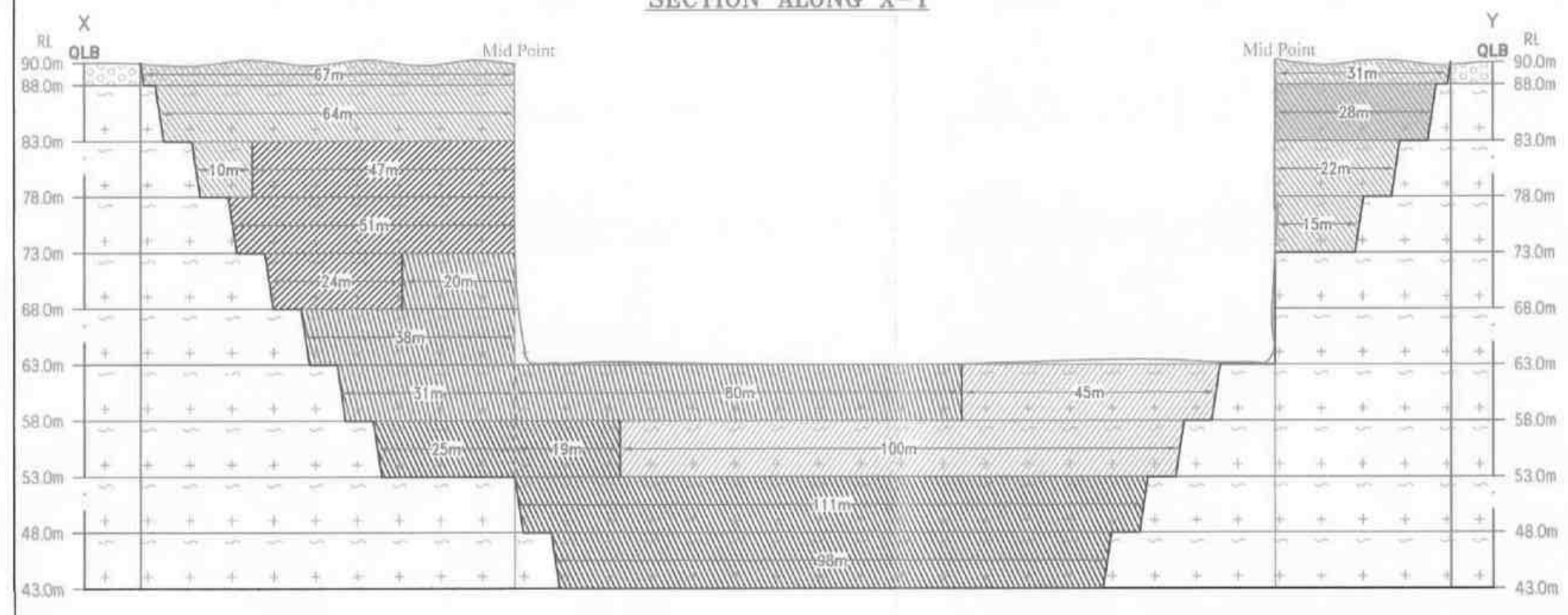
Label	Latitude	Longitude
1	12° 42' 47.08"N	79° 43' 25.48"E
2	12° 42' 51.06"N	79° 43' 25.08"E
3	12° 42' 52.52"N	79° 43' 25.22"E
4	12° 42' 52.24"N	79° 43' 25.93"E
5	12° 42' 52.67"N	79° 43' 28.56"E
6	12° 42' 52.51"N	79° 43' 30.19"E
7	12° 42' 51.90"N	79° 43' 31.64"E
8	12° 42' 51.48"N	79° 43' 33.59"E
9	12° 42' 48.28"N	79° 43' 33.64"E
10	12° 42' 48.24"N	79° 43' 31.77"E
11	12° 42' 45.97"N	79° 43' 31.70"E
12	12° 42' 46.97"N	79° 43' 30.36"E
13	12° 42' 47.33"N	79° 43' 28.32"E

WGS 84 Datum

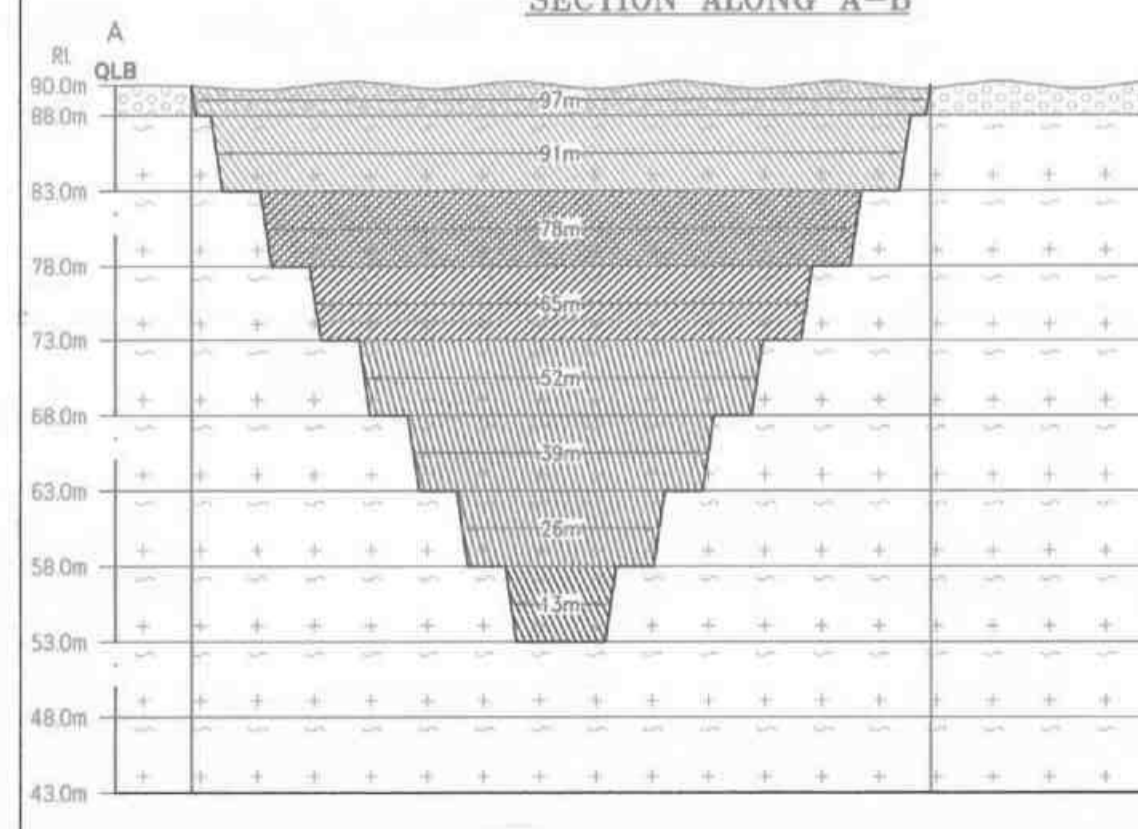
EXISTING PIT DIMENSION  
L137m(Max)X97m(Avg)X27m(Max)

- PROPOSED SITE SERVICES
- A - OFFICE
  - B - STORE ROOM
  - C - FIRST AID ROOM
  - D - REST SHELTER
  - E - TOILET

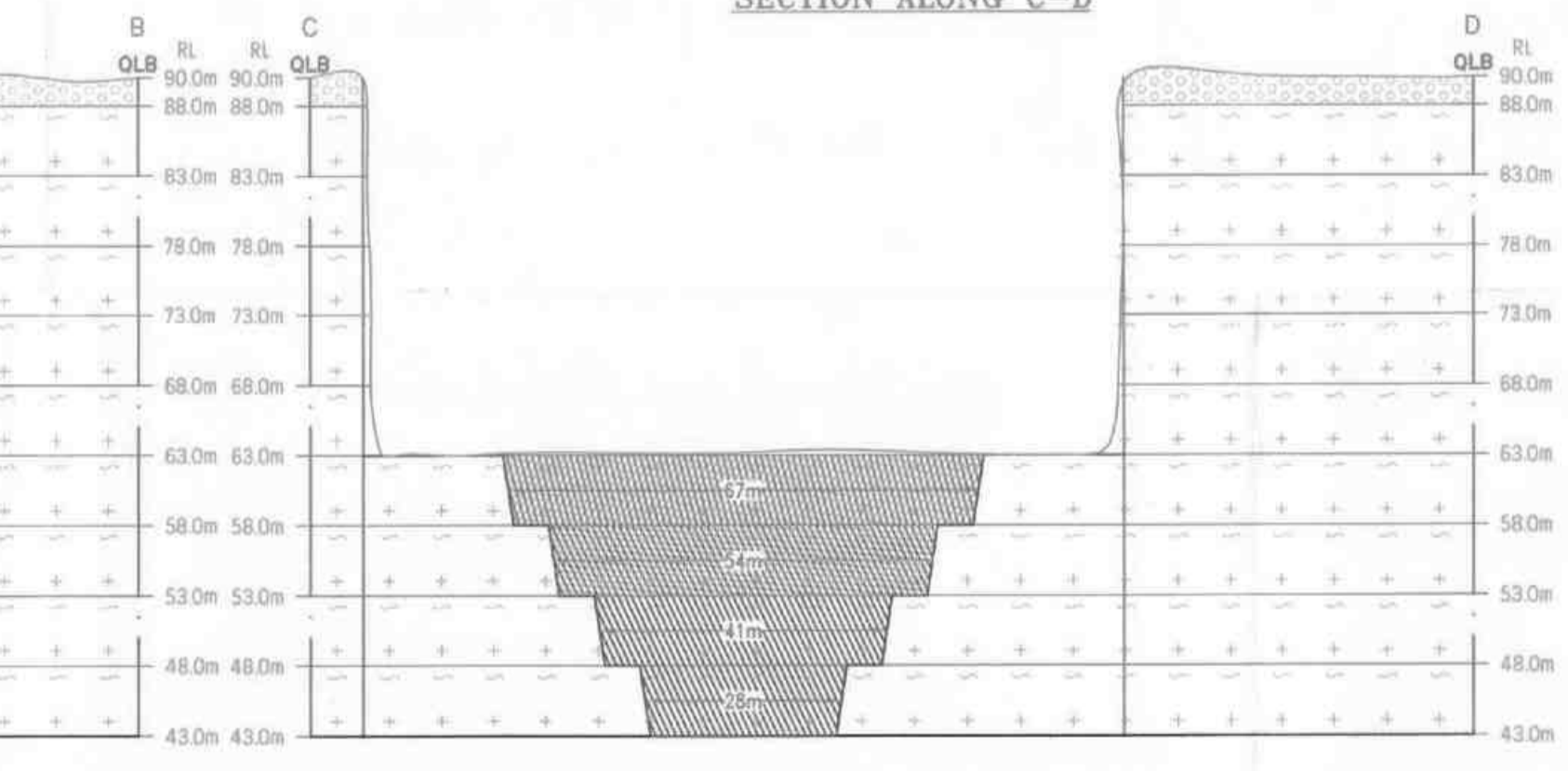
SECTION ALONG X-Y



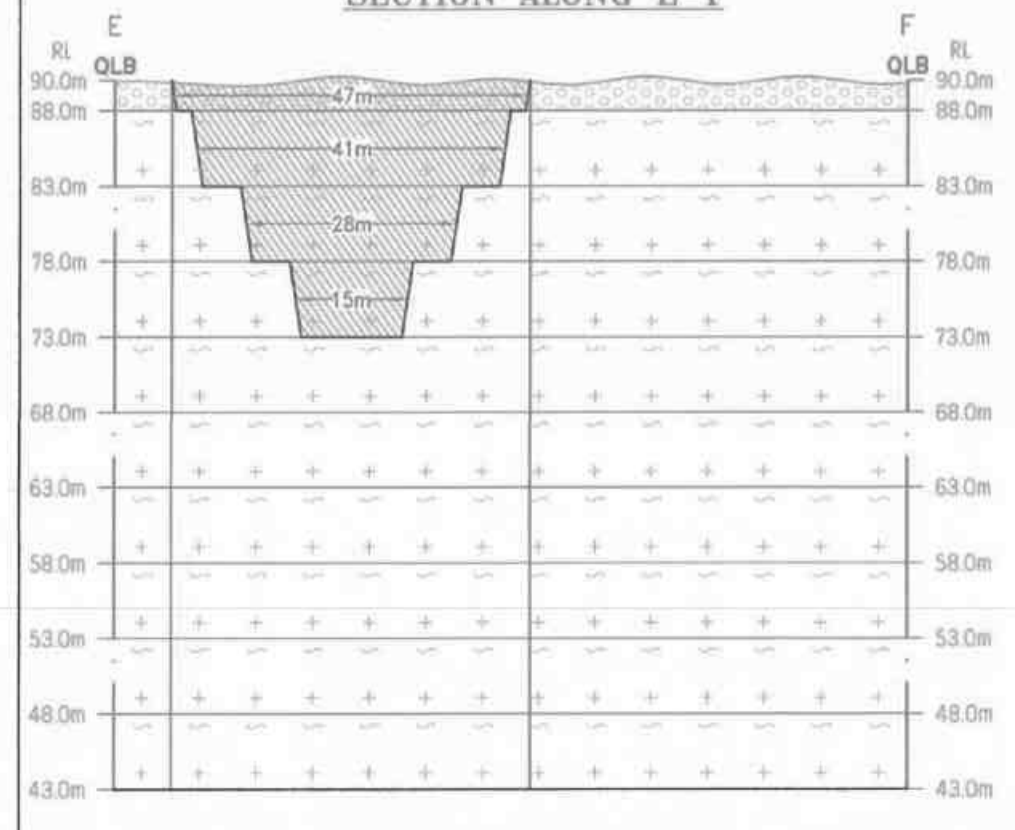
SECTION ALONG A-B



SECTION ALONG C-D



SECTION ALONG E-F



PRESENT & POST LAND USE PATTERN

DESCRIPTION	PRESENT AREA (Ha)	AREA AT THE END OF THIS QUARRYING PERIOD (Ha)
AREA UNDER QUARRYING	1.33.0	2.27.0
INFRASTRUCTURE	NII	0.01.0
ROADS	0.01.0	0.02.0
GREEN BELT	0.02.0	1.57.5
UN-UTILIZED AREA	2.51.5	NII
GRAND TOTAL	3.87.5	3.87.5

- 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-IV**  
DATE OF SURVEY : 09.11.2023

**APPLICANT:**  
THIRU.M.N.BALASUNDARAM,  
S/o.NATARAJAN,  
NO.72, MAIN ROAD,  
MANKADU, KUNDRATHUR TALUK,  
KANCHEEPURAM DISTRICT.

**QUARRY LEASE APPLIED AREA:**  
S.F.NO's : 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F,  
8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L,  
8/1M, 8/3A & 8/3B,  
EXTENT : 3.87.5 Ha,  
VILLAGE :SITHALAPAKKAM,  
TALUK : VEMBAKKAM,  
DISTRICT : TIRUVANNAMALAI.

**INDEX**

- Q.L. APPLIED BOUNDARY
- 7.5m,10m & 50m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- APPROACH ROAD
- QUARRY ROAD
- CART TRACK
- CONTOUR
- SCRUB
- QUARRY PIT
- GRAVEL
- ROUGH STONE
- STRIKE & DIP
- CANAL

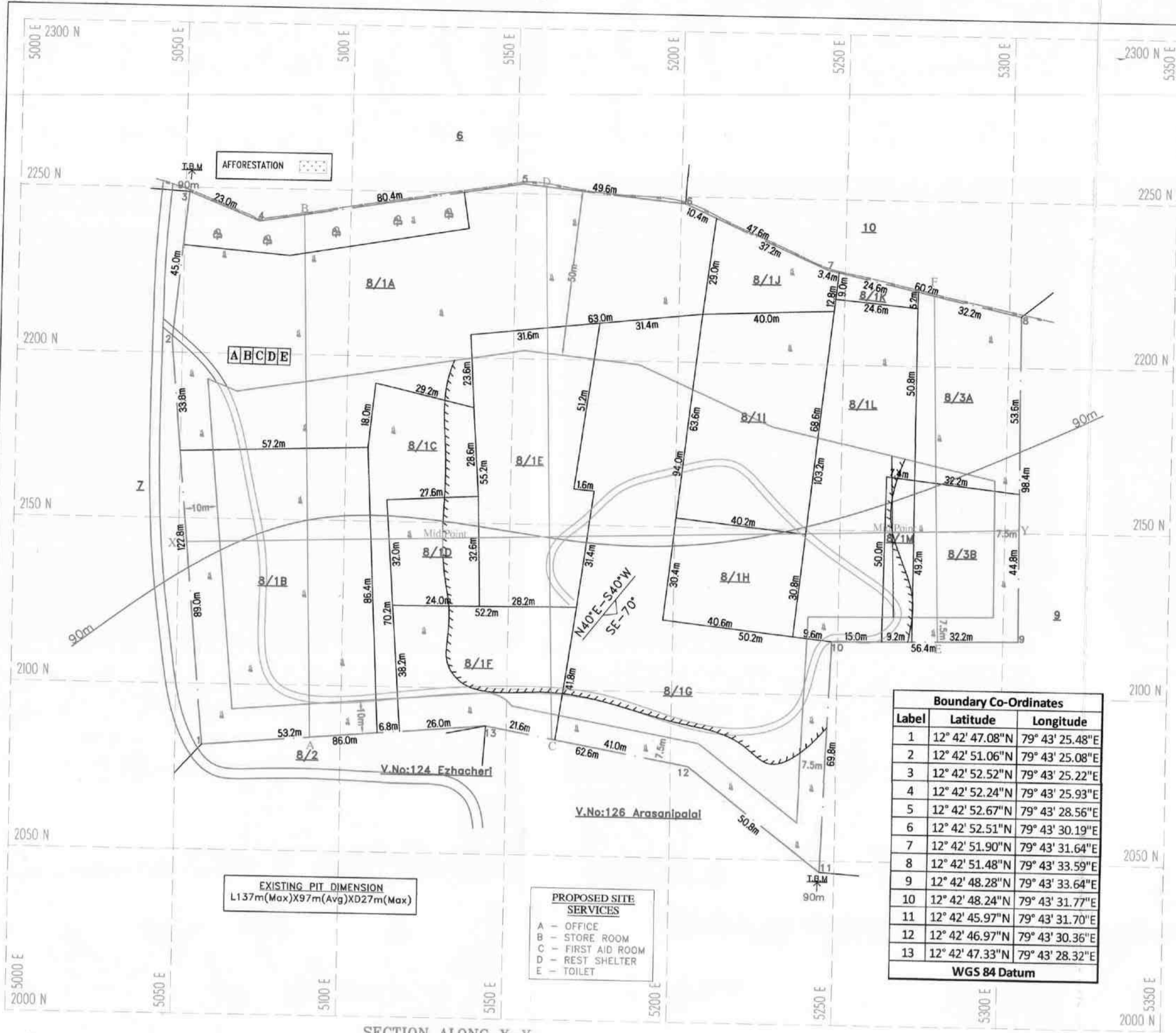
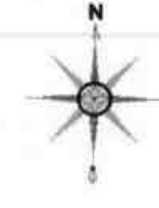
**MINEABLE & YEARWISE DEVELOPMENT & PRODUCTION PLAN & SECTIONS**  
SCALE 1 : 1000  
SECTIONS HOR 1:1000, VER 1:500

**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.N.FARAJAN,M.Sc.,M.Phil.,  
QUALIFIED PERSON

M.N.B.

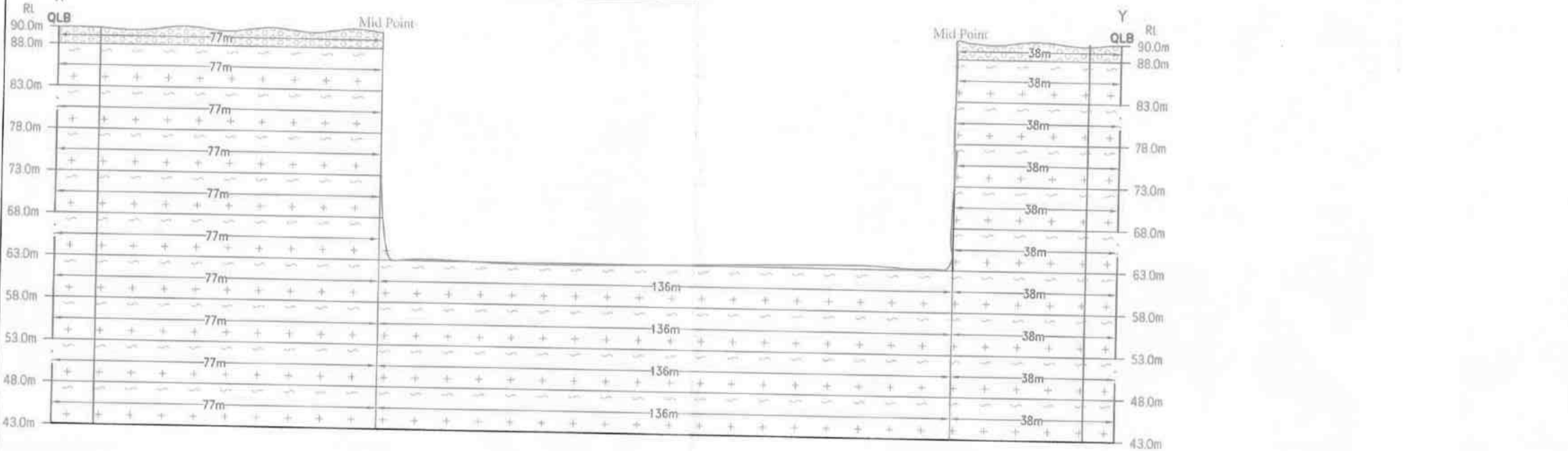




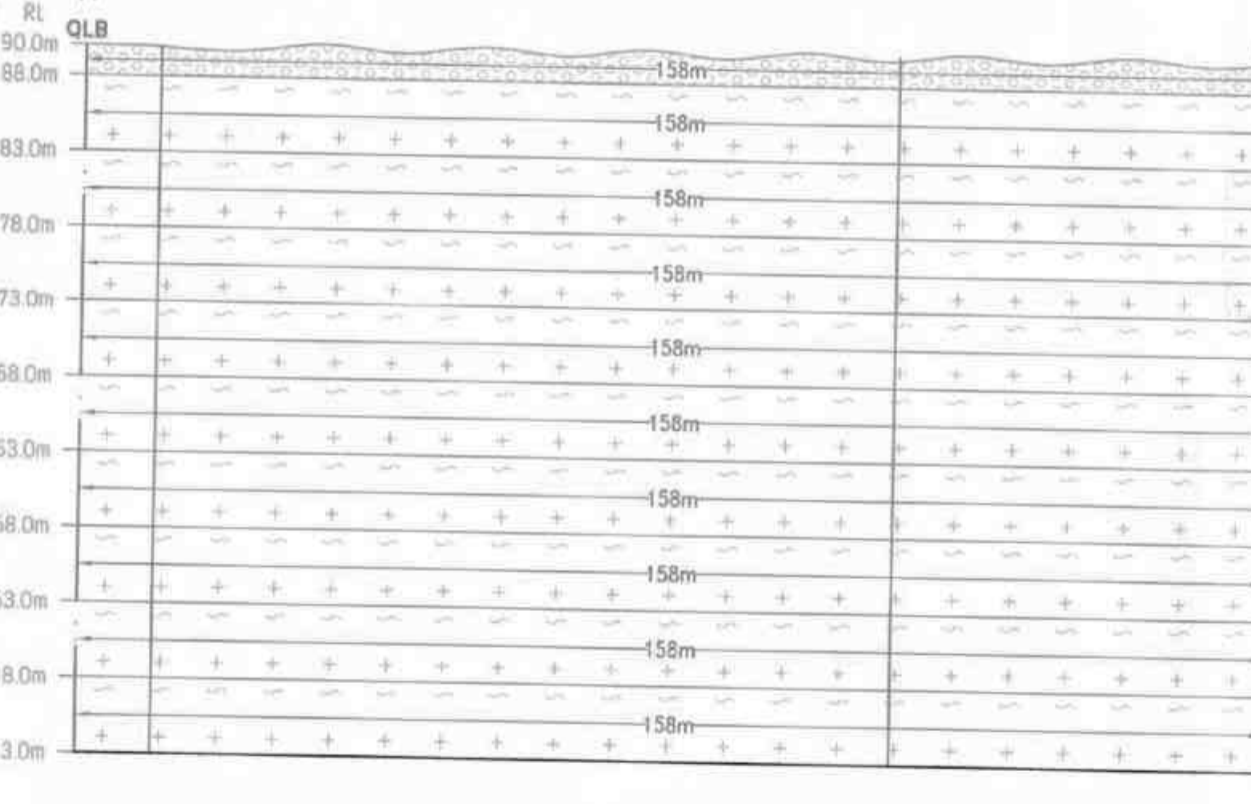
Boundary Co-Ordinates		
Label	Latitude	Longitude
1	12° 42' 47.08"N	79° 43' 25.48"E
2	12° 42' 51.06"N	79° 43' 25.08"E
3	12° 42' 52.52"N	79° 43' 25.22"E
4	12° 42' 52.24"N	79° 43' 25.93"E
5	12° 42' 52.67"N	79° 43' 28.56"E
6	12° 42' 52.51"N	79° 43' 30.19"E
7	12° 42' 51.90"N	79° 43' 31.64"E
8	12° 42' 51.48"N	79° 43' 33.59"E
9	12° 42' 48.28"N	79° 43' 33.64"E
10	12° 42' 48.24"N	79° 43' 31.77"E
11	12° 42' 45.97"N	79° 43' 31.70"E
12	12° 42' 46.97"N	79° 43' 30.36"E
13	12° 42' 47.33"N	79° 43' 28.32"E

WGS 84 Datum

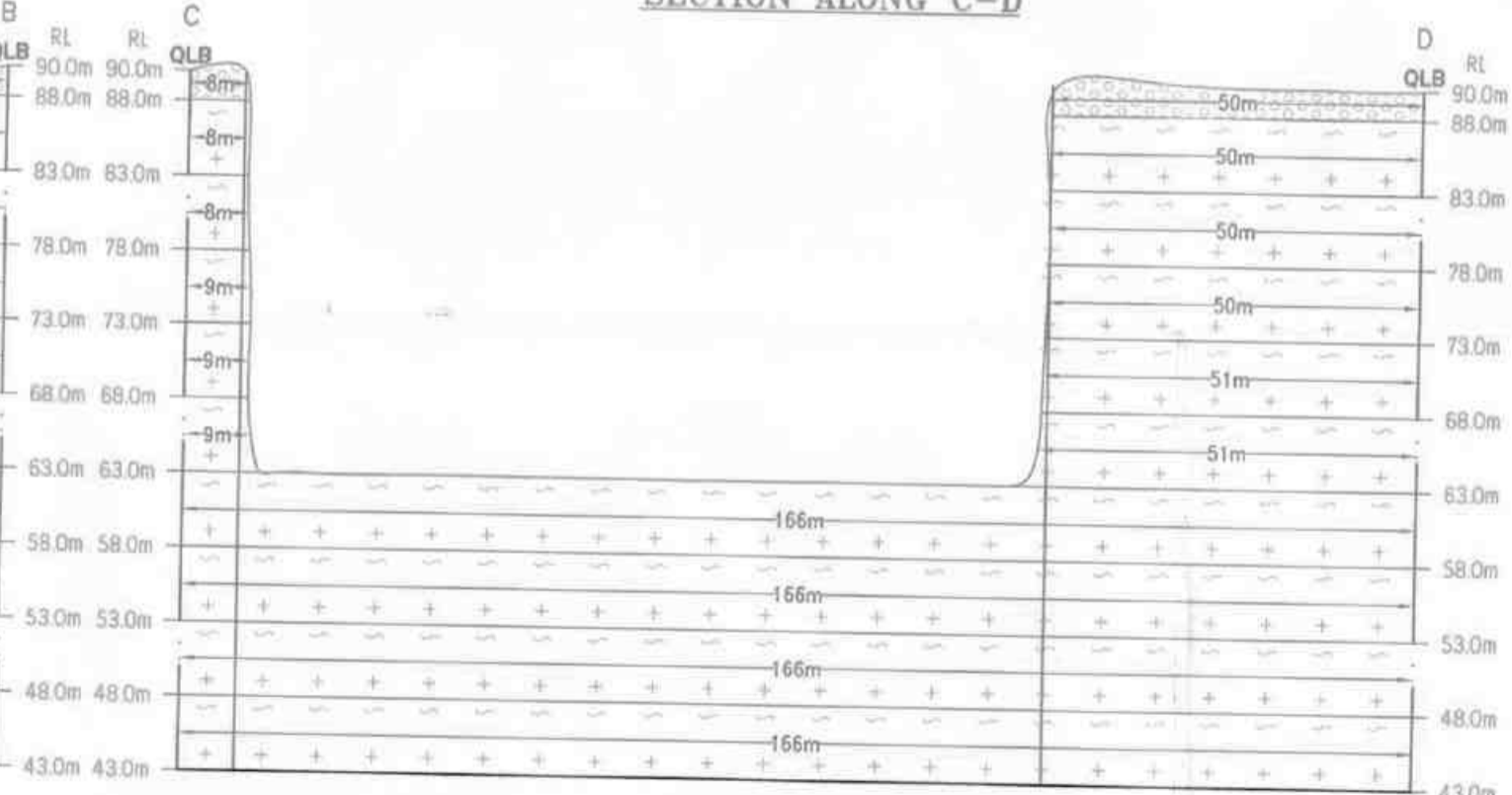
SECTION ALONG X-Y



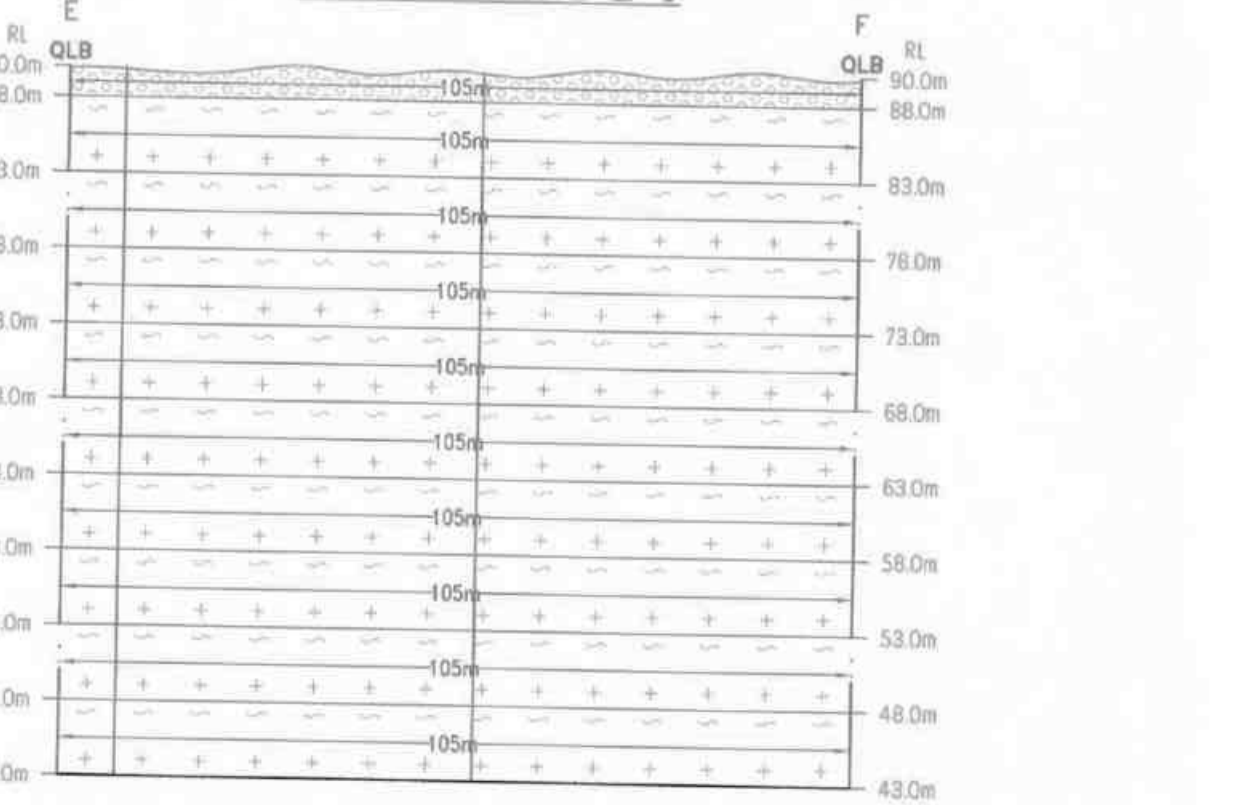
SECTION ALONG A-B



SECTION ALONG C-D



SECTION ALONG E-F



**PLATE NO-III**  
 DATE OF SURVEY : 09.11.2023

**APPLICANT:**  
 THIRU.M.N.BALASUNDARAM,  
 S/o.NATARAJAN,  
 NO.72, MAIN ROAD,  
 MANKADU, KUNDRATHUR TALUK,  
 KANCHEEPURAM DISTRICT.

**QUARRY LEASE APPLIED AREA:**  
 S.F.NO's : B/1A, B/1B, B/1C, B/1D, B/1E, B/1F,  
 B/1G, B/1H, B/1I, B/1J, B/1K, B/1L,  
 B/1M, B/1N & B/1O,  
 B/1P, B/1Q & B/1R,  
 B/1S, B/1T & B/1U,  
 B/1V, B/1W & B/1X,  
 B/1Y, B/1Z, B/1AA, B/1AB, B/1AC, B/1AD, B/1AE, B/1AF, B/1AG, B/1AH, B/1AI, B/1AJ, B/1AL, B/1AM, B/1AN, B/1AO, B/1AP, B/1AQ, B/1AR, B/1AS, B/1AT, B/1AU, B/1AV, B/1AW, B/1AX, B/1AY, B/1AZ.

**EXTENT : 3.87.5 Ha,**  
**VILLAGE : SITHALAPAKKAM,**  
**TALUK : VEMBAKKAM,**  
**DISTRICT : TIRUVANNAMALAI.**

**INDEX**

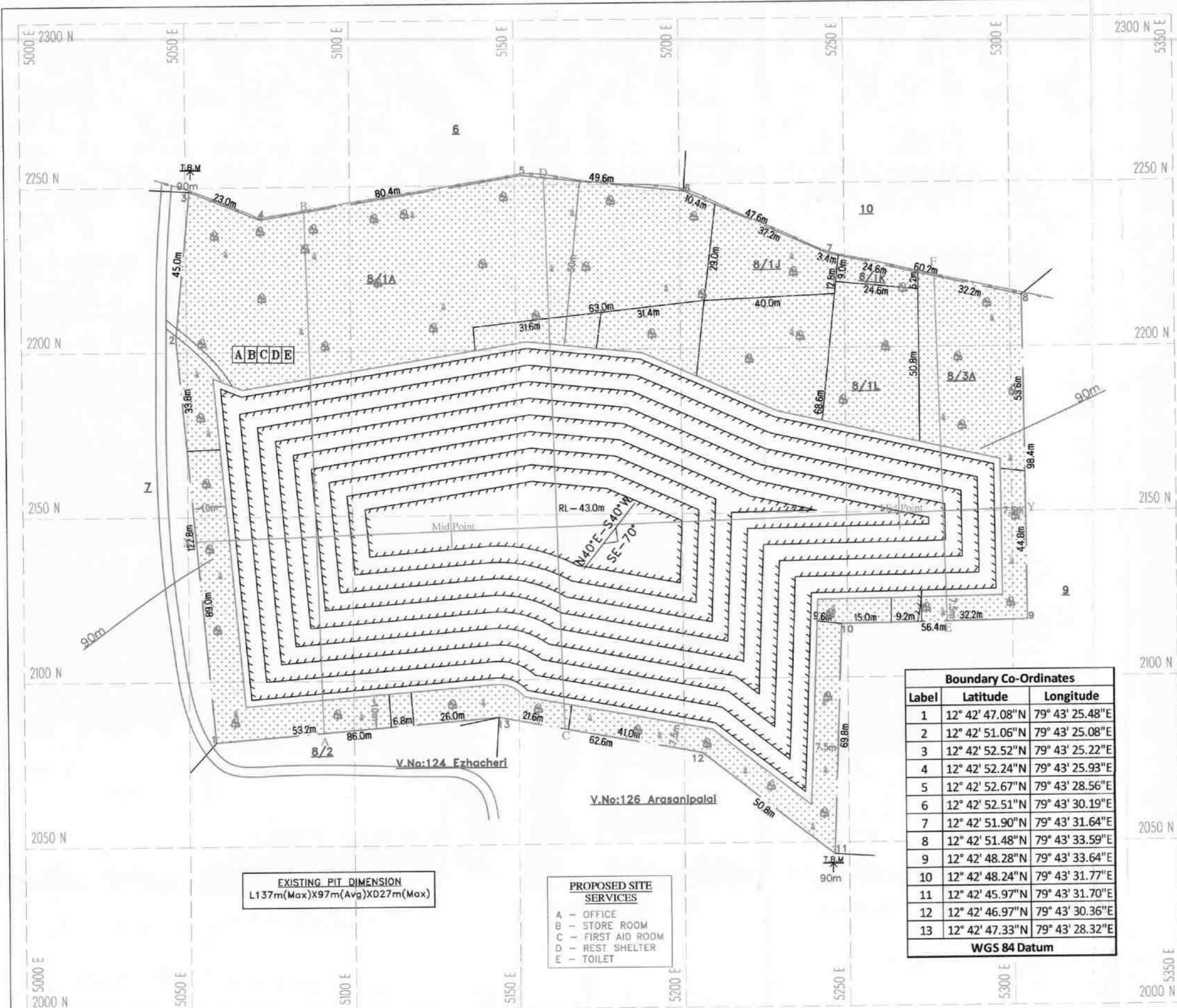
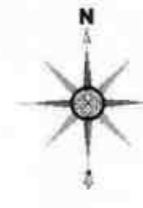
- Q.L. APPLIED BOUNDARY
- 7.5m, 10m & 50m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- APPROACH ROAD
- QUARRY ROAD
- CART TRACK
- CONTOUR
- SCRUB
- QUARRY PIT
- GRAVEL
- ROUGH STONE
- STRIKE & DIP
- CANAL

**TOPOGRAPHY & GEOLOGICAL 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., Ph.D.,  
 QUALIFIED PERSON





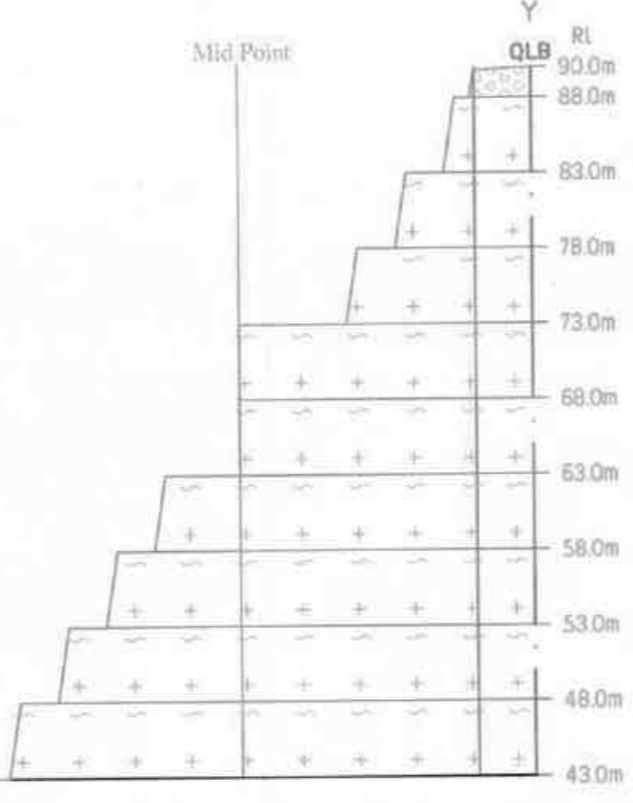
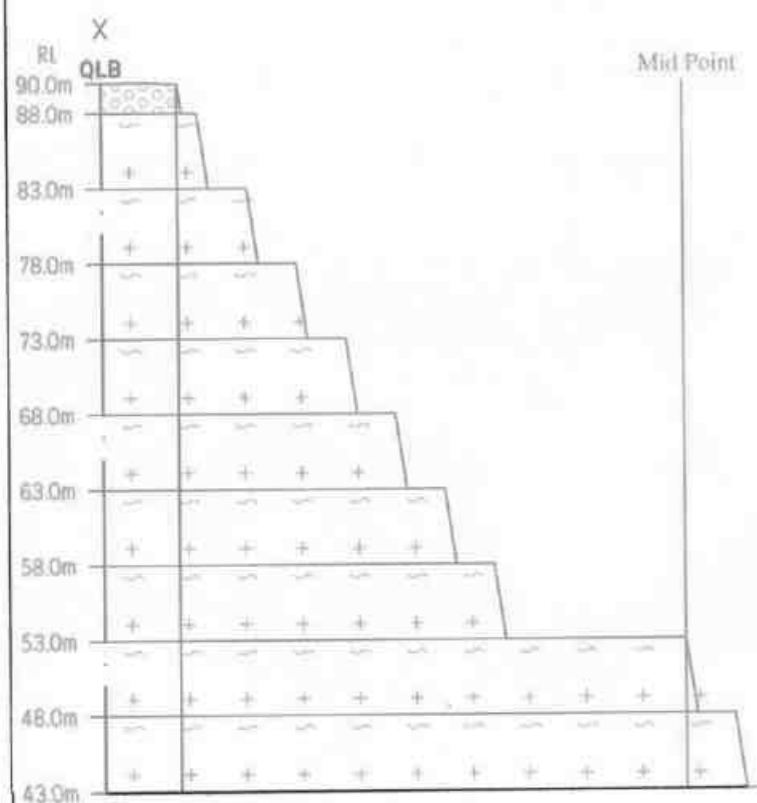
Boundary Co-Ordinates		
Label	Latitude	Longitude
1	12° 42' 47.08"N	79° 43' 25.48"E
2	12° 42' 51.06"N	79° 43' 25.08"E
3	12° 42' 52.52"N	79° 43' 25.22"E
4	12° 42' 52.24"N	79° 43' 25.93"E
5	12° 42' 52.67"N	79° 43' 28.56"E
6	12° 42' 52.51"N	79° 43' 30.19"E
7	12° 42' 51.90"N	79° 43' 31.64"E
8	12° 42' 51.48"N	79° 43' 33.59"E
9	12° 42' 48.28"N	79° 43' 33.64"E
10	12° 42' 48.24"N	79° 43' 31.77"E
11	12° 42' 45.97"N	79° 43' 31.70"E
12	12° 42' 46.97"N	79° 43' 30.36"E
13	12° 42' 47.33"N	79° 43' 28.32"E

WGS 84 Datum

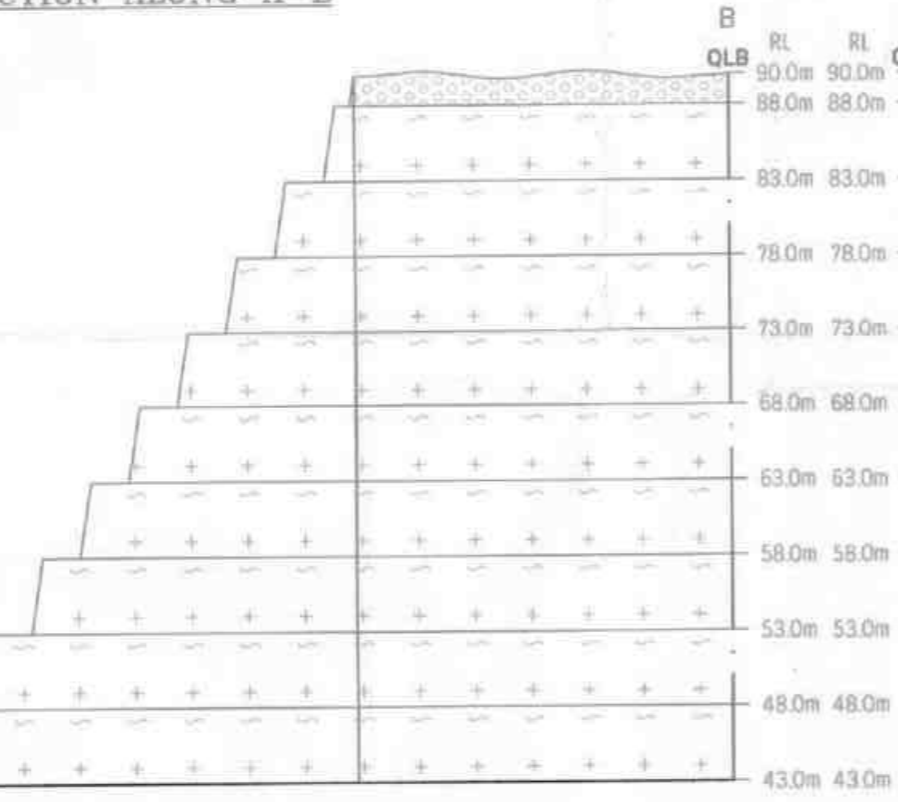
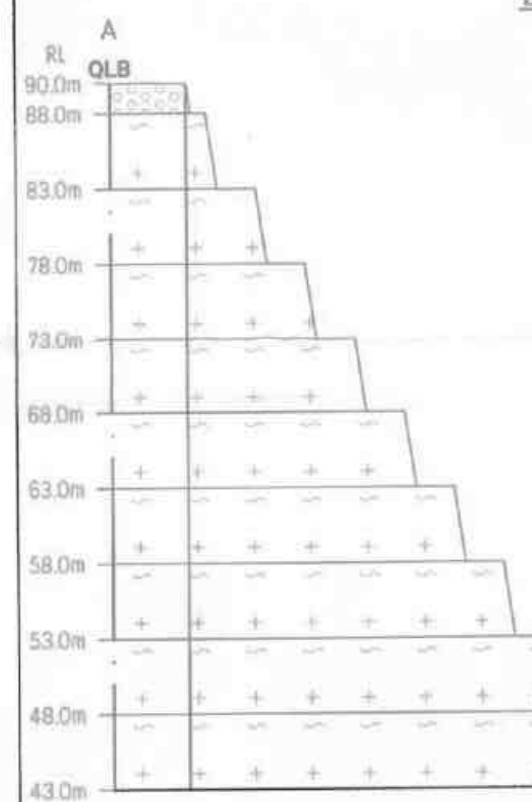
EXISTING PIT DIMENSION  
L137m(Max)X97m(Avg)XD27m(Max)

PROPOSED SITE SERVICES  
A - OFFICE  
B - STORE ROOM  
C - FIRST AID ROOM  
D - REST SHELTER  
E - TOILET

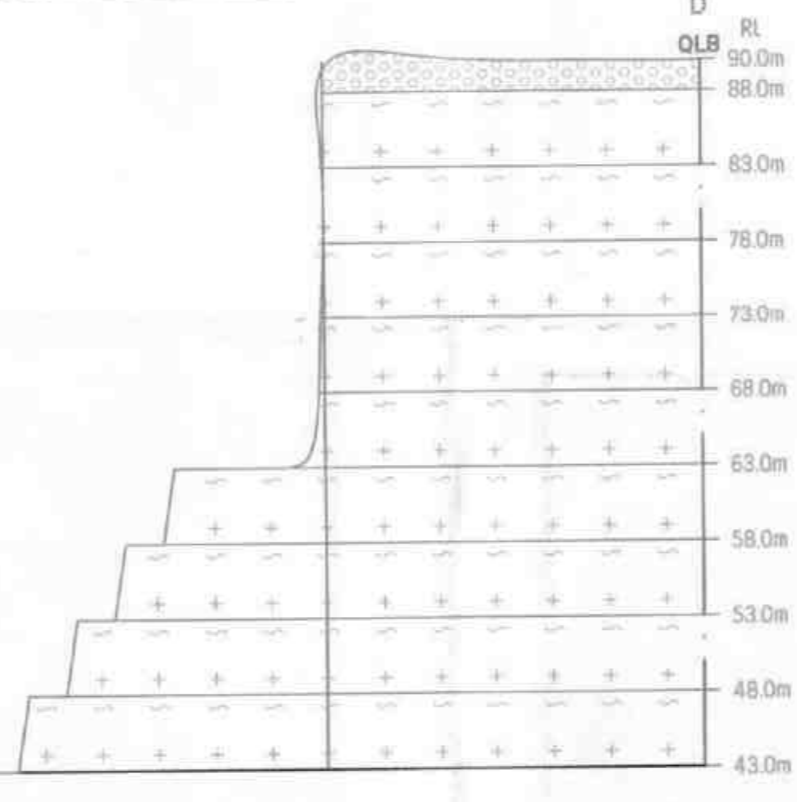
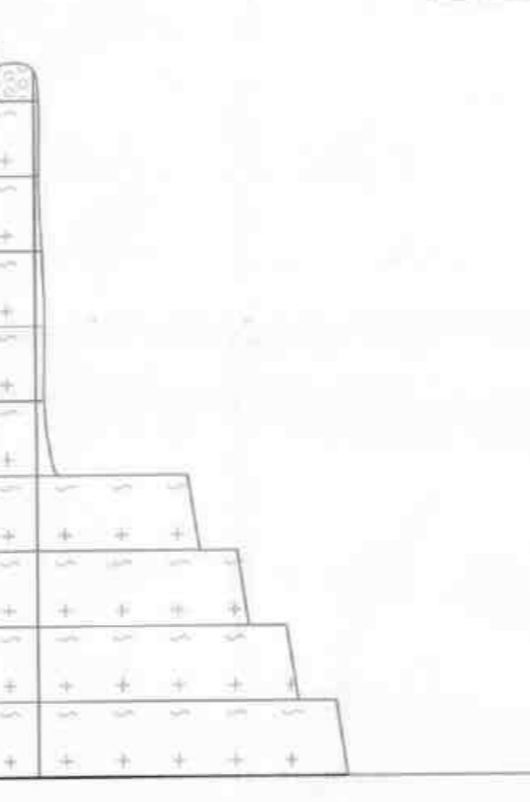
SECTION ALONG X-Y



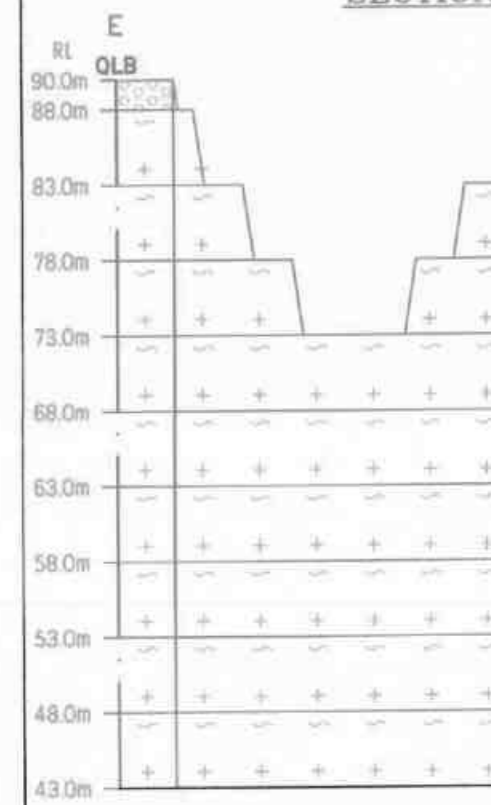
SECTION ALONG A-B



SECTION ALONG C-D



SECTION ALONG E-F



ULTIMATE PIT DIMENSION OF END OF THE MINING PLAN PERIOD  
L234m(Max)X97m(Avg)XD47m(Max)

Proposed area to be Planted

**PLATE NO-V**  
DATE OF SURVEY : 09.11.2023

**APPLICANT:**  
THIRU.M.N.BALASUNDARAM,  
S/o.NATARAJAN,  
NO.72, MAIN ROAD,  
MANKADU, KUNDRATHUR TALUK,  
KANCHEEPURAM DISTRICT.

**QUARRY LEASE APPLIED AREA:**  
S.F.NO'S : 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F,  
8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L,  
8/1M, 8/3A & 8/3B,  
EXTENT : 3.87.5 Ha.  
VILLAGE : SITHALAPAKKAM,  
TALUK : VEMBAKKAM,  
DISTRICT : TIRUVANNAMALAI.

**INDEX**

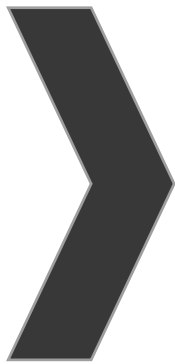
- Q.L. APPLIED BOUNDARY
- 7.5m, 10m & 50m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- APPROACH ROAD
- QUARRY ROAD
- CARTTRACK
- CONTOUR
- SCRUB
- PROPOSED QUARRY
- GRAVEL
- ROUGH STONE
- STRIKE & DIP
- CANAL

**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

MNR/S



**ANNEXURE-4**

From

Thiru.A.Perumal, M.Sc., M.Phil.,  
Deputy Director,  
Geology and Mining,  
Tiruvannamalai - 4.

To

Thiru.M.N.Balasundaram,  
S/o. Natarajan,  
No.72 Main Road,  
Mangadu, Kundrathur Taluk,  
Kanchipuram District.

**Rc.No.429/Kanimam/2023, dated: 29.11.2023**

Sir,

Sub: Quarries and Minerals – Minor Mineral Rough Stone and Gravel – Tiruvannamalai District – Vembakkam Taluk – Chithalapakkam village – Patta SF.Nos.8/1A (0.90.0) & etc., over an extent 3.87.5 hecets., - Application preferred by Thiru.M.N.Balasundaram S/o. Natarajan – **Precise area communicated – Submission of Mining Plan for approval** - Approved - Regarding.

- Ref: 1. Application from Thiru.M.N.Balasundaram S/o. Natarajan, dated.21.08.2023  
2. Precise Area Communication Notice Rc.No.429/Kanimam/2023, dated.08.11.2023  
3. Mining Plan submitted by Thiru.M.N.Balasundaram S/o. Natarajan dated.28.11.2023.

\*\*\*\*\*

In the reference 2<sup>nd</sup> cited, the Deputy Director, Geology and Mining Tiruvannamalai has communicated the SF.Nos.8/1A (0.90.0), 8/1B (0.56.0), 8/1C (0.15.0), 8/1D (0.08.0), 8/1E (0.25.5), 8/1F (0.19.5), 8/1G (0.65.5), 8/1H (0.13.5), 8/1I (0.26.0), 8/1J (0.08.0), 8/1K (0.01.5), 8/1L (0.23.5), 8/1M (0.04.0), 8/3A (0.16.5) & 8/3B (0.15.0) over an extent 3.87.5 hecets., of Chithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District as precise area to the applicant **Thiru.M.N.Balasundaram S/o. Natarajan** for grant of quarry lease for quarrying Rough Stone and Gravel for a period of 5 years with a direction to produce an approved mining plan in respect of the **precise area as per Rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959** by incorporating the conditions stipulated in the Deputy Director, Geology and Mining Tiruvannamalai letter dated 08.11.2023.

2. In response to the precise area communication letter issued by the Deputy Director, Geology and Mining, Tiruvannamalai the applicant has prepared the draft Mining Plan through the Recognized Qualified Person for approval vide reference 3<sup>rd</sup> cited.

3. The draft mining plan submitted in respect of the precise area communication has been examined with reference to the provisions of Rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959 and the followings are observed.

- i) The boundary Co-ordinates (GPS readings) for the entire boundary pillars of the area have been incorporated and shown in the mining plan.



- ii) All the conditions stipulated in the Deputy Director, Geology and Mining Letter Re.No.429/Kanimam/2023 dated:08.11.2023 have been incorporated in the mining plan.
- iii) The reserves estimated in the mining plan is

Depth in Mts.	Geological reserves in Cu.m	Mineable Reserves in Cu.m
47m below ground level (2m Gravel + 45m Rough Stone)	Rough Stone : 13,79,140 Gravel : 48,088	Rough Stone : 2,12,855 Gravel : 15,912

4. In the light of the above, in exercise of the powers conferred under Rule 41 (7) of Tamil Nadu Minor Mineral Concession Rules, 1959 the mining plan in respect of Rough Stone quarry of Thiru.M.N.Balasundaram S/o. Natarajan is approved subject to the following conditions.

- The mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such Laws are made by the Central Government, State Government or any other authority.
- The approval of the mining plan does not in any way imply the approval of the Government in terms of 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, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Indian Explosives Act, 1884 (Central Act IV of 1884) and the rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.
- The mining Plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- Quarrying operations and production shall be carried out as per the approved Mining Plan and the applicant shall be liable to pay the cost of mineral if there is any deviation in the quantum indicated in the approved year wise quantum of production and any such cases as on date are to be dealt with as per Court direction.

**5. Further, other quarries situated within 500 mts radial distance are as follows.**

**i) Existing Quarries**

Sl. No.	Name of the Owner (Tvl.)	Village & S.F. Nos.	Extent in Hect.	Lease Period	Remarks
1.	Thiru.R.Elumalai S/o.Rajagopal, No.20, Pillaiyar koil street, Arasanipalai village, Vembakkam Taluk.	Ezhacheri & 62/ 1A ,1B ,2C,2D,4 5,6,7,9,10,11	1.24.0	02.11.2021 to 01.11.2031	Existing Quarry
2.	Thiru.P.Sanker S/o. Ponnappan, No.1/63 Pillaiyar koil street, Erumaiyur village, Thirumudivakkam, Chennai	Ezhacheri & 21/2F, 2G, 2H, 2I , 2J & 2K	2.09.5	02.11.2021 to 01.11.2031	Existing Quarry

3.	Thiru.R.Monishkumar, s/o Rajendiran, No.35/88, Rajaji Street, Chengalpattu.	Ezhacheri & 16/5A, 16/5B, 19/1B3, 4A1, 4B1, 4C1, 4D1, 5A, 5B1, 21/1C, 1D, 1E, 1F, 22/2B	3.12.5	02.11.2021 to 01.11.2031	Existing Quarry
----	--	---	--------	--------------------------------	--------------------

ii) **Abandoned quarries**

Sl. No.	Name of the Owner (Tvl.)	Village & S.F. Nos.	Extent in Hect.	Lease Period	Remarks
1.	B. Deenan , No.79, Gajapathi Street, Sanai Nagar, Chennai	Ezhacheri & 25/2	1.00.5	19.3.2010 to 18.3.2015	Expired Quarry
2.	R.Seenuvasan, Road Street, Arasanipalai village, Vembakkam Taluk	Ezhacheri & 65/4, 5, 7, 8A, 66/4	3.42.0	27.06.2014 to 26.06.2019	Expired Quarry
3.	B. Deenan , No.79, Gajapathi Street, Sanai Nagar, Chennai	Ezhacheri & 65/6	0.95.5	20.07.2018 to 01.03.2021	Expired Quarry


iii) **Present Proposed Quarries**

Sl. No	Name of the Owner (Tvl)	Village & S.F. Nos.	Extent in Hect.
1	Thiru.M.N.Balasundaram, S/o. Natarajan, No.72 Main Road, Mangadu, Kundrathur Taluk, Kanchipuram District.	Chithalapakkam 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A & 8/3B	3.87.5

iv). **Future Proposed quarries**

Sl. No	Name of the Owner (Tvl)	Village & S.F. Nos.	Extent in Hect.
---Nil---			

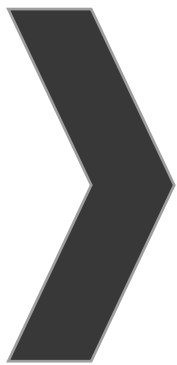
**Encl:** 2 Copies of Approved Mining Plan.

  
 Deputy Director,  
 Geology and Mining,  
 Tiruvannamalai.

**Copy submitted to:**

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

03/12/23



**ANNEXURE-5**

**TOPOGRAPHICAL VIEW OF CHITHALAPAKKAM**  
**ROUGH STONE AND GRAVEL QUARRY**



Name of the applicant : M.N.Balasundharam  
S.F.Nos : 8/1A, 8/1B, 8/1C, 8/1D, 8/1E,  
8/1F, 8/1G, 8/1H, 8/1I, 8/1J,  
8/1K, 8/1L, 8/1M, 8/3A, 8/3B  
Extent : 3.87.5 Acr  
Name of the Village : Chithalapakkam  
Taluk : Vembakkam  
District : Tiruvannamalai

Place: *chithalapakkam*  
Date : *29-11-2023*

*M.N.B.*  
29-11-2023  
திராம நிர்வாக அலுவலர்,  
88, சிதறலப்பாக்கம் திராமம்,  
வெப்பாக்கம் வட்டம்,  
திருவள்ளூர் மாவட்டம்.

*M.N.B.*

பிரதமர் அமைச்சரவை அறிவிப்பு

பிரதமர் அமைச்சரவை அறிவிப்பு, தலைநகரில் உள்ள, சி.என்.டி.சி. கட்டிடத்தில் உள்ள அலுவலகங்களின் பட்டியல்  
 8/1A - 0900, 8/1B - 0560, 8/1C - 0150, 8/1D - 0080,  
 8/1E - 0255, 8/1F - 0195, 8/1G - 0655, 8/1H - 085,  
 8/1I - 0265, 8/1J - 0080, 8/1K - 0015, 8/1L - 0235,  
 8/1M - 0040, 8/2A - 0165, 8/2B - 0150 ஆகிய  
 அலுவலகங்களின் அளவுகோல் திட்டமிடல் கமிட்டி  
 அறிவுறுத்தியிருக்கிறது. மேலும் அலுவலகங்களை  
 அமைப்பதற்கான பணிகளை மேற்கொள்ளும்  
 அமைச்சர் அறிவுறுத்தியிருக்கிறார்.

பிரதமர் அமைச்சரவை அறிவிப்பு 2011-12-15  
 அமைச்சர் அறிவுறுத்தியிருக்கிறது 3.87.5 (அல்லது அதற்கு  
 அளவுகோல் அமைச்சர் அறிவுறுத்தியிருக்கிறது).


- அமைச்சர் - இந்த அறிவிப்பு கட்டுரை செய்து கொடுக்க
- அமைச்சர் - அமைச்சர் அறிவுறுத்தியிருக்கிறது
- அமைச்சர் - அமைச்சர் அறிவுறுத்தியிருக்கிறது
- அமைச்சர் - அமைச்சர் அறிவுறுத்தியிருக்கிறது


  
 29-11-2011  
 பிரதமர் அமைச்சர் அறிவுறுத்தியிருக்கிறது,  
 28, அமைச்சர் அறிவுறுத்தியிருக்கிறது,  
 அமைச்சர் அறிவுறுத்தியிருக்கிறது,  
 அமைச்சர் அறிவுறுத்தியிருக்கிறது.  

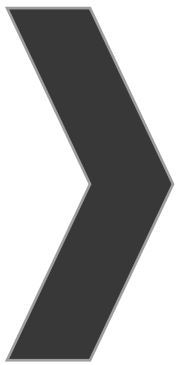

சிறைகளில் அளவீடு கண்டிப்பு

சிறைகளில் உள்ள கைதிகளின் உணவுகளை, உபயோகப்படுத்தும் பொருள்கள், சிகிச்சைகளைக் கொடுக்கும் முறைகள் குறிப்பாக  
 8/1A - 0900, 8/1B - 0560, 8/1C - 0150, 8/1D - 0080,  
 8/1E - 0255, 8/1F - 0195, 8/1G - 0656, 8/1H - 0145,  
 8/1I - 0260, 8/1J - 0080, 8/1K - 0015, 8/1L - 0235,  
 8/1M - 0040, 8/3A - 0165, 8/1B - 0150 எனும் சிறை  
 கைதிகளின் 3.87.5 ஏக்கர் நிலத்தில் கைதிகளின் உணவுகளை  
 உற்பத்தி செய்வதற்கான திட்டம் மேலாண்மை செய்து  
 வருவதற்காக அளவீடு செய்து அளவீடு செய்து.

சிறைகளில் சிறை அளவீடுகளை அளவீடு  
 நிலத்தில் உள்ள நிலம் 300 metre [அளவீடு செய்து]  
 உபயோகப்படுத்தும் நிலம் கைதிகளின், சிறைகளில் -  
 பகுதிகள், பராமரிப்பு சிகிச்சைகளை, மருந்து விலை  
 உற்பத்தி செய்து சிறை கைதிகளின் உணவுகளை  
 உற்பத்தி செய்து சிறை கைதிகளின் உணவுகளை  
 உற்பத்தி செய்து சிறை கைதிகளின் உணவுகளை

  
 01-12-2023  
 சிராம நிர்வாக அலுவலர், 01-12-2023  
 88, சித்தாரம்பாக்கம் சிராமம்,  
 வெம்பாக்கம் வட்டம்,  
 திருவள்ளூர் மாவட்டம்.





**ANNEXURE-6**



தமிழ்நாடு அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருவண்ணாமலை

வட்டம் : வெம்பாக்கம்

வருவாய் கிராமம் : சித்தலப்பாக்கம்

பட்டா எண் : 159


உரிமையாளர்கள் பெயர்

- |    |             |      |             |  |
|----|-------------|------|-------------|--|
| 1. | நடராஜன்     | மகன் | பாலசுந்தரம் |  |
| 2. | நடராஜன்     | மகன் | சங்கர்      |  |
| 3. | நடராஜன்     | மகன் | பாஸ்கர்     |  |
| 4. | பாலசுந்தரம் | மகன் | தினேஷ்      |  |

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	
8	1A	0 - 90.00	5.68	--	--	--	--	9251/1421---- - 20-03-2012
8	1B	0 - 56.00	3.54	--	--	--	--	9251/1421---- - 20-03-2012
8	1C	0 - 15.00	0.95	--	--	--	--	A1417/1283--- -- 08-10-2007
8	1D	0 - 8.00	0.51	--	--	--	--	A1417/1283--- -- 08-10-2007
8	1E	0 - 25.50	1.61	--	--	--	--	A1417/1283--- -- 08-10-2007
8	1F	0 - 19.50	1.23	--	--	--	--	A1417/1283--- -- 08-10-2007
8	1G	0 - 65.50	4.15	--	--	--	--	A1417/1283--- -- 08-10-2007
8	1H	0 - 13.50	0.85	--	--	--	--	A1417/1283--- -- 08-10-2007
8	1I	0 - 26.00	1.64	--	--	--	--	A1417/1283--- -- 08-10-2007
8	1J	0 - 8.00	0.51	--	--	--	--	A1417/1283--- -- 08-10-2007
9	4	0 - 26.00	1.69	--	--	--	--	9251/1421---- - 20-03-2012
9	8	0 - 31.00	1.97	--	--	--	--	9251/1421---- - 20-03-2012
		3 - 84.00	24.33					

குறிப்பு2 :



	1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <a href="https://eservices.tn.gov.in">https://eservices.tn.gov.in</a> என்ற இணைய தளத்தில் 06/10/125/00159/70595 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
	2. இத் தகவல்கள் 17-12-2023 அன்று 01:23:39 PM நேரத்தில் அச்சடிக்கப்பட்டது.
	3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

M. N. S. S.



தமிழ்நாடு அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருவண்ணாமலை

வட்டம் : வெம்பாக்கம்

வருவாய் கிராமம் : சித்தலப்பாக்கம்

பட்டா எண் : 108

உரிமையாளர்கள் பெயர்

1.	நடராஜன்	மகன்	பாலசுந்தரம்
2.	நடராஜன்	மகன்	சங்கர்
3.	நடராஜன்	மகன்	பாஸ்கர்
4.	பாலசுந்தரம்	மகன்	தினேஷ்



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	
8	1K	0 - 1.50	0.09	--	--	--	--	958/1421--- -- 18-05-2012
8	1L	0 - 23.50	1.49	--	--	--	--	429/1423--- -- 25-06-2014
8	1M	0 - 4.00	0.25	--	--	--	--	D2003/849--- -- - 25-03-2003
8	3A	0 - 16.50	1.43	--	--	--	--	D2003/849--- -- - 25-03-2003
8	3B	0 - 15.00	1.30	--	--	--	--	D2003/849--- -- - 25-03-2003
		0 - 60.50	4.56					

குறிப்பு 2 :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 06/10/125/00108/70589 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 17-12-2023 அன்று 01:25:54 PM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



தமிழ்நாடு தமிழ்நாடு TAMILNADU

6/4/2023

M.N. Balakundaram

CV 82097  
M. VENUGOPAL

Stamp Vendor L. No: 11/CH (No. 41/22, Kamatchi Amman K Mangadu, Chennai - 600

பொது அதிகாரப் பத்திரம்



2023 ஆம் வருடம், ஆகஸ்ட் மாதம், 16-ந் தேதி. காஞ்சிபுரம் மாவட்டம், குன்றத்தூர் வட்டம், மாங்காடு கிராமம், மெயின் ரோடு, எண்.72 வீட்டில் வசிக்கும் காலஞ்சென்ற நடராஜ முதலியார் அவர்களின் குமாரர் திரு M.N. பாலசுந்தரம் ஆகிய உங்களுக்கு,

காஞ்சிபுரம் மாவட்டம், குன்றத்தூர் வட்டம், மாங்காடு கிராமம், மெயின் ரோடு, எண்.72 வீட்டில் வசிக்கும் காலஞ்சென்ற நடராஜ முதலியார் அவர்களின் குமாரர்கள் திரு N. சங்கர் - (1) திரு N. பாஸ்கர் - (2) மேற்படி திரு M.N. பாலசுந்தரம் அவர்களின் குமாரர் திரு M.B. தினேஷ் - (3) ஆகிய நாங்கள் மூவரும் மனப்பூர்வமாய் சம்மதித்து எழுதிக் கொடுத்த பொது அதிகாரப் பத்திரம் என்னவென்றால்,

A.S. N. Suman

N.B. N. Suman

M.B.D. N. Suman

M.N. Balakundaram

C. MANI, B. A., B. L.,  
NOTARY  
Poonamallee & Avadi  
G.O. (MS) Law. 37/21, Exp. 28.5. 2026  
442, M.G. Nagar, 3rd Street,  
Poonamallee, Chennai - 600 056.  
Ph : 044 2649 5034

திருவண்ணாமலை மாவட்டம், செய்யார் வட்டம், (தற்பொழுது வெண்பாக்கம் வட்டம்,) செய்யார் பதிவு மாவட்டம், தூசி சார்பதிவாளர் அலுவலக எல்லைக்குட்பட்ட 125 எண். சித்தாலப்பாக்கம் கிராமம், 108 எண் பட்டாவில் அடங்கிய புஞ்சை சர்வே எண்கள் பின் வருமாறு:-

8/1 A	-	0.90.0	ஏர்ஸ் - ஏக்	2.22	சென்ட்
8/1 B	-	0.56.0	ஏர்ஸ் - ஏக்	1.38	சென்ட்
8/1 C	-	0.15.0	ஏர்ஸ் - ஏக்	0.37	சென்ட்
8/1 D	-	0.08.0	ஏர்ஸ் - ஏக்	0.20	சென்ட்
8/1 E	-	0.25.5	ஏர்ஸ் - ஏக்	0.63	சென்ட்
8/1 F	-	0.19.5	ஏர்ஸ் - ஏக்	0.48	சென்ட்
8/1 G	-	0.65.5	ஏர்ஸ் - ஏக்	1.62	சென்ட்
8/1 H	-	0.13.5	ஏர்ஸ் - ஏக்	0.33	சென்ட்
8/1 I	-	0.26.0	ஏர்ஸ் - ஏக்	0.64	சென்ட்
8/1 J	-	0.08.0	ஏர்ஸ் - ஏக்	0.20	சென்ட்




ஆக 3.27.0 ஏர்ஸ் - ஏக் 8.07 சென்ட் நிலமும், 8/1 C - ல் கிணறு ,3 எச். பி . பம்புசெட் உள்பட நம் நான்கு பெயரிலும் கிரையம் பெற்று அந்த பத்திரம் தூசி சார்பதிவாளர் அலுவலகத்தில் ஆவண எண் 259/2012 - வது நெம்பராக பதிவு செய்யப்பட்டும்

மற்றும்

திருவண்ணாமலை மாவட்டம், செய்யார் வட்டம், (தற்பொழுது வெண்பாக்கம் வட்டம்,) செய்யார் பதிவு மாவட்டம், தூசி சார்பதிவாளர் அலுவலக எல்லைக்குட்பட்ட 125 எண். சித்தாலப்பாக்கம் கிராமம், 108 எண் பட்டாவில் அடங்கிய புஞ்சை சர்வே எண்கள் பின் வருமாறு:-

8/1 K	-	0.01.5	ஏர்ஸ் - ஏக்	0.04	சென்ட்
8/1 L	-	0.23.5	ஏர்ஸ் - ஏக்	0.58	சென்ட்
8/1 M	-	0.04.0	ஏர்ஸ் - ஏக்	0.10	சென்ட்
8/3 A	-	0.16.5	ஏர்ஸ் - ஏக்	0.41	சென்ட்
8/3 B	-	0.15.0	ஏர்ஸ் - ஏக்	0.37	சென்ட்

  
**C. MANI, B. A., B. L.,**  
 NOTARY  
 Poonamallee & Avadi  
 G.O. (MS) Law. 37/21, Exp.28.5. 2026  
 #42, M.G. Nager, 3<sup>rd</sup> Street  
 Poonamallee, Chennai - 600 058,  
 Ph : 044 2649 5054

N.S. N. Shan

N.B. N. Shan

M.B.D.

ஆக ரூ.60.5 ஏர்ஸ் - ஏக் 1.50 சென்ட் நிலத்தை நம் நான்கு பெயரிலும் கிரையம் பெற்று அந்த பத்திரம் தூசி சார்பதிவாளர் அலுவலகத்தில் அனுப்பி எண் 2963/2013- வது நெம்பராக பதிவு செய்யப்படும்

ஆக மொத்தம் 3.87.5ஏர்ஸ் - ஏக் 9.57 சென்ட்

மேற்படி சொத்தானது நம் அனைவருடைய அனுபோகத்திலும் இருந்து வருகின்றது.

மேற்படி சொத்தினை நாங்கள் வெளியூரில் வசித்து வருகின்ற காரணத்தினாலும், எங்களால் நேரிடையாக பராமரிக்க முடியாத காரணத்தினாலும், தங்களை எங்களுடைய பொது அதிகாரம் பெற்ற ஏஜென்டாக நியமித்துத் தங்கள் பெயருக்கு இந்த பொது அதிகாரப் பத்திரம் எழுதி கொடுக்கிறோம்.

ஆகையால் இன்று முதல் மேற்கண்ட சொத்தில் தாங்கள் கல்குவாரி நடத்தவும், கல்குவாரி சம்மந்தமான அனைத்து வேலைகளை செய்யவும், மற்றும் மின்சார இணைப்பு பெறவும், கல் குவாரி அமைப்பதற்கான சட்டபடி தேவையான அனைத்து நடவடிக்கைகளையும் தங்கள் பெயரில் பெறவும், இதன் மூலம் தங்களுக்கு முழு அதிகாரம் அளிக்கின்றோம்.

மேலே குறிப்பிடப்பட்டுள்ள கல் குவாரி தங்கள் பெயரில் மேற்படி இடத்தில் நடத்திவர எங்களுக்கு எந்த விதமான ஆட்சேபமும் இல்லை எனவும் இதன்மூலம் உறுதி அளிக்கிறோம்.

மேலே குறிப்பிடப்பட்டுள்ள செயல்கள் அனைத்தையும் சட்டபடி தாங்கள் நடத்தி வரவும், அதற்கான அனைத்து பணிகளையும் செய்ய நாங்கள் முழுமனதுடன் இதன்மூலம் ஒப்புக்கொள்கிறோம்.

தேவைப்படும் பொழுது உங்களுக்கோ அல்லது நீங்கள் குறிப்பிடும் துறைக்கோ நாங்கள் தூசி சார்பதிவாளர் அலுவலகத்தில் பதிவு செய்ய ஒப்பு கொள்கிறோம்.

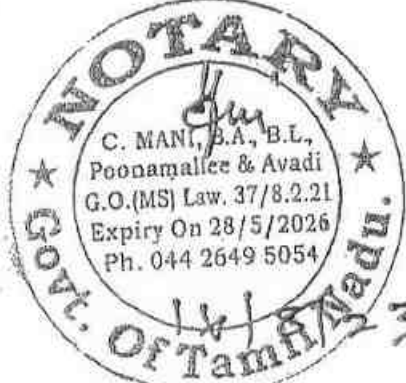
சாட்சிகள்

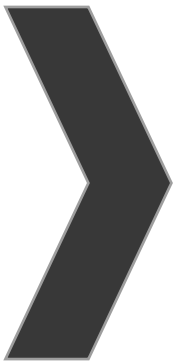
N.S. N. Suman

N.B. N. Suman

M.B.D.

  
C. MANI, B.A., B.L.,  
NOTARY  
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NOTARY  
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Govt. of Tamil Nadu.



**ANNEXURE-7**

# DISTRICT SURVEY REPORT FOR MINOR MINERALS OTHER THAN SAND MINING / RIVER BED MINING

## MINOR MINERAL : ROUGH STONE

( Prepared As Per Notification Of Ministry Of Environment, Forest And Climate Change - MOEF & CC  
S.O.141 (E) Dated 15<sup>th</sup> January 2016 & S.O.3611 (E) Dated 25<sup>th</sup> July 2018 )



**MAY -2019**



## DISTRICT SURVEY REPORT TIRUVANNAMALAI DISTRICT

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## **1. INTRODUCTION**

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

The need of the minor minerals particularly for infrastructural development of Individuals as well as for the Government is increasing day by day rapidly, accordingly the mining of minor minerals, is also developing vigorously. However, each entity looking for a good environment for their habitat.

As per the Gazette Notification **S.O.3611 (E) Dated: 25.07.2018** Ministry of Environment, Forest and Climate Change (MoEF & CC),laid procedure for preparation of District Survey Report of minor minerals other than sand mining or river bed mining. The main purpose of preparation of District Survey Report is to identify the mineral resources and developing the mining activities along with other relevant data of the District.

This District Survey report, guides systematic and scientific utilization of natural resources, so that present and future generations benefit equally. The objective of District Survey Report (DSR) is to meet human needs while preserving the Environment so that these needs can be met not only in the present, also for future generation.

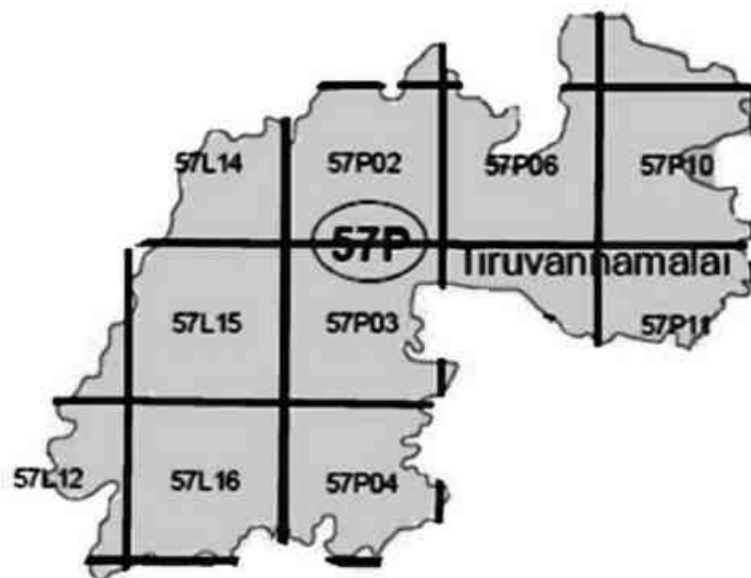
The minerals are basic and strategic material for industrial and Economic development. In mining, the possibilities of adverse effects on the Environment are quite high if the adverse effects are not contain are reduced to minimum. The Negative impact of Mining could be controlled through the application of the concept and principles of sustainable development to mining operation.

The District Survey report (DSR) contain mainly data published and endorsed by various Departments and websites about Geology of the area, Mineral Wealth details, Details of Lease and Mining activity in the District along with Revenue of Minerals. This report also contains details of Forest, Rivers, Soil, Agriculture, Road, Transportation and Climate etc.

The main purpose of preparation of District Survey Report is to identify the mineral resources and developing the mining activities along with other relevant data of the District.

**List of occurrences of Minerals in Tiruvannamalai District:**

1. Rough Stone and associated products
2. Granite (Black Granite and Multi Colour Granite)
3. Fire Clay
4. Gravel / Ordinary Earth (Savudu) / Brick Clay

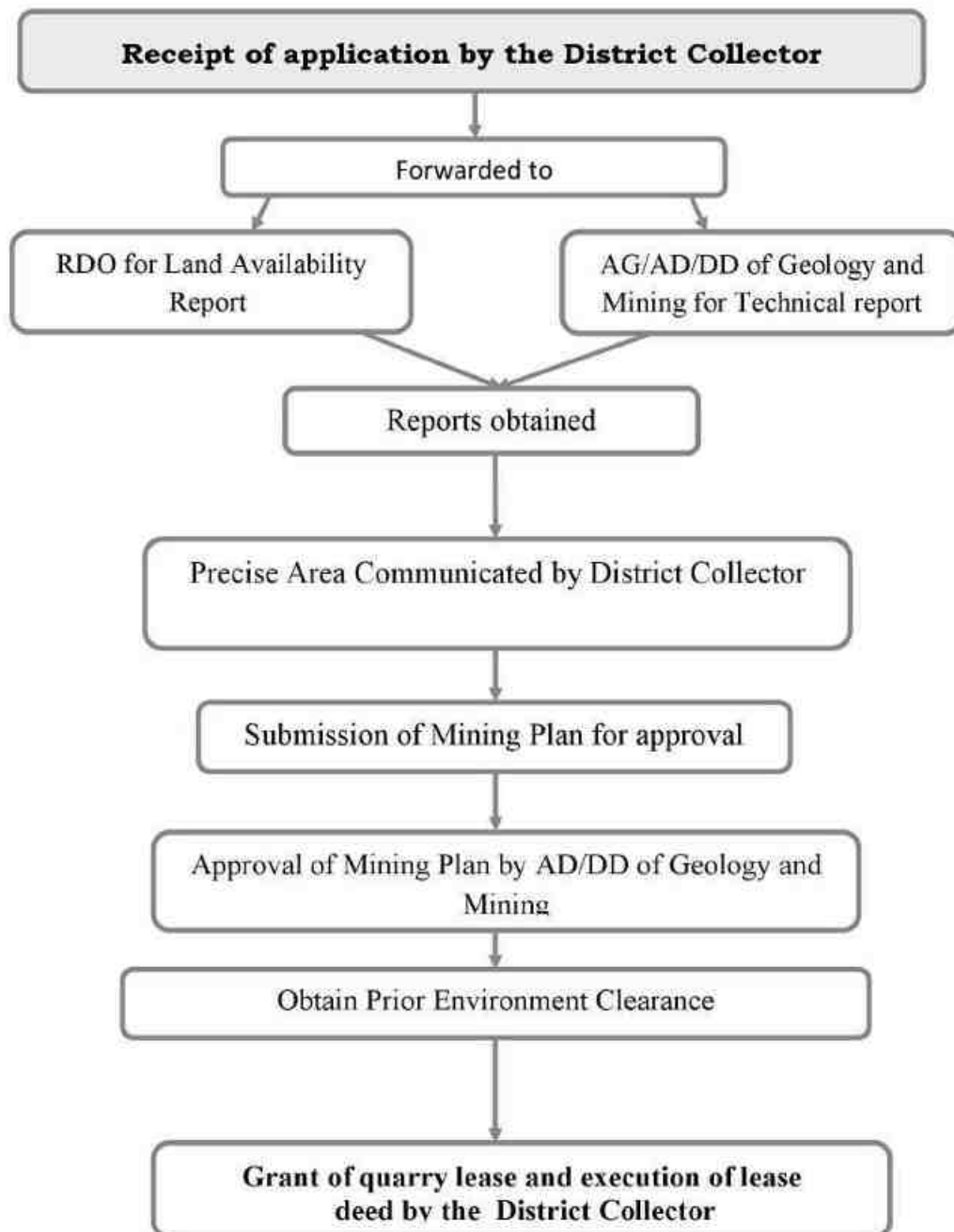


**Fig. 1.1** Toposheet in Tiruvannamalai District

## 2. OVERVIEW OF MINING ACTIVITY IN THE DISTRICT

The Mining activities are carried out in the district by Opencast Mechanized method and Opencast Manual method. In opencast method, Mining activities being carried out by drilling and blasting and also deploying heavy machineries like pocklain, Breaker, Tipper and compressors etc., Benches are formed along the strike on the hanging wall and footwall sides to work the deposit at depth.

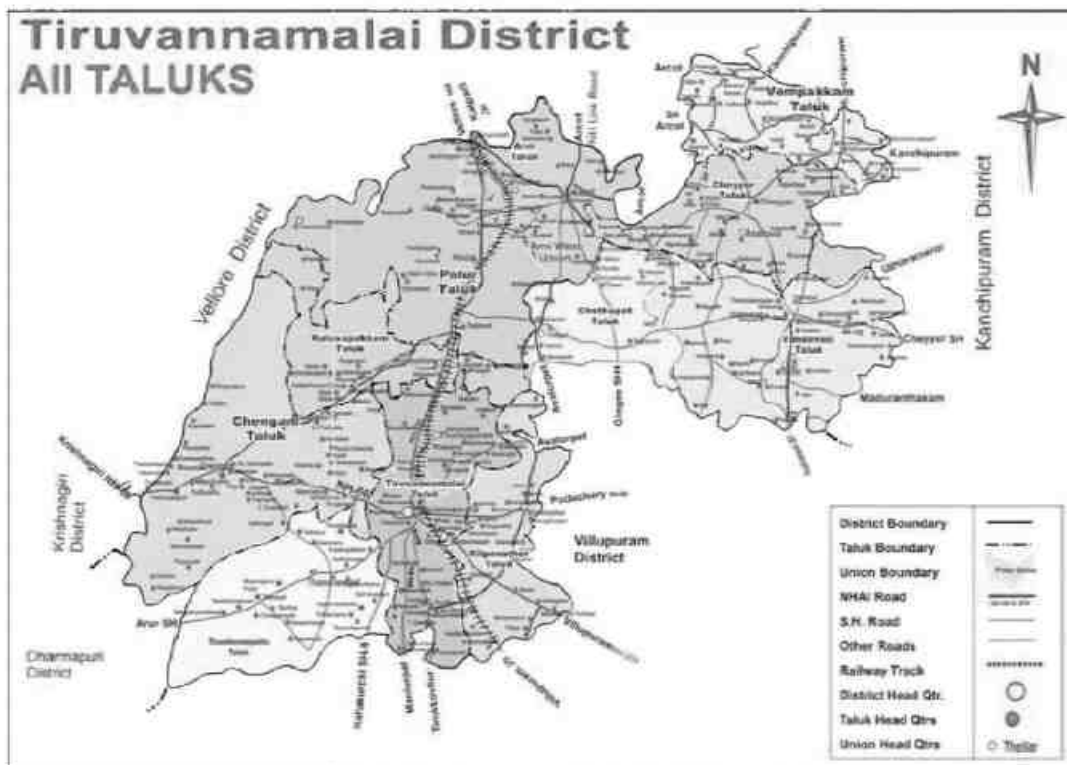
### Procedure for Grant of quarrying lease for Minor Minerals - Rough Stone



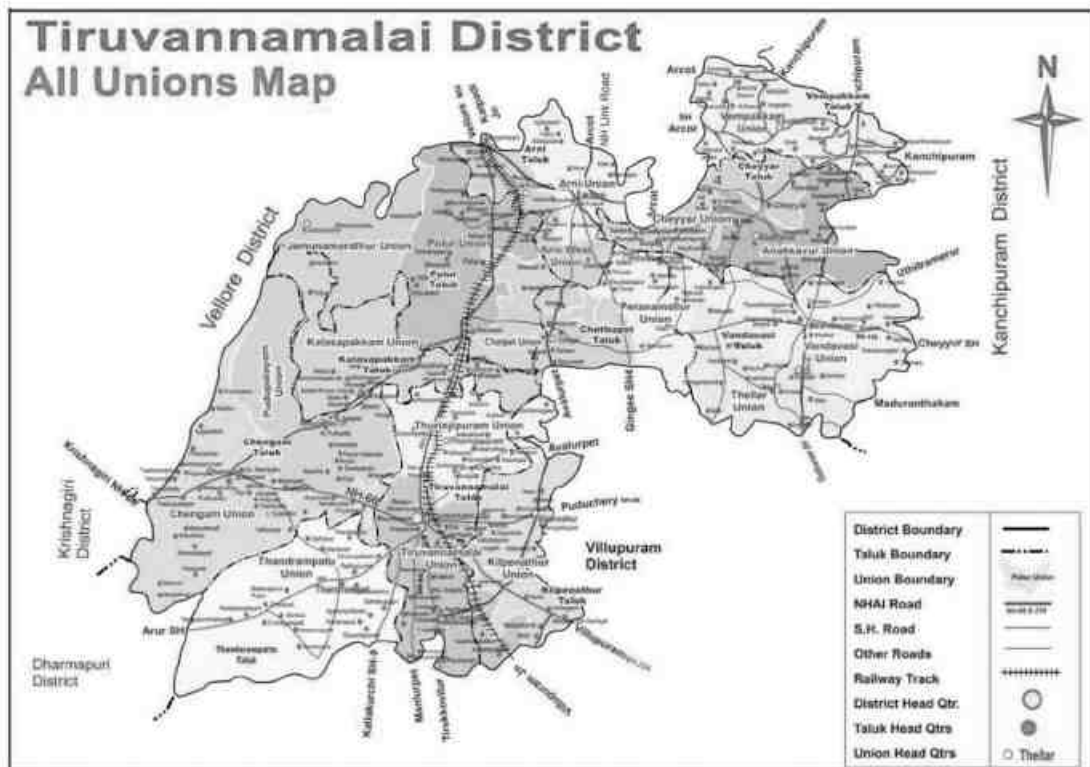
The office of the Assistant Director, Department of Geology and Mining is functioning under the control of District Collector, Thiruvannamalai. The Assistant Director, Geology and Mining are assisting the District Collector in the Mineral Administration works.

### 3. GENERAL PROFILE OF THE DISTRICT

Tiruvannamalai district lies in the northern part of Tamil Nadu, and 200 Km from the state capital Chennai. It is bounded on the north by Vellore District, on the east by Kanchipuram District, and Villupuram on the south by Villupuram District, and on the west by Dharmapuri, Krishnagiri and Vellore districts. Tiruvannamalai District is divided into 3 Revenue Divisions namely Tiruvannamalai, Arni and Cheyyar and 12 Taluks namely Tiruvannamalai, Kilpennathur, Chengam, Thandarampattu, Kalasapakkam, Polur, Arni, Chetput, Cheyyar, Vembakkam, Vandavasi and Jamanamarathur. Tiruvannamalai consist of 18 Blocks (Union), 4 Municipalities, 10 Town Panchayats and 860 Village Panchayats.



**Fig.3.1** Tiruvannamalai District (Taluks wise)



**Fig. 3.2** All Union Map, Tiruvannamalai District

## TIRUVANNAMALAI DISTRICT PROFILE – 2017 - 18

Table	Geographical Position	
1	North Latitude between	Between 11.55 and 13.15'
	East Longitude between	Between 78.20 and 79.50'
2	Area and Population	
	1. Area in Square Km	6188
	2. Total Population as per 2011	2464875
	3. Density / Sq. Km	398
	4. Literate	
	Male %	83.11
	Female %	65.32
	Language spoken in the	Tamil
	Temperature (IN CELCIUS)	Max : 36.00 Min : 21.10
	Rainfall in mm	
	Normal	North East Monsoon : 446.5 South West Monsoon : 468.1
	Actual	North East Monsoon : 524.9 South West Monsoon : 621.9
	Agriculture (in Ha)	
	Total Cultivated area	314827
	Net area sown	208644
	Area sown more than once	106182
	Forests (in Ha)	
	Reserved forest	151799.64
	Forest	101017
	Un classed Forest	381.48

## **Places of worship and tourist**

Tiruvannamalai is one of the most venerated places in Tamil Nadu. The main Deepam festival, Maha shivarathri and Pournami Girivalam attracts Tiruvannamalai and Parvathamalai devotees from far and wide throughout India and abroad. Further main features of the District attract historic places besides Tiruvannamalai, Arni, Vandavasi and Devigapuram connected to East India and French companies. It is also noticed that well-maintained tourist places such as Sathanur dam, Jawathumalai and Amirthy Game Park. In the late Chola period the Cholan of Sambuvarayar having Padavedu near Arni as HQ ruled this district.

## **4. GEOLOGY OF TIRUVANNAMALAI DISTRICT**

The Entire district is underlain by the 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 charnockites, 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. Charnockites group is occupied by North and Southern part of the basin. The other rock type is encountered by composite granitic gneiss of Epidote hornblende biotite gneiss and hornblende biotite gneiss are occupy in the middle portion 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 occurs as linear bands in the middle portion of the area and is highly migmatized. Mostly, micaceous with 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 (Proterozoic age) occurs as small isolated outcrops. The crystalline formations are charnockite, granitic gneiss of Archean age have been intrude 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 tectonic activities under various orogenic cycles resulting in the development of secondary structures such as joints, fissures and cleavages. The intensity of weathering varies from place to place. Highly weathered zones and granitic rock occurs in masses are around some of the

villages like Ariyanallur, Mukkunam, Kaarunkuli Tondur, vedal, Melolakkur, Pennagar, Chinnaagram (57p/7). The general geological sequence of formation is given in the Table.

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



## **ROUGH STONE, JELLIES AND M-SAND**

Ordinary stones suitable for making Rough stones, Jelly and M-sand Ballast etc., used for road formation, construction and other purpose are available in all Taluks.



**Photo.1-2: Charnockite (Rough Stone) Quarry**

**Foliation** : N55°W / 70°SW **Coordinates** : 12° 38' 40.04" N,  
**Joint** : S50°W / 80°SW 79° 36' 12.21" E  
**Location** : Athi - Village, Cheyyar Taluk



**Photo .3: Rough stone crushed into Jellies, Ezhacherri, Cheyyar – Taluk**

## **M-SAND**

Manufactured Sand is defined as a purpose-made crushed fine aggregate produced from a suitable source material. Production generally involves crushing, screening and possibility washing. It is a substitute of river sand is produced from hard granite stone. The crushed sand is of cubical shape with grounded edges, washed and graded to as a construction material. The size of manufactured sand (M-Sand) is less than 4.75mm.

The precious river bed acts as not only mechanical filter but also as a biological filter with its microorganisms, formed through natural evolution over centuries which cannot be artificially replicated. Due to the depletion of good quality river sand for the use of construction, the use of manufactured sand has been increased.



**Photo .4: Mining for M - Sand, Palli- Village, Cheyyar - Taluk**



**Photo .5: Wastage (Dust Particle) Of M- Sand**



**Photo .6: Powdered Rough stone for preparation of M - Sand**



**Photo: 7. Crushing Unit for preparation of M – Sand Manufactured Sand (M – Sand)**



***“Our Children’s Future is in Our Hand or Decision”***

**Our contribution to environment is by producing M-Sand as an alternative to river sand, for reducing the extraction of sand from river bed**

## 5. DRAINAGE AND IRRIGATION PATTERN

### **Drainage :**

Cheyar 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 45 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.

### **Irrigation**

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

**Source :** Records of Office of Assistant Director of Statistics, Tiruvannamalai

## 6. LAND UTILISATION PATTERN IN THE DISTRICT: FOREST, AGRICULTURAL, HORTICULTURAL, MINING, Etc.,

The total geographical area of the district is 6,191 Sq. km.

### Details of Land Utilization pattern of Tiruvannamalai District

S. No	Classification	Area in Ha	Percentage
1	Forest	1,53,318	24.76
2	Barren and uncultivable land	21,058	3.40
3	Land put to non agricultural uses	92,598	15.00
4	Cultivable waste	14,963	2.41
5	Permanent pastures and other grazing land	2,908	0.46
6	Land under miscellaneous, tree crop sand groves included in the net area sown	2,690	0.43
7	Current fallows	68,662	11.09
8	Other fallow lands	32,621	5.27
9	Net area sown	2,30,282	37.19
10	Total Geographical area	<b>6,19,100</b>	<b>100.00</b>

Source: Records of Office of Department of Revenue, Tiruvannamalai

## 7. SURFACE WATER AND GROUND WATER SCENARIO OF THE DISTRICT

### Surface water

The major rivers traversing the area are Ponnaiyar and Cheyyar. The major part of the district falls under the Palar sub catchment and extreme southern part of the district fall under Ponnaiyar sub catchment.

Cheyar 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

**Ground water:**

Ground Water is found beneath the earth's surface and is an important source of water in most of the Districts in the State. Ground Water is withdrawn for Agriculture, Municipal and industrial use. The depth at which the ground water is found is called Ground water Table. The district is classified into different blocks based on the ground water abstraction rate.

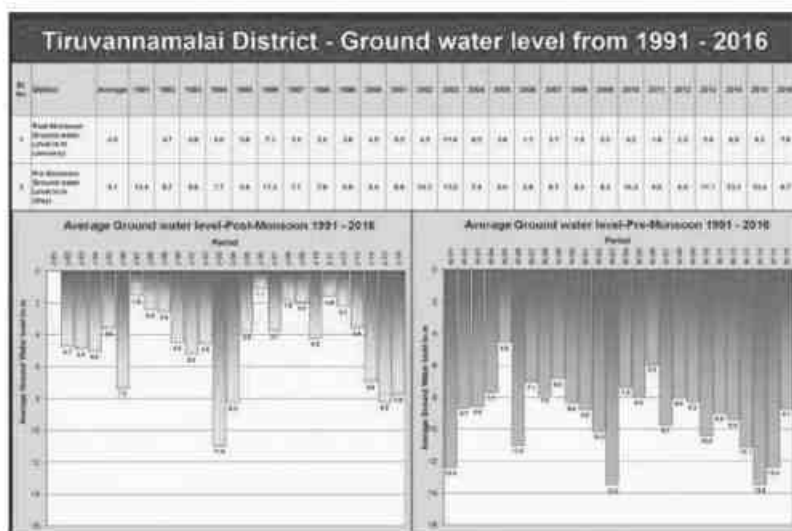


Figure 7.0 Geology And Mineral Resources Map Of Tiruvannamalai District

<b>Over exploited (Greater than 100%)</b>	<b>Critical (Between 90 and 100%)</b>	<b>Semi - Critical (70 - 90%)</b>	<b>Safe (Less than 70%)</b>
Chengam, Cheyyar, Kilpennathur, Osur Pachal, Melpallipattu, Somaspadi, Malaiyur, Pudupalayam, Vandavasi, Thandarampat, Thurinjapuram, Veraiyur.	Kettavarampalayam, Nayadumangalam, Vanapuram, Eraiyur, Thanipadi, Thatchampattu, Chennavaram, Vadathandalam, Desur, Kelur, Kilkodungalur, Kolappalur, Nedungunam, Peranamallur, Santhavasal, Thachambadi	Anakavoor, Dusi, Kadaladi, Kalasapakkam, Mandakolathur, Modayur, Polur, T.V. Malai (South), Vakkadai, Vinnamangalam, Mullipattu , Nateri, Thethurai, Mangalam, Agrapalayam, Kannamangalam Vakkadai, Vettavlam.	Perungattur, Sathyavijayanagaram Vembakkam, Arni

**Source :**Tamil Nadu Water Supply and Drainage Board

## 8. RAINFALL OF THE DISTRICT AND CLIMATE CONDITIONS.

### Rainfall

The area receives rainfall and the 5 year rainfall collected from the IMD, Chennai is as follows.

Actual rainfall in mm					Normal rainfall in mm
2013	2014	2015	2016	2017	
812.80	799.10	1247.4	684.7	1251.3	1039.66

### Climatic Conditions.

This district has moderate climate. In Tiruvannamalai and Chengam taluks, the climate is cool in winter and hot during summer. The district gets rainfall during both north-east monsoon and southwest monsoon. The physiographic nature prevailing in the district forces variation in the climatic conditions. The rainfall of the region depends on the south-west and the north-east monsoons. Except southern taluks of Cheyyar and Vandavas, the district experience moderate rainfall during north-east monsoon. In summer, from March to June, the wind is hot and uncomfortable. In the monsoon seasons, from July to November, the wind is mild and from December to February, the wind is cold. The hottest month in this district was April (36.3° C) and coldest month in this district was January (21.2° C).



**9. DETAILS OF THE ROUGH STONE MINING LEASES IN THE DISTRICT AS PER THE FOLLOWING FORMAT:-**

Sl No	Name of the Mineral	Name of the Lessee	Address & Contact No. lessee	Mining lease Grant Order No. & date	Area of Mining lease (ha)	Period of Mining lease (Initial)		Period of Mining lease (1 <sup>st</sup> / 2 <sup>nd</sup> ... renewal)		date of commencement of Mining operation	Status (working/Non-Working/Temp. Working for dispatch etc.,	Captive / Non-Captive	Obtained Environmental Clearance ( Yes/No) If yes letter No with date of grant of EC	Location of the mining lease (Latitude & Longitude)	Method of Mining (Opencast/ underground)
						From	To	From	To						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Rough Stone	D.Jaiganesh,	Vettavalam village, Tiruvannamalai Taluk	614/K2/2009 10.11.2017	1.00.0	10.11.2017	09.11.2019	-	-	10.11.2017	Non-Operative	Non-Captive	Yes SEIAA-TN/F.No.55 36/EC/1(a)/ EC.No.3708 /2016 L.06.09.2016	Vettavalam Tiruvannamalai 12°06' 38" 12° 06' 43" 79° 16' 27" 79° 16' 31"	Opencast
2	Rough Stone	R.Prasath,	Polur Main Road, Tiruvannamalai.	39/K2/2010 08.03.2010	2.00.0	08.03.2010	07.03.2020	-	-	08.03.2010	Operative	Non-Captive	Yes SEIAA-TN/F.No.44 13/EC/1(a)/ EC.No.3065 /2015 dt.02.03.2016	Veraiyur Tiruvannamalai 2°05' 33" N 12° 05' 37" N 79° 07' 11" E 79° 07' 19" E	Opencast
3	Rough Stone	E.Murugesan ,	Nachanandhal Tiruvannamalai.	22/K2/2010 05.04.2010	1.00.0	05.04.2010	04.04.2020	-	-	05.04.2010	Non-Operative	Non-Captive	-No-	Pavupattu Tiruvannamalai 12°07' 58"N 12° 07'53"N 79° 02' 55"E 79° 02' 50"E	Opencast
4	Rough Stone	R.Singaram,	Thenimalai, Tiruvannamalai	73/K2/2010 05.04.2010	1.00.0	05.04.2010	04.04.2020	-	-	05.04.2010	Operative	Non-Captive	Yes SEIAA-TN/F.No.44 67/EC/1(a)/ EC.No.3435 /2016 dated. 29.07.2016	Athipadi Tiruvannamalai 12°05' 06" N 12° 05' 02"N 79° 02' 18"E 79° 02' 13"E	Opencast



5	Rough Stone	A.Nakkeeran,	3, Kardukarar Street, Vettavalam	636/K2/2009 10.05.2010	0.77.0	10.05.2010	09.05.2020	-	-	10.05.2010	Non-Operative	Non-Captive	-No-	Vettavalam Tiruvannamalai 12°06' 27"N 12° 06' 32"N 79° 14' 07"E 79° 14' 11"E	Opencast
6	Rough Stone	R.Arul,	Melanandahal Village, Tirukovilur Taluk.	40/K2/2010 13.05.2010	1.00.0	13.05.2010	12.05.2020	-	-	13.05.2010	Operative	Non Captive	Yes SEIAA- TN/F.No.47 19/EC/1(a) EC.No.3303 /2016 dt.11.07.2016	Athipadi Tiruvannamalai 12°05' 04" N 12° 05' 09"N 79° 02' 11"E 79° 02' 15"E	Opencast
7	Rough Stone	N.Suresh,	25/73, Ayyankula Street, Tiruvannamalai	43/K2/2010 16.12.2010	2.00.0	16.12.2010	15.12.2020	-	-	16.12.2010	Non-Operative	Non Captive	-No-	Meyyur Tiruvannamalai 12°08' 59"N 12° 09' 05"N 79° 01' 49"E 79° 01' 54"E	Opencast
8	Rough Stone	M.Selvaraj,	Chengam Road, Tiruvannamalai.	74/K2/2010 16.12.2010	1.00.0	16.12.2010	15.12.2020	-	-	16.12.2010	Operative	Non Captive	Yes SEIAA- TN/F.No.46 89/EC/1(a)/ EC.No.3482 /2016 dt.29.07.2016	Adaiyur Tiruvannamalai 12° 16' 24" N 12° 16' 28"N 79° 02' 55" E 79° 02' 59"E	Opencast
9	Rough Stone	S.Prasanth,	Chengam Road, Tiruvannamalai	75/K2/2010 23.12.2010	0.96.5	23.12.2010	22.12.2020	-	-	23.12.2010	Operative	Non Captive	Yes SEIAA- TN/F.No.54 54/EC/1(a) EC.No.3671 /2016 t.08.08.2016	Adaiyur Tiruvannamalai 12°16' 20" N 12° 16' 25" N 79° 02' 54" E 79° 02' 58"E	Opencast
10	Rough Stone	S.Senthilkumar	10, Kardukarar Street, Vettavalam.	168/K2/2010 24.12.2010	1.23.5	24.12.2010	23.12.2020	-	-	24.12.2010	Non-Operative	Non Captive	-No-	Vettavalam Tiruvannamalai 12° 07' 34"N 12° 07' 38"N 79° 15' 48"E 79° 15' 53"E	Opencast

11	Rough Stone	K.Thirumal,	Perayampattu post and Village, Tandarampet	72/K2/2010 01.03.2011	1.30.0	01.03.2011	28.02.2021	-	-	01.03.2011	Non-Operative	Non Captive	-No-	Athipadi Tiruvannmalai 12°05' 01"N 12° 05' 05"N 79° 02' 03"E 79° 02' 09"E	Opencast
12	Rough Stone	N. Harijay ashree	No.18/7, Vadamathathi St., Tiruvannamalai	57/K/2012 28.04.2012	4.00.0	28.04.2012	27.04.2022	-	-	28.04.2012	Non-Operative	Non Captive	-No-	Vallivagai Tiruvannmalai 12° 16' 41"N 12° 16' 32"N 79° 08' 52"E 79° 08' 39"E	Opencast
13	Rough Stone	R.Sekar,	Mel Chinna Goundanpatti, Tharamangalam Village, Omalur Taluk, Salem Dt.	47/K2/2015 12.09.2017	1.00.0	12.09.2017	11.09.2022	-	-	12.09.2017	Non-Operative	Non Captive	Yes SEIAA-TN/F.No.52 54/EC/1(a)/ EC.No.3656 /2016 dt.24.08.2016	Koothalavadi Tiruvannmalai 12° 20' 02.45"N 12° 20' 07.2"N 79° 06' 49.93"E 79°06' 53.59"E	Opencast
14	Rough Stone	P.Adimoolam,	57A, Tamizhnagar, Tiruavannamalai taluk	130/K2/2009 01.07.2009	1.00.0	01.07.2009	30.06.2019	-	-	01.07.2009	Operative	Non Captive	Yes SEIAA-TN/F.No.43 72/EC/1(a)/ EC.No.3568 /2016 dt.10.08.2016	Iynkunam Kilpennathur 12°15' 36" N 12° 15' 47" N 79° 09' 56" E 79° 10' 02" E	Opencast
15	Rough Stone	R.Karthikeyan	23/29, Lakshmipuram, Gandhi Nagar, Tiruvannamalai-2.	483/K2/2009 20.04.2011	1.00.0	20.04.2011	19.04.2021	-	-	20.04.2011	Non-Operative	Non Captive	-No-	Iynkunam Kilpennathur 12° 15' 43"N 12° 15' 47"N 79° 09' 41"E 79° 09' 47"E	Opencast
16	Rough Stone	V.J.Dhamodharan,	No.1261-A Thendral Nagar, Vengikkal Village, Tiruvannamalai Taluk & District.	391/K/2017 16.11.2018	1.00.0	16.11.2018	15.11.2023	-	-	16.11.2018	Operative	Non Captive	Yes DEIAA- 5 /TVM/TN/F. No.391/K/2017/E.C.No.3 15/2017- 21 dated: 17.09.2018	Polakunam Kilpennathur N 12°12'32.00" 12°12'34.95" E 79°08'40.72" 79°08'46.20"	Opencast

17	Rough Stone	S.Vasanth-kumari	Uchimalaikuppam Chengam	621/K2/2009 12.04.2010	1.35.5	12.04.2010	11.04.2020	-	-	12.04.2010	Operative	Non Captive	Yes DEIAA- 5 /IVM/IN/F. No.97- 58/K/2015 E.C.No.315/ 2017-28 dt:17.9.2018	Uchimalaiku ppam Chengam N 12°15'54" 12°15'58" E 78°54'21" 78°54'27"	Opencast
18	Rough Stone	K.Durai	1/2, Ramalinganar Street, Tiruvannamalai	27/K2/2010 05.05.2010	1.00.0	05.05.2010	04.05.2020	-	-	05.05.2010	Operative	Non Captive	Yes SEIAA- TN/F.No.46 69/EC/1(a)/ Ec.No.3481/ 2016 dt:29.7.2016	Paliapattu Chengam 12° 16' 10" N 12° 16' 01" N 79° 00' 15" E 79° 00' 08" E	Opencast
19	Rough Stone	R.Jeevanantham,	50, Avarangaatu Street, Tiruvannamalai	24/K2/2010 13.05.2010	2.00.0	13.05.2010	12.05.2020	-	-	13.05.2010	Non-Operative	Non Captive	-No-	Chinnakola- padi Chengam 12° 15' 16" N 12° 15' 22" N 78° 59' 10" E 78° 59' 17" E	Opencast
20	Rough Stone	R.M.Jayavelu	Chengam Road, Tiruvannamalai	28/K2/2010 03.11.2010	1.50.0	03.11.2010	02.11.2020	-	-	03.11.2010	Non-Operative	Non Captive	-No-	Paliapattu Chengam 12° 16' 11" N 12° 16' 04" N 79° 00' 20" E 79° 00' 14" E	Opencast
21	Rough Stone	M.Palani	6, Peygopuram St., Tiruvannamalai	15/K2/2011 12.01.2016	0.50.0	12.01.2016	11.01.2026	-	-	12.01.2016	Operative	Non Captive	Yes SEIAA- TN/F.No.34 24/EC/1(a)/ EC.No.2534 /2015 dt:18.12.2015	Periyakola- padi Chengam 12° 15'02.12"N 12° 15' 05.67"N 79° 58'50.59"E 79°58'52.31"E	Opencast
22	Rough Stone	Sadhaknawas,	No. 25, 3rd Street, Valace Garden, Chennai-6.	14/K2/2011 12.01.2016	0.50.0	12.01.2016	11.01.2021	-	-	12.01.2016	Operative	Non Captive	Yes SEIAA- TN/F.No.39 40/EC/1(a)/ EC.No.2535 /2015 dt:18.12.2015	Periyakola- padi Chengam 12° 15'01.92"N 12° 15' 05.72"N 79° 58'49.37"E 79°58'51.19"E	Opencast

23	Rough Stone	Tmt.S.Kanimozhi	No.152, Old Street, Avoor Village Tiruvannamalai	48/K2/2015 28.07.2016	1.00.0	28.07.2016	27.07.2021	-	-	28.07.2016	Operative	Non Captive	Yes SEIAA-TN/F.No.46 68/EC/1(a)/ 3083/2015 dated. 02.03.2016	Periyakola-padi Chengam 12° 15' 03" N 12° 15' 06" N 78° 58' 53" E 78° 58' 58" E	Opencast
24	Rough Stone	M.Julia	180, Vambalur Road, Tirumalai village, Polur taluk	231/K2/2009 22.06.2009	2.00.0	22.06.2009	21.06.2019	-	-	22.06.2009	Non-Operative	Non Captive	-No-	Tirumalai Polur 12° 33' 44" N 12° 33' 47" N 79° 11' 26" E 79° 11' 33" E	Opencast
25	Rough Stone	M.Parthiban,	27/A, Vengadathan street, Polur taluk & village.	136/K2/2010 24.12.2010	1.00.0	24.12.2010	23.12.2020	-	-	24.12.2010	Non-Operative	Non Captive	-No-	Pudhu-palayam Polur 12° 29' 18" N 79° 6' 40.64" E	Opencast
26	Rough Stone	S.Rajakumar	2/57, Pillaiyar koil street, Kalasapakkam.	50/K/2015 21.07.2016	2.00.0	21.07.2016	20.07.2021	-	-	21.07.2016	Operative	Non Captive	Yes SEIAA-TN/F.No.47 08/EC/1(a)/ EC.No.3344 /2016 dt.15.07.2016	Vasur Polur 12° 29' 16" N 12° 29' 21" N 79° 07' 11" E 79° 07' 17" E	Opencast
27	Rough Stone	E.Sivakumar,	No.20,26,J.30, VRS Nagar, Govindasamy street, Polur.	51/K/2015 21.07.2016	2.00.0	21.07.2016	20.07.2021	-	-	21.07.2016	Operative	Non Captive	Yes SEIAA-TN/F.No.46 94/EC/1(a) EC.No.3317 /2016 dated. 15.07.2016	Pudu-palayam Polur 12° 29' 17" N 12° 29' 22" N 79° 06' 26" E 79° 06' 31" E	Opencast
28	Rough Stone	P.Radhakrishnan	Mettu Street, Tiruvannamalai	20/K2/2010 12.04.2010	1.03.5	12.04.2010	11.04.2020	-	-	12.04.2010	Non-Operative	Non Captive	-No-	Sathanur Thandaram pattu 12° 11' 08" N 12° 11' 13" N 78° 53' 01" E 78° 53' 05" E	Opencast

29	Rough Stone	M.Govindamjan,	No.3/337, Allabasha street,Mungilthurai pattu Village, Shankarapuram Tk.	79/K2/2010 28.06.2010	2.00.0	28.06.2010	27.06.2020	-	-	28.06.2010	Non-Operative	Non Captive	-No-	Thondamanur Thandaram-pattu 12° 03' 48" N 12° 04' 03" N 78° 56' 57" E 78° 57' 05" E	Opencast
30	Rough Stone	A.Thenarmozhi	Manalurmel Siruvallur Village, Sankarapuram	134/K2/2010 23.08.2010	2.00.0	23.08.2010	22.08.2020	-	-	23.08.2010	Operative	Non Captive	Yes SEIAA-TN/F.No.30 48/EC/1(a)/ EC.No.1750 /2014 dt.18.03.2015	Perukulathur Thandaram-pattu 12° 01' 28" N 12° 01' 33" N 78° 55' 03" E 78° 55' 07" E	Opencast
31	Rough Stone	Tmt.K.Sarasu	53, Nehru Street, Chengam	626/K2/2009 17.03.2011	1.00.0	17.03.2011	16.03.2021	-	-	17.03.2011	Operative	Non Captive	Yes DELAA- 5 /TVM/TN/F. No.97- 69/K2015/ E.C.No.315/ 2017- 27 dt: 17.09.2018	Sathanur Thandaram pattu 12°11'21"N 12°11'26"N 78°52'52"E 78°52'56"E	Opencast
32	Rough Stone	R.Dhanakotti	Varagur Village, Tandrapet	18/K2.2011 30.03.2011	1.00.0	30.03.2011	29.03.2021	-	-	30.03.2011	Operative	Non Captive	Yes SEIAA-TN/F.No.47 06/EC/1(a)/ EC.No.3316 /2016 dated. 15.07.2016	Varagur Thandaram pattu 12° 08' 58" N 12° 08' 54" N 79° 01' 48" E 79° 01' 42" E	Opencast
33	Rough Stone	P.Palani	Kolamanjanur Village, Tandarampet.	20/K2.2011 18.04.2011	2.00.0	18.04.2011	17.04.2021	-	-	18.04.2011	Operative	Non Captive	Yes SEIAA-TN/F.No.43 76/EC/1(a)/ EC.No.3327 /2016 dated. 15.07.2016	Kolamanjanur Thandaram pattu 12° 08' 14" N 12° 08' 25" N 78° 53' 05" E 78° 53' 12" E	Opencast

34	Rough Stone	M.Veeramani	Royandapuram Village Thandarampattu Taluk.	19/K2/2011 24.05.2012	2.00.0	24.05.2012	23.05.2022	-	-	24.05.2012	Non-Operative	Non Captive	-No-	Royandapuram Thandarampattu 12°04'49"N 12°04'55"N 78°56'23"E 78°56'29"E	Opencast
35	Rough Stone	M.Vinothkannan,	Varagur Village, Tandrapet	49/K/2015 20.01.2016	0.40.0	20.01.2016	19.01.2021	-	-	20.01.2016	Operative	Non Captive	Yes SEIAA-TN/E.No.43 55/EC/1(a)/EC.No.2552 /2015 dt.23.12.2015	Varagur Thandarampattu 12° 08' 32" N 12° 08' 29" N 79° 01' 39" E 79° 01' 37" E	Opencast
36	Rough Stone	Tmt.R.Amutha	No.712, Bajanai Koil Street, Dhesurpalayam Village, Keelvanakkambadi Thandrapattu Taluk	396/K/2017 11.06.2018	2.00.0	11.06.2018	10.06.2028	-	-	11.06.2018	Operative	Non Captive	Yes DEIAA-3/TVM/TN/F.No.396/K/2017E.C.No .315/2017-8 dated: 04.04.2018	Allappanur Thandarampattu N 12°06'06.86" 12°06'12.52" E 78°56'39.04" 78°56'45.64"	Opencast
37	Rough Stone	S.Nagaraj	Manampathy Village, Uthiramerur Taluk.	29/K2/2011 17.12.2011	1.53.0	17.12.2011	16.12.2021	-	-	17.12.2011	Non-Operative	Non Captive	-No-	Athi Cheyyar 12° 38' 18" N 12° 38' 29" N 79° 36' 30" E 79° 36' 39" E	Opencast
38	Rough Stone	K.Gopinath,	Kandigai melkottaiyur post, Chengelpet taluk.	26/K2/2011 03.06.2011	2.00.0	03.06.2011	02.06.2021	-	-	03.06.2011	Non-Operative	Non Captive	-No-	Avaniapuram Chetpattu 12° 08' 54" N 12° 08' 58" N 79° 01' 34" E 79° 01' 41" E	Opencast
39	Rough Stone	V.Rajagopal,	Oorapakkam.Chengalpattu.	169/K2/2010 17.12.2011	1.00.0	17.12.2011	16.12.2021	-	-	17.12.2011	Non-Operative	Non Captive	-No-	Jeganathapuram Chetpattu 12° 28' 51" N 12° 28' 57" N 79° 24' 06" E 79° 24' 10" E	Opencast

40	Rough Stone	D.Saravanan,	Venkatapuram, Saidapet, Chennai - 15.	140/K2/2010 18.10.2010	2.00.0	18.10.2010	17.10.2020	-	-	18.10.2010	Non-Operative	Non Captive	-No-	Seeyalam Vandavasi 12° 26' 24"N 12° 26' 27" N 79° 43' 05"E 79° 43' 12"E	Opencast
41	Rough Stone	R.Tamilvanan.	Saidapet, Chennai -15.	143/K2/2010 18.10.2010	2.00.0	18.10.2010	17.10.2020	-	-	18.10.2010	Non-Operative	Non Captive	-No-	Seeyalam Vandavasi 12° 26' 14"N 12° 26' 18" N 79°43' 02"E 79° 43' 11"E	Opencast
42	Rough Stone	Siddique Basha,	Kunnathur village, Arni taluk	602/K2/2009 19.11.2009	2.00.0	19.11.2009	18.11.2019	-	-	19.11.2009	Operative	Non Captive	Yes SEIAA- TN/F.No.44 20/EC/1 (a)/ EC.No.3505 /2016 dt.10.08.2016	Melnagar ramasani kuppam Arni 12°42'13"N 12°42'07" N 79°11'01"E 79° 10' 55"E	Opencast
43	Rough Stone	S.Suresh,	3, Saradha Nagar, Agraharam Koratur, Chennai - 76.	135/K2/2009 23.11.2009	1.00.0	23.11.2009	22.11.2019	-	-	23.11.2009	Operative	Non Captive	Yes SEIAA- TN/F.No.55 57/EC/1 (a) Ec.No.3658/ 2016 dt.24.08.2016	Mullan- diram Arni 12°49'02.10"N 12°49'06.57" N 79°15'31.79"N 79°15'36.38"N	Opencast
44	Rough Stone	M.Shajakhan	855, Bazar Street Santhavasal, Polur Tk.	68/K/2012 24.05.2012	1.00.0	24.05.2012	23.05.2022	-	-	24.05.2012	Operative	Non Captive	Yes SEIAA- TN/F.No.44 70/EC/1(a) EC.No.3336 /2016 dated. 15.07.2016	Melnagar Arni 12° 42' 27"N 12° 42' 32"N 79° 10' 17"E 79° 10' 21"E	Opencast
45	Rough Stone	A.Nazeer Basha,	520/I, C.C.Road, Vannangulam, Arni taluk	51/K2/2010 14.09.2010	2.00.0	14.09.2010	13.09.2020	-	-	14.09.2010	Non-Operative	Non Captive	Yes SEIAA- TN/F.No.55 84/TOR.540 /2018 t.30.07.2018	Ayyam- palayam Arni 12° 42' 10"N 12° 42' 18"N 79° 10' 15"E 79° 10' 21"E	Opencast

46	Rough Stone	A.G.Mohan,	43, V.A.K.Nagar, Arni Taluk	52/K/2015 13.11.2017	0.40.0	13.11.2017	12.11.2022	-	-	13.11.2017	Operative	Non Captive	Yes SEIAA-TN/F.No.48 19/EC/1(a)/ EC.No.3759 /2016 L.26.09.2016	Ariyapadi Arni 12° 41' 52"N 12° 41' 54"N 79° 13' 22"E 79° 13' 25"E	Opencast
47	Rough Stone	P.Vinayagamoorthi	Ramana Nagar, Thiruvannamalai.	104/K2/2015 02.03.2016	0.75.5	02.03.2016	01.03.2021	-	-	02.03.2016	Non-Operative	Non Captive	Yes SEIAA-TN/F.No.48 81/EC/1(a)/ 2914/2015 dated. 17.02.2016	Pavithram Tiruvannam alai 12°07'21" N 12°07'24" E 79°06'26" 79°06'32"E	Opencast
48	Rough Stone	C.Shanthi	No. 3/22 Nehru Street, Vettavalam Taluk	132/K2/2015 15.05.2018	0.65.0	15.05.2018	14.05.2023	-	-	15.05.2018	Operative	Non Captive	Yes DEIAA-1/TVM/TN/ F No.132/K/ 2015E,C No. 315/2017-3 dt.8.11.2017	Vettavalam Kilpennathur 12°06'15.10" 12°06'18.00" 79°13'59.75" 79°14'04.16"	Opencast
49	Rough Stone	K.S.BABURAJ,	No. 12/14, 3rd Cross Street, Karpagam Garden, Adayar, chennai -20	101/K/2018 14.11.2018	1.66.0	14.11.2018	13.11.2023	-	-	14.11.2018	Operative	Non Captive	Yes DEIAA-1/TVM/TN/ F No.101/K/ 2016/E.C.N o.315/2017- 5 Dt. 16.02-2018	Kasthambadi Pohur N 12°35'55" 12°36'01" E 79°11'51" 79°11'57"	Opencast
50	Rough Stone	T.Selvaraj,	Harur Main Road, Mothakkal village, Thandaram pattu Tk.	31/K/2013 16.06.2014	0.40.5	16.06.2014	15.06.2019	-	-	16.06.2014	Operative	Non Captive	Yes SEIAA-TN/F.No.14 30/EC/1(a) EC.No.1229 /2013 dt:30.04.2014	Mothakkal Tmpt 12°05'25.30"N 12°05'22.51"N 78°43'34.90"E 78°43'36.52"E	Opencast



51	Rough Stone	R.Gopi,	4/75B, Veerapathran Kovil St., Vijayappanur, Thandarampattu Tk.	101/K/2015 02.06.2016	1.71.0	02.06.2016	01.06.2021	-	-	02.06.2016	Operative	Non Captive	Yes SEIAA- TN/F.No.47 68/EC/1(a) EC.No.3076 /2016 dt:02.03.2016	Varagur Thandaram pattu 12°08'54"N 12°08'58"N 79°01'34"E 79°01'41"E	Opencast
52	Rough Stone	R.Venkatachalam,	No.30, New State Bank Colony, West Tambaram, Chennai.	95/K/2015 21.07.2016	2.90.0	21.07.2016	20.07.2021	-	-	21.07.2016	Operative	Non Captive	Yes SEIAA- TN/F.No.50 41/EC/1(a) EC.No.3236 /2016 dt:06.07.2016	Palli Cheyyar 12° 42' 53"N 12° 43' 01"N 79° 36' 08"E 79° 36' 15"E	Opencast
53	Rough Stone	Tvl.Src Projects (P) Ltd.,	4-B, Lakshmipuram, Gandhi Road, Salem-636 007.	99/K/2015 21.07.2016	4.75.5	21.07.2016	20.07.2021	-	-	21.07.2016	Operative	Non Captive	Yes SEIAA- TN/F.No.50 40/EC/1(a) EC.No.3224 /2016 dt:06.07.2016	Palli Cheyyar 12° 43' 20"N 12° 43' 30"N 79° 36' 14" E 79° 36' 24"E	Opencast
54	Rough Stone	I.Prakash	Senthamangalam Village S.V.Chathiram (Via), Sriperumpthur Taluk, Kanchipuram District.	122.K.2015 28.07.2016	0.78.0	28.07.2016	27.07.2021	-	-	28.07.2016	Operative	Non Captive	Yes SEIAA- TN/F.No.54 29/EC/1(a) EC.No.3404 /2016 dt:25.07.2016	Painkinar Cheyyar 12°41'20.08" 12°41'24.79" 79°31'11.49" 79°31'15.16"	Opencast
55	Rough Stone	S.Suresh Babu	No.5, Kulakkarai Street Anakkaputhur Village, Thambaram Taluk, Chennai District.	147.K/2015 28.07.2016	3.88.5	28.07.2016	27.07.2021	-	-	28.07.2016	Operative	Non Captive	Yes SEIAA- TN/F.No.54 30/EC/1(a) EC.No.3402 /2016 dt:25.07.2016	Kurumbur Cheyyar 12°35'56.33" N 12°36'07.32"N 79°36'54.98" E 79°37'02.93"E	Opencast

56	Rough Stone	R.Velmurugan,	304, Theradi Street, Asanamapettai Village, Vembakkam Taluk.	360/K/2017 17.09.2018	1.20.0	17.09.2018	16.09.2023	-	-	17.09.2018	Operative	Non Captive	Yes DEIAA-4/TVM/TN/ F.No.360/K/ 2017/E.C.N o.315/2017- 16 dt: 06 -07-2018	Palli Cheyyar N 12°43'15" to 12°43'19" E 79°35'36" to 79°35'43"	Opencast
57	Rough Stone	S.MURUGAN,	No. 62/2 , Vedanatham Village, Tiruvannamalai Taluk & District.	125/K/2015 03.11.2018	2.06.5	03.11.2018	02.11.2023	-	-	03.11.2018	Operative	Non Captive	Yes DEIAA-4/TVM/TN/ F.No.125/K/ 2015/E.C.N o.315/2017 - 11 dated: 06 -07-2018	Agatheripattu Cheyyar N 12°36'39.77" 12°36'46.70" E 79°27'00.45" 79°27'05.69"	Opencast
58	Rough Stone	M.Marimuthu,	Kilpudupakkam Village, Cheyyar Taluk, Tiruvannamalai District.	413/K/2017 16.11.2018	0.98.5	16.11.2018	15.11.2023	-	-	16.11.2018	Operative	Non Captive	Yes DEIAA-5 /TVM/TN/ F.No.413/K/ 2017 E.C.No.315/2 017-26 dated: 17.09.2018	Palli Cheyyar N 12°43'14" 12°43'20" E 79°35'59" 79°36'02"	Opencast
59	Rough Stone	R.Seenuvasan,	Road Street, Arasanipalai village, Vembakkam Taluk	176/K/2013 27.06.2014	3.42.0	27.06.2014	26.06.2019	-	-	27.06.2014	Operative	Non Captive	Yes SEIAA- TN/F.No.180 7/EC/1(a)/ EC.No.1163/ 2013 dt.03.03.2014	Ezhacheri Vembakkam 12° 42' 48" N 12° 43' 1" N 79° 43' 17" E 79° 43' 27" E	Opencast
60	Rough Stone	Ganesh Kaskar,	RMC Ready mix (India) Sidco Industrial Thirumudivakkam, Chennai.	105/K/2013 14.07.2014	4.23.5	14.07.2014	13.07.2019	-	-	14.07.2014	Non-Operative	Non Captive	-No-	Sithalapakkam Vembakkam 12°43'23"N 12° 43'10"N 79°43'29" E 79°43'36" E	Opencast

61	Rough Stone	D.Madhavan	19, Sarangapani street, Krishnapuram, Ambathur, Chennai-53.	116/K.2013 03.03.2015	0.90.0	03.03.2015	02.03.2020	-	-	03.03.2015	Operative	Non Captive	Yes SEIAA- TN/F.No.442 0/EC/1(a)/ EC.No.3505/ 2016 dt.10.08.2016	Girijapuram Vembakkam 12° 44'25" 12° 44'19"N" 79° 42' 14" 79° 42'11"E	Opencast
62	Rough Stone	R.Mohanraj	No.33, Pillaiyar koil street, Puliymbedu village, Ambathur Taluk.	242/K.2012 13.05.2015	0.81.0	13.05.2015	12.05.2020	-	-	13.05.2015	Operative	Non Captive	Yes SEIAA- TN/F.No.194 3/EC/1(a)/ EC.No.1753/ 2014 dt.18.03.2015	Girijapuram Vembakkam 12° 44' 11" N 12° 44' 08" N 79° 42' 12" E 79° 42' 09" E	Opencast
63	Rough Stone	N.Subramani	No 210 , Mandapam Junction Arpakkam Village, Kanchipuram	75/K/2014 21.07.2016	3.02.5	21.07.2016	20.07.2021	-	-	21.07.2016	Operative	Non Captive	Yes SEIAA- TN/F.No.515 1/EC/1(a)/ EC.No.3338/ 2016 dt.15.07.2016	Menallur Vembakkam 12°44'08.63"N 12°44'18.71"N 79°42'16.36"E 79°42'21.37"E	Opencast
64	Rough Stone	B.Sri Devi,	No.56, Balasundaram Street, Chandramohan Nagar, Velingapattarai, Kanchipuram 631 501.	12/K/2015 28.07.2016	1.15.5	28.07.2016	27.07.2021	-	-	28.07.2016	Non-Operative	Non Captive	Yes SEIAA- TN/F.No.54 27/EC/1(a)/ EC.No.3401 /2016 dt.25.7.2016	Kundiyan- thandalm Vembakkam 12°43'55.90"N 12°43'59.56"N 79°43'6.08" E 79°43'12.04"E	Opencast
65	Rough Stone	K.Kumar,	No.2/32, Mandapam Junction, Arpakkam Village & Post, Kanchipuram.	14/K/2015 28.07.2016	2.29.5	28.07.2016	27.07.2021	-	-	28.07.2016	Operative	Non Captive	Yes SEIAA- TN/F.No.54 28/EC/1(a)/ EC.No.3379 /2016 dt.25.7.2016	Kundiyan- thandalm Vembakkam 12°43'50.86"N 12°43'58.24"N 79°42'56.50"E 79°43'03.46"E	Opencast
66	Rough Stone	K.Thirumalai,	No.52, Pillaiyar Koil Street, M.G.R. Nagar,Kundrathur, Chennai 600 069.	29/K/2015 28.07.2016	1.50.0	28.07.2016	27.07.2021	-	-	28.07.2016	Operative	Non Captive	Yes SEIAA- TN/F.No.54 31/EC/1(a) EC.No.3388 /2016 dt.25.7.2016	Suruttal Vembakkam 12°43' 56.14"N 12°44' 02.73"N 79°43' 48.82"E 79°43' 55.08"E	Opencast

67	Rough Stone	Tmt.Deepa	81, Santhi Nagar First Street, Chengalpattu, Kanchipuram District	11/K/2014 06.06.2016	0.90.5	06.06.2016	05.06.2021	-	-	06.06.2016	Non-Operative	Non Captive	Yes SEIAA-TN/F.No.29 21/EC/1(a) EC.No.2835 /2015 dt.08.2.2016	Thiruppana- moor Vembakkam 12°45'34.03"N 12°45'39.08"N 79°34'44.00"E 79°34'49.08"E	Opencast
68	Rough Stone	J. Venkatesan	153-A/1, Pillaiyar Koil Street, Melapattu Vge, Ramakrishna puram, Cheyyar Taluk	06/K/2017 14.09.2017	1.00.0	14.09.2017	13.09.2022	-	-	14.09.2017	Operative	Non Captive	Yes DEIAA-1/TVM/TN/ F.No.06/K/2 017E.C.No. 315 /2017-4 dt:10.8.2017	Chithathur Vembakkam N 12°43'15" 12°43'20" E 79°36'25" 79°36'28"	Opencast
69	Rough Stone	E.Panneerselvam	89, Vanniya Mettu St., Arpakkam Village, Kanchipuram Tk & Dt.	131/K/2015 14.09.2017	1.43.0	14.09.2017	13.09.2022	-	-	14.09.2017	Operative	Non Captive	Yes DEIAA-1/ TVM/TN/ F No 131/K/2015 /E.C No. 315/2017-1 dt:10.8.2017	Kundiyan- thandalm Vembakkam N 12°43'45.58" 12°43'51.42" E 79°42'58.50" 79°43'02.06"	Opencast
70	Rough Stone	L.Sudhakar ,	89, Palla Street, Agaram Village Thenneri Post, Kanchipuram Taluk.	105/K/2016 14.09.2017	3.51.5	14.09.2017	13.09.2022	-	-	14.09.2017	Operative	Non Captive	Yes DEIAA-1/TVM/TN/ F.No.105/K/ 2016/E.C No. 315/2017-2 dt:10.8.2017	Girijapuram Vembakkam 12°44'03.76" 12°44'12.07N 79°42'00.56E" 79°42'08.36E	Opencast
71	Rough Stone	A.Aron Samuvel,	No.15, Sesha Nagar, Poovimthavalli, Chennai – 600 056.	80/K/2017 17.09.2018	1.83.5	17.09.2018	16.09.2023	-	-	17.09.2018	Operative	Non Captive	Yes DEIAA-4/TVM/TN/ F.No.80/K/2 017/E.C.No. 315/2017- 13 dt: 06.07.2018	Kundiyan- thandalm Vembakkam N 12°43'46.58" 12°43'52.64" E 79°43'15.17" 79°43'21.32"	Opencast

72	Rough Stone	M.Sudharsan,	Pl.No.37, Parvathi Nagar, 3rd Street, Madampakkam, Chennai- 600 126.	377/K/2017 17.09.2018	3.25.0	17.09.2018	16.09.2023	-	-	17.09.2018	Operative	Non Captive	Yes E.C.No.315/ 2017- 14 dated: 06.07.2018	Kundiyan- thandalm Vembakkam N 12°43'51.14" 12°43'57.08" E 79°43'07.34" 79°43'16.63"	Opencast
73	Rough Stone	S.Sridhar	Managing Director, SKT MINES, No.19C, Villakkadi Koil Thoppu Street, Kancheepuram-635 501.	26/K/2018 17.09.2018	3.96.5	17.09.2018	16.09.2023	-	-	17.09.2018	Operative	Non Captive	Yes DEIAA- 4/TVM/TN/ F.No.26/K/2 018/E.C.No. 315/2017-15 dt:06.7.2018	Kaganam Vembakkam N 12°44'36.64" 12°44'45.79" E 79°34'38.22" 79°34'48.97"	Opencast
74	Rough Stone	B.Deenan	Vembakkam Taluk	78/K/2014 20.07.2018	0.95.5	20.07.2018	01.03.2021	-	-	20.07.2018	Operative	Non Captive	Yes SEIAA- TN/F.No.41 38/EC/1(a)/ EC.No.3070 /2015 dt.02.3.2016	Ezhacheri Vembakkam N 12°42'51" 12°42'48" E 79°43'25" 79°43'21"	Opencast
75	Rough Stone	K.Devaraj,	No.105, Gandhisilai Street, Lakshmipuram Village, Vembakkam Taluk, Tiruvannamalai	248/K/2017 17.10.2018	2.10.0	17.10.2018	16.10.2023	-	-	17.10.2018	Operative	Non Captive	Yes DEIAA- 4/TVM/TN/F. No.248/K/201 7/ E.C.No.315/2 017 - 9 dated: 06.07.2018	Girijapuram Vembakkam N 12°44'14" 12°44'21" E 79°42'03" 79°42'09"	Opencast
76	Rough Stone	J.K.Srinivasan	No.782, Mariyamman Koil Street, Jambodai Village, Azhividaithangal, Vembakkam Taluk.	249/K/2017 15.10.2018	1.21.54	15.10.2018	14.10.2023	-	-	15.10.2018	Operative	Non Captive	Yes DEIAA- 4/TVM/TN/ F.No.249/K/ 2016/E.C.N o.315/2017- 10 dt.06- 07-2018	Chithathur Vembakkam N 12°44'09" to 12°44'14" E 79°37'18" to 79°37'25"	Opencast

77	Rough Stone	M.R.Azhagiri,	No.120, Shanmuganandhar Kovil Street Mangadu, Striperumbuthur Tk. Kancheepuram	85/K/2018 17.10.2018	3.87.5	17.10.2018	16.10.2023	-	-	17.10.2018	Operative	Non Captive	Yes DEIAA-4/TVM/TN/ F.No.85/K/2015/E.C.No. 315/2017-12 dated: 06-07-2018	Chithala-pakkam Vembakkam N 12°42'46.17" 12°42'52.84" E 79°43'25.08" 79°43'33.59"	Opencast
78	Rough Stone	Tvl.Golden Sands,	No. 15, 4th Street, VGP Lay Out, East coast Road, Chennai-115.	23/K/2018 07.11.2018	3.74.5	07.11.2018	06.11.2023	-	-	07.11.2018	Operative	Non Captive	Yes DEIAA- 5 /TVM/TN/ No.23/K/2018/E.C.No.315/2017- 24 dt.17.9.2018	Ezhacheri Vembakkam N12°43'18.09" 12°43'24.02" E 79°43'19.41" 79°43'11.43"	Opencast
79	Rough Stone	Thiru.C.Sugumar,	No.18-A, V.V Kovil Street, Walajabad Taluk, Kancheepuram District.	375/K/2017 16.11.2018	1.82.5	16.11.2018	15.11.2023	-	-	16.11.2018	Operative	Non Captive	Yes DEIAA- 5/TVM/TN/ F.No.375/K/2017E.C.No .315/2017-19 dt:17.9.2018	Ezhacheri Vembakkam N 12°43'16.06" 12°43'19.39" E 79°43'10.40" 79°43'19.71"	Opencast
80	Rough Stone	Muthukrishnan,	No. 221, Chenjiaman Koil Street, Chithalappakkam Village, Arasanipalayam Post, Vempakkam Taluk.	337/K/2017 22.11.2018	1.26.0	22.11.2018	23.11.2023	-	-	22.11.2018	Operative	Non Captive	Yes DEIAA - 5 /TVM/TN/ No. 337/K/2017/E.C.No.315/2017-18 dt:17.9.2018	Chithala-pakkam Vembakkam N 12°43'18.67" 12°43'24.09" E 79°43'30.36" 79°43'34.30"	Opencast
81	Rough Stone	R.Venkatasubramanian,	No.83/I Pillaiyar Kovil Street, Sirumayilur Village, Kancheepuram.	05/K/2018 04.12.2018	2.43.0	04.12.2018	05.12.2023	-	-	04.12.2018	Operative	Non Captive	Yes DEIAA- 5 /TVM/TN/ No.05/K/2018E.C.No.315/2017-25 dt:17.9.2018	Kundiyanthandalam Vembakkam N12°44'12" 12°44'44'17" E 79°43'03" 79°43'12"	Opencast

82	Rough Stone	Tvl.Src Projects (P) Ltd.,	4-B, Lakshmipuram, Gandhi Road, Salem-636 007.	371/K/2017 14.12.2018	4.71.5	14.12.2018	13.12.2023	-	-	14.12.2018	Operative	Non Captive	Yes DEIAA- 5 /TVM/TNF. No.371/K/ E.C.No.315/ 2017- 23 dt:17.9.2018	Chithathur Vembakkam N 12°43'19.14" 12°43'27.05" E 79°36'22.83" 79°36'34.83"	Opencast
83	Rough Stone	Vijay Ramakrishnan	Door No.52, MGR Road, Kalachitra Colony, Besent Nagar, Chennai-90.	193/K/2013 23.09.2014	1.50.5	23.09.2014	22.09.2019	-	-	23.09.2014	Non-Operative	Non Captive	Yes SEIAA- TN/F.No.26 69/EC/1(a)/ EC.No.1522 /2014 dt.14.08.2014	Kizhnamandi Vandavasi 12° 23'15"N 12° 23'23"N 79°29'40" E 79°29'43" E	Opencast
84	Rough Stone	G.Vasudevan	Door No.842-D, Vengidamangalam Road, Melakkottaiyur,Chengalpattu Taluk,Kancheepuram.	115/K/2015 08.12.2016	1.04.0	08.12.2016	07.12.2021	-	-	08.12.2016	Operative	Non Captive	Yes SEIAA- TN/F.No.55 80/EC/1(a)/ EC.No.3572 /2016 dt.19.08.2016	Septangulam Vandavasi 12°31' 53.54" 12°31' 56.24" 79°26'21.93" 79°26'28.09"	Opencast
85	Rough Stone	G.Rajendran,	No. 18, First Street, Rajiv Gandhi Nagar, Urapakkam Village, Chengalpattu .	37/K/2014 22.12.2016	1.68.0	22.12.2016	21.12.2021	-	-	22.12.2016	Operative	Non Captive	Yes SEIAA- TN/F.No.28 45/EC/1(a)/ EC.No.2312 /2014 dt.27.10.2015	Mavalavadi Vandavasi 12°22'32.00"N 79°39'29.10"E	Opencast
86	Rough Stone	A.C.Mari,	Vettilankara street, Arni.	36/K/2013 25.09.2014	0.67.0	25.09.2014	24.09.2019	-	-	25.09.2014	Operative	Non Captive	Yes SEIAA- TN/F.No.19 37/EC/1(a)/ EC.No.1497 /2013 dt.13.08.2014	Ariyapadi Arni 12°41'56"N 12° 41' 52"N 79° 13' 20" E 79° 13' 23" E	Opencast

**10. DETAILS OF ROYALTY OR REVENUE RECEIVED IN LAST THREE YEARS (2016-17 TO 2018-19)**

The mineral wise revenue collection for the last three years is given below:

<b>Sl.No</b>	<b>Year</b>	<b>Revenue realized</b>
1.	2016-2017	33519675
2.	2017-2018	38311705
3.	2018-2019	59673732

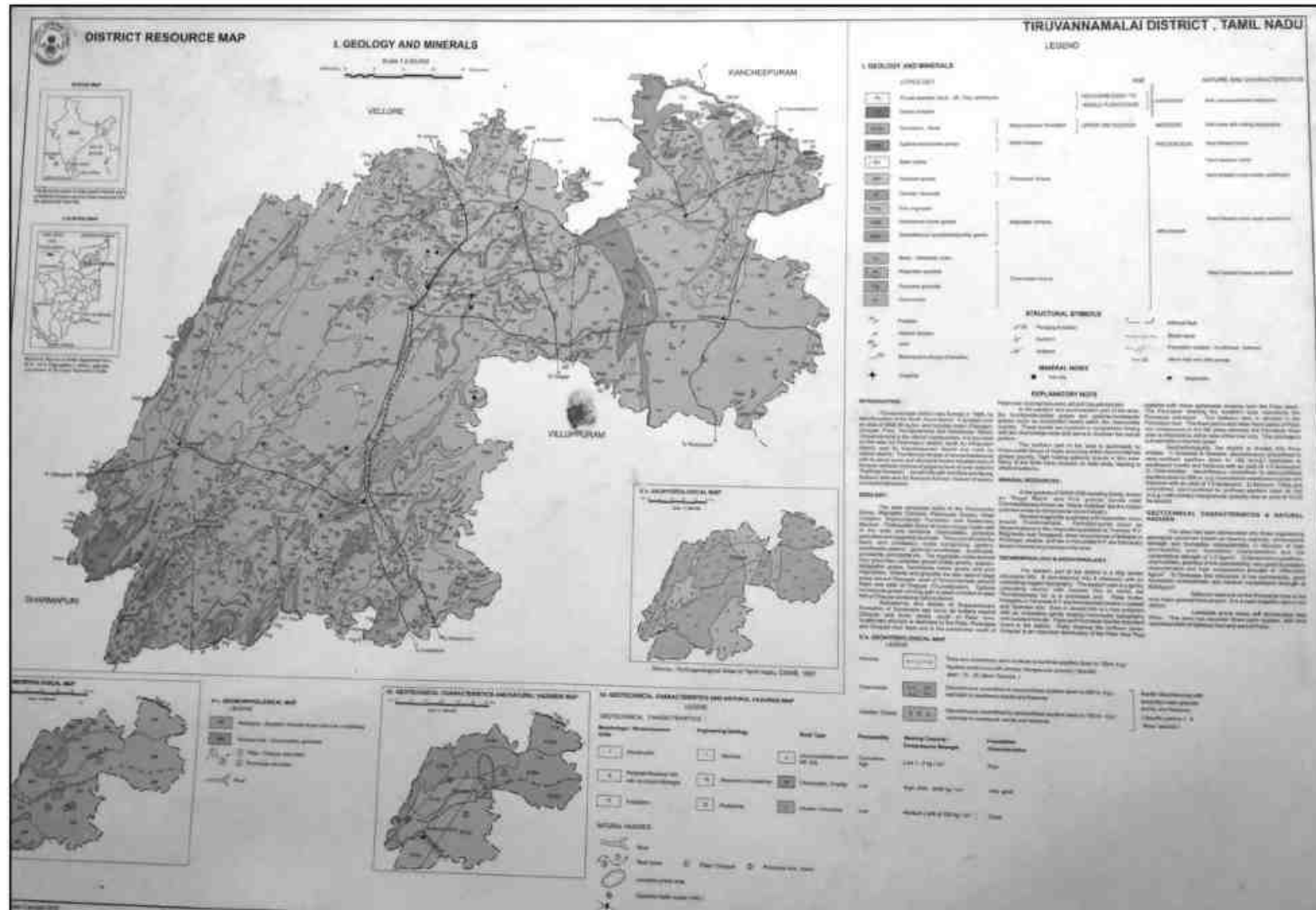
**11. DETAILS OF PRODUCTION OF MINERALS IN LAST THREE YEARS (2016-17 TO 2018-19)**

The mineral wise production for the last three years is given below:

<b>Sl.No</b>	<b>Year</b>	<b>Production of Rough Stone</b>
1.	2016-2017	688198
2.	2017-2018	825787
3.	2018-2019	1023023



## 12. MINERAL MAP OF THE DISTRICT:-



**13. LIST OF LETTER OF INTENT (LOI) HOLDERS IN THE DISTRICT ALONG WITH ITS VALIDITY  
AS PER THE FOLLOWING FORMAT:-**

Sl. No	Name of the Mineral	Name of the lessee	Address & contact no. of letter of Intent holder	Letter of Intent Grant order No. & date	Area of mining lease to be allotted (Ha)	Validity of LOI	Use (Captive/ Non-captive)	Location of the Mining lease (Latitude & Longitude)
1	Rough Stone	Thiru.R.Monishkumar	No.35/88, Rajaji Street, Chengalpattu.	Rc.No.379/ Kanimam / 2017 dt:17.07.2018	3.12.5	-	Non-captive	Ezhacheri Vembakkam 12°43'01.10"N to 12°43'08.27"N 79°43'06.48"E to 79°43'16.34"E
2	Rough Stone	Thiru.R.Gunasekaran	No.50/70 Kalyanasundharam St, Merku Thambaram, Chennai.	Rc.No.378/ Kanimam /2017 dt:06.08.2018	1.49.0	-	Non-captive	Vazhavandal Vembakkam 12°44'10.61"N to 12°44'16.71"N 79°41'19.33"E to 79°41'23.75"E
3	Rough Stone	Tvl.Suganya Blue Stone	No.505/3, Main Road, Thirupanamoor, Vembakkam Taluk. Tiruvannamalai District.	Rc.No.25 / Kanimam / 2018 dt:05.09.2018	2.95.0	-	Non-captive	Thirupanamoor Vembakkam 12°45'38.82"N to 12°45'47.05"N 79°34'45.63"E to 79°34'56.70"E
4	Rough Stone	Thiru.A.WILLIAM	No.139, 4 <sup>th</sup> Main Road, Lakshmi Nagar Extension, Porur, Chennai – 600 116.	Rc.No.32 / Kanimam/ 2018 dt.24.09.2018	2.88.0	-	Non-captive	Kundiyanthandalam Vembakkam 12°44'06.24"N to 12°44'21.05"N 79°43'01.47"E to 79°43'05.11"E

5	Rough Stone	Tvl. NRM SONS BLUE METALS	97A, Ottakuthar street, Mamallan Nagar, Kanchipuram District.	Rc.No.56 / Kanimam/2018 dt.19.09.2018	2.75.0	-	Non-captive	Kiznayacken palayam & Girijapuram vembakkam 12°44'07.37"N to 12°44'13.71"N 79°41'53.84"E to 79°41'00.88"E
6	Rough Stone	Thiru.R.Nethaji	No.79, Jain Street, Arpakkam Village, Valajabhath Taluk Kanchipuram District.	Rc.No.33/ Kanimam / 2018 dt.14.10.2018	2.45.0	-	Non-captive	Kundiyanthandalam Vembakkam 12°43'52"N to 12°43'57"N 79°43'16"E to 79°43'23"E
7	Rough Stone	Thiru.R.K.Sudhakar Ramakrishnan	No.326, Vivekanandar st, Thadaperumbakkam, Thiruvengadapuram, Ponneri, Tiruvallur District.	Rc.No. 78/ Kanimam / 2018 dt:27.09.2018	1.66.0	-	Non-captive	Thethurai Cheyyar 12°36'39.72"N to 12°36'44.60"N 79°37'16.98"E to 79°37'22.96"E
8	Rough Stone	Thiru.S.Sivasuriya madhava Raja	No.9/13, Shanmuga Nagar, Mannivakkam, Chennai – 600048.	Rc.No. 09/ Kanimam / 2018 dt.14.12.2018	1.05.5	-	Non-captive	Palli Cheyyar 12°43'11"N to 12°43'15"N 79°36'36"E to 79°36'41"E
9	Rough Stone	Thiru.S.Gopiraj	No.180/2, Pillaiyar Kovil Street, Kangeyanoor Village & Post, Polur Taluk, Tiruvannamalai.	Rc.No.395/ Kanimam / 2017 dt.10.12.2017	1.00.0	-	Non-captive	Pudhupalayam Polur 12°29'25.02"N to 12°29'29.53"N 79°06'32.03"E to 79°06'37.17"E

10	Rough Stone	Thiru.K.Ashok Kumar	Maganurpatti Village and Post, Uthangarai Taluk, Krishnagiri District.	Rc.No.20/ Kanimam/2017 dt.04.12.2017	1.00.0	-	Non-captive	Naradapattu Chengan 12°13'09"N to 12°13'12"N 78°41'20"E to 78°41'25"E
11	Rough Stone	Thiru.S.Manokaran	No.33/60 K, TPT Main Road, Vakkanampatti Post, Jolarpettai, Vellore District.	Rc.No.397/ Kanimam/2017 dt.17.11.2017	1.00.0	-	Non-captive	Thiruvadathanur Thandarampattu N 12°06'36.89" to 12°06'42.33" E 78°53'27.56" to 78°53'33.85"
12	Rough Stone	Thiru.K.Chandreskaran	No.301, Madhrayan Pettai Street, Mamandur Village, Vembakkam Taluk, Tiruvannamalai District	Rc.No.66/ Kanimam / 2018 dt.13.02.2019	1.97.5	-	Non-captive	Kundiyanthandalam Vembakkam 12°43'59.73"N to 12°43'06.66"N 78°43'01.36"E to 78°43'06.10"E
13	Rough Stone	M/s.Bhuvaneswari Blue Metals	No.37 B, Ground Floor, Vembuliamman Kovil Street, Pazhvanthangal, Chennai.	Rc.No.83/ Kanimam/2018 dt.02.02.2019	2.05.5	-	Non-captive	Kundiyanthandalam Vembakkam 12°43'50.85"N to 79°43'05.5"E to
14	Rough Stone	Thiru.R.Ganesan, Director of SRC Projects Pvt. Ltd.,	No.47, Brindhavan Road, Fairlands, Salem District.	Rc.No.18/ Kanimam / 2019 dt:16.05.2019	4.50.0	-	Non-captive	Athi Cheyyar 12°38'34.74"N to 12°38'43.98"N 79°35'58.85"E to 79°36'07.81"E

15	Rough Stone	M/s.Rajiraj Minerals Pvt. Ltd.,	O/F Penna Complex, Vellore Main Road, 3 <sup>rd</sup> Street, Anna Nagar, Arcot, Vellore	Rc.No.182/ Kanimam / 2018 dt.20.05.2019	10.90.35	-	Non-captive	Pavoor & Ezhacheri Vembakkam 12°42'55"N to 12°43'08"N 79°41'53"E to 79°42'08"E
16	Rough Stone	Thiru.Rajganesh	No.192/86, Habibullah Road, Thiagaraya Nagar, Chennai	Rc.No.135/ Kanimam/2018 dt.02.02.2019	2.58.5	-	Non-captive	Arugavoor Cheyyar 12°40'40.05"N to 12°40'49.43"N 79°30'36.11"E to 79°30'42.93"E
17	Rough Stone	N.Ragu	S/o.Nadarajan, No.14/2 Center street, Ganapathypuram, East Thambaram, Chennai	Rc.No.117/ Kanimam/2018 dt. 29.05.2019	2.95.0	-	Non-Captive	Menallur Vembakkam 12°43'52.49"N to 12°43'58.91"N 79°42'00.13"E to 79°42'07.16"E
18	Rough Stone	A.Dhasarathan,	No.39, Erikkarai Street, Thiruparuthikundram Village, Sevilimedu, Kanchipuram taluk & District.	Rc.No.79/Kanimam/2018 dt.02.02.2019	2.88.5	-	Non-Captive	Kundiyanthadalam Vembakkam 12°43'42.20"N to 12°43'51.08"N 79°42'54.37"E to 79°42'59.68"E

**14. TOTAL MINERAL RESERVES AVAILABLE IN THE DISTRICT:-**

Sl. No	Name of the Mineral	Name of the Lessee	Address & Contact No. lessee	Mining lease / Letter of Intent Grant Order No. & date	Area of Mining lease (ha)	Location of the mining lease (Latitude & Longitude)	Total Quantity (Geological Reverses)
1	2	3	4	5	6	7	8
1	<b>Rough Stone</b>	D.Jaiganesh,	Vettavalam village, Tiruvannamalai Taluk	614/K2/2009 <b>10.11.2017</b>	1.00.0	Vettavalam Tiruvannamalai <b>12°06' 38"</b> <b>12° 06' 43"</b> <b>79° 16' 27"</b> <b>79° 16' 31"</b>	<b>109580</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
2	<b>Rough Stone</b>	R.Prasath,	Polur Main Road, Tiruvannamalai.	39/K2/2010 <b>08.03.2010</b>	2.00.0	Veraiyur Tiruvannamalai <b>2°05' 33" N</b> <b>12° 05' 37" N</b> <b>79° 07' 11" E</b> <b>79° 07' 19" E</b>	<b>182300</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
3	<b>Rough Stone</b>	E.Murugesan ,	Nachanandhal Tiruvannamalai.	22/K2/2010 <b>05.04.2010</b>	1.00.0	<b>Pavupattu</b> <b>Tiruvannmalai</b> <b>12°07' 58"N</b> <b>12° 07'53"N</b> <b>79° 02' 55"E</b> <b>79° 02' 50"E</b>	<b>213395</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
4	<b>Rough Stone</b>	R.Singaram,	Thenimalai, Tiruvannamalai	73/K2/2010 <b>05.04.2010</b>	1.00.0	Athipadi <b>Tiruvannmalai</b> <b>12°05' 06" N</b> <b>12° 05' 02"N</b> <b>79° 02' 18"E</b> <b>79° 02' 13"E</b>	<b>100010</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
5	<b>Rough Stone</b>	A.Nakkeeran,	3, Kardukarar Street, Vettavalam	636/K2/2009 <b>10.05.2010</b>	0.77.0	Vettavalam Tiruvannamalai <b>12°06' 27"N</b> <b>12° 06' 32"N</b> <b>79° 14' 07"E</b> <b>79° 14' 11"E</b>	<b>192500</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>

6	<b>Rough Stone</b>	R.Arul,	Melanandahal Village, Tirukovilur Taluk.	40/K2/2010 <b>13.05.2010</b>	1.00.0	Athipadi <b>Tiruvannmalai</b> 12°05' 04" N 12° 05' 09"N 79° 02' 11"E 79° 02' 15"E	<b>148500</b> cbm <b>Rough Stone</b>
7	<b>Rough Stone</b>	N.Suresh,	25/73, Ayyankula Street, Tiruvannamalai	43/K2/2010 <b>16.12.2010</b>	2.00.0	Meyyur <b>Tiruvannmalai</b> 12°08' 59"N 12° 09' 05"N 79° 01' 49"E 79° 01' 54"E	<b>500000</b> cbm <b>Rough Stone</b>
8	<b>Rough Stone</b>	M.Selvaraj,	Chengam Road, Tiruvannamalai.	74/K2/2010 <b>16.12.2010</b>	1.00.0	Adaiyur <b>Tiruvannmalai</b> 12° 16' 24" N 12° 16' 28"N 79° 02' 55" E 79° 02' 59"E	<b>100250</b> cbm <b>Rough Stone</b>
9	<b>Rough Stone</b>	S.Prasanth,	Chengam Road, Tiruvannamalai	75/K2/2010 <b>23.12.2010</b>	0.96.5	Adaiyur <b>Tiruvannmalai</b> 12°16' 20" N 12° 16' 25" N 79° 02' 54" E 79° 02' 58"E	<b>92750</b> cbm <b>Rough Stone</b>
10	<b>Rough Stone</b>	S.Senthilkumar,	10, Kardukarar Street, Vettavalam.	168/K2/2010 <b>24.12.2010</b>	1.23.5	Vettavalam T iruvannamalai 12° 07' 34"N 12° 07' 38"N 79° 15' 48"E 79° 15' 53"E	<b>61820</b> cbm <b>Rough Stone</b>
11	<b>Rough Stone</b>	K.Thirumal,	Perayampattu post and Village, Tandarampet	72/K2/2010 <b>01.03.2011</b>	1.30.0	Athipadi <b>Tiruvannmalai</b> 12°05' 01"N 12° 05' 05"N 79° 02' 03"E 79° 02' 09"E	<b>165490</b> cbm <b>Rough Stone</b>

12	<b>Rough Stone</b>	N. Harijayashree,	No.18/7, Vadamathathi St.,Tiruvannamalai	57/K/2012 <b>28.04.2012</b>	4.00.0	Vallivagai <b>Tiruvannmalai 12° 16' 41"N      12° 16' 32"N      79° 08' 52"E      79° 08' 39"E</b>	<b>600795 cbm Rough Stone</b>
13	<b>Rough Stone</b>	R.Sekar,	Mel Chinna Goundanpatti, Tharamangalam Village, Omalur Taluk, Salem Dt.	47/K2/2015 <b>12.09.2017</b>	1.00.0	Koothalavadi <b>Tiruvannmalai 12° 20 02.45"N 12° 20' 07.2"N 79° 06' 49.93'E 79°06' 53.59"E</b>	<b>38760 cbm Rough- Stone</b>
14	<b>Rough Stone</b>	P.Adimoolam,	57A, Tamizhnagar, Tiruavannamalai taluk	130/K2/2009 <b>01.07.2009</b>	1.00.0	ynkunam Kilpennathur <b>12°15' 36" N 12° 15' 47" N 79° 09' 56" E 79° 10' 02" E</b>	<b>154000 cbm Rough Stone</b>
15	<b>Rough Stone</b>	R.Karthikeyan	23/29, Lakshmipuram, Gandhi Nagar, Tiruvannamalai-2.	483/K2/2009 <b>20.04.2011</b>	1.00.0	Iynkunam Kilpennathur <b>12° 15' 43"N 12° 15' 47"N 79° 09' 41"E 79° 09' 47"E</b>	<b>190500 cbm Rough Stone</b>
16	<b>Rough Stone</b>	V.J.Dhamodharan,	No.1261-A Thendral Nagar, Vengikkal Village, Tiruvannamalai Taluk & District.	391/K/2017 <b>16.11.2018</b>	1.00.0	Polakunam Kilpennathur <b>N 12°12'32.00" 12°12'34.95" E 79°08'40.72" 79°08'46.20"</b>	<b>300750 cbm Rough Stone</b>
17	<b>Rough Stone</b>	S.Vasanthkumari	Uchimalaikuppam Chengam	621/K2/2009 <b>12.04.2010</b>	1.35.5	Uchimalaikuppam Chengam <b>N 12°15'54" 12°15'58" E 78°54'21" 78°54'27"</b>	<b>124560 cbm Rough Stone</b>



18	<b>Rough Stone</b>	K.Durai	1/2, Ramalinganar Street, Tiruvannamalai	27/K2/2010 <b>05.05.2010</b>	1.00.0	Paliapattu Chengam <b>12° 16' 10" N</b> <b>12° 16' 01" N</b> <b>79° 00' 15" E</b> <b>79° 00' 08"E</b>	<b>274040</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
19	<b>Rough Stone</b>	R.Jeevanantham,	50, Avarangaatu Street, Tiruvannamalai	24/K2/2010 <b>13.05.2010</b>	2.00.0	Chinnakola-padi Chengam <b>12° 15' 16"N</b> <b>12° 15' 22"N</b> <b>78° 59' 10"E</b> <b>78° 59' 17"E</b>	<b>300000</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
20	<b>Rough Stone</b>	R.M.Jayavelu	Chengam Road, Tiruvannamalai	28/K2/2010 <b>03.11.2010</b>	1.50.0	Paliapattu Chengam <b>12° 16' 11"N</b> <b>12° 16' 04"N</b> <b>79° 00' 20"E</b> <b>79° 00' 14"E</b>	<b>155610</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
21	<b>Rough Stone</b>	M.Palani	6, Peygopuram St., Tiruvannamalai	15/K2/2011 <b>12.01.2016</b>	0.50.0	Periyakola-padi Chengam <b>12° 15'02.12"N</b> <b>12° 15' 05.67"N</b> <b>79° 58'50.59"E</b> <b>79°58'52.31"E</b>	<b>47595</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
22	<b>Rough Stone</b>	Sadhaknawas,	No. 25, 3rd Street, Valace Garden, Chennai-6.	14/K2/2011 <b>12.01.2016</b>	0.50.0	Periyakola-padi Chengam <b>12° 15'01.92"N</b> <b>12° 15' 05.72"N</b> <b>79° 58'49.37"E</b> <b>79°58'51.19"E</b>	<b>57465</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
23	<b>Rough Stone</b>	Tmt.S.Kanimozhi	No.152, Old Street, Avoor Village Tiruvannamalai	48/K2/2015 <b>28.07.2016</b>	1.00.0	Periyakola-padi Chengam <b>12° 15' 03" N</b> <b>12° 15' 06" N</b> <b>78° 58' 53" E</b> <b>78° 58' 58" E</b>	<b>266480</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>

24	<b>Rough Stone</b>	M.Julia	180, Vambalur Road, Tirumalai village, Polur taluk	231/K2/2009 <b>22.06.2009</b>	2.00.0	Tirumalai Polur <b>12° 33' 44"N</b> <b>12° 33' 47"N</b> <b>79° 11' 26"E</b> <b>79° 11' 33"E</b>	<b>288000</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
25	<b>Rough Stone</b>	M.Parthiban,	27/A, Vengadathan street, Polur taluk & village.	136/K2/2010 <b>24.12.2010</b>	1.00.0	Pudhu-palayam Polur <b>12° 29' 18" N</b> <b>79° 6' 40.64" E</b>	<b>70385</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
26	<b>Rough Stone</b>	S.Rajakumar	2/57, Pillaiyar koil street, Kalasapakkam.	50/K/2015 <b>21.07.2016</b>	2.00.0	Vasur Polur <b>12° 29' 16" N</b> <b>12° 29' 21" N</b> <b>79° 07' 11" E</b> <b>79° 07' 17"E</b>	<b>392950</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
27	<b>Rough Stone</b>	E.Sivakumar,	No.20.26.J.30, VRS Nagar, Govindasamy street, Polur.	51/K/2015 <b>21.07.2016</b>	2.00.0	Pudu-palayam Polur <b>12° 29' 17"N</b> <b>12° 29' 22" N</b> <b>79° 06' 26" E</b> <b>79° 06' 31"E</b>	<b>239070</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
28	<b>Rough Stone</b>	P.Radhakrishnan	Mettu Street, Tiruvannamalai	20/K2/2010 <b>12.04.2010</b>	1.03.5	Sathanur Thandarampattu <b>12° 11' 08"N</b> <b>12° 11' 13"N</b> <b>78° 53' 01"E</b> <b>78° 53' 05"E</b>	<b>134345</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
29	<b>Rough Stone</b>	M.Govindarajan,	No.3/337, Allabasha street, Mungilthuraipattu Village, Shankarapuram Tk.	79/K2/2010 <b>28.06.2010</b>	2.00.0	Thonda-manur Thandaram-pattu <b>12° 03' 48"N</b> <b>12° 04' 03"N</b> <b>78° 56' 57"E</b> <b>78° 57' 05"E</b>	<b>279000</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>

30	<b>Rough Stone</b>	A.Thenarmozhi	Manalurmel Siruvallur Village, Sankarapuram	134/K2/2010 <b>23.08.2010</b>	2.00.0	Perukulathur Thandaram-pattu 12° 01' 28" N 12° 01' 33" N 78° 55' 03" E 78° 55' 07" E	<b>199420 cbm Rough Stone</b>
31	<b>Rough Stone</b>	Tmt.K.Sarasu	53, Nehru Street, Chengam	626/K2/2009 <b>17.03.2011</b>	1.00.0	Sathanur Thandarampattu 12°11'21"N 12°11'26"N 78°52'52"E 78°52'56"E	<b>182750 cbm Rough Stone</b>
32	<b>Rough Stone</b>	R.Dhanakotti	Varagur Village, Tandrapmet	18/K2/2011 <b>30.03.2011</b>	1.00.0	Varagur Thandarampattu 12° 08' 58" N 12° 08' 54" N 79° 01' 48"E 79° 01' 42"E	<b>186000 cbm Rough Stone</b>
33	<b>Rough Stone</b>	P.Palani	Kolamanjanur Village, Tandarampet.	20/K2/2011 <b>18.04.2011</b>	2.00.0	Kolaman-janur Thandarampattu 12° 08' 14"N 12° 08' 25"N 78° 53' 05"E 78° 53' 12"E	<b>365400 cbm Rough Stone</b>
34	<b>Rough Stone</b>	M.Veeramani	Royandapuram Village Thandarampattu Taluk.	19/K2/2011 <b>24.05.2012</b>	2.00.0	Royanda-puram Thandaram-pattu 12°04'49"N 12°04'55"N 78°56'23"E 78°56'29"E	<b>543200 cbm Rough Stone</b>
35	<b>Rough Stone</b>	M.Vinothkannan,	Varagur Village, Tandrapmet	49/K/ 2015 <b>20.01.2016</b>	0.40.0	Varagur Thandarampattu 12° 08' 32" N 12° 08' 29" N 79° 01' 39" E 79° 01' 37"E	<b>101250 cbm Rough Stone</b>

36	<b>Rough Stone</b>	Tmt. R. Amutha	No.712, Bajanai Koil Street, Dhesurpalayam Village, Keelvanakkambadi Thandrampattu Taluk	396/K/ 2017 <b>11.06.2018</b>	2.00.0	Allappanur Thandaram-pattu <b>N 12°06'06.86"</b> <b>12°06'12.52"</b> <b>E 78°56'39.04"</b> <b>78°56'45.64"</b>	<b>1000000</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
37	<b>Rough Stone</b>	S. Nagaraj	Manampathy Village, Uthiramerur Taluk.	29/K2/2011 <b>17.12.2011</b>	1.53.0	Athi Cheyyar <b>12° 38' 18"N</b> <b>12° 38' 29"N</b> <b>79° 36' 30"E</b> <b>79° 36' 39"E</b>	<b>230055</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
38	<b>Rough Stone</b>	K. Gopinath,	Kandigai melkottaiyur post, Chengelpet taluk.	26/K2/2011 <b>03.06.2011</b>	2.00.0	Avaniapuram Chetpattu <b>12° 08' 54"N</b> <b>12° 08' 58"N</b> <b>79° 01' 34"E</b> <b>79° 01' 41"E</b>	<b>200080</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
39	<b>Rough Stone</b>	V. Rajagopal,	Oorapakkam, Chengal attu.	169/K2/2010 <b>17.12.2011</b>	1.00.0	Jeganatha-puram Chetpattu <b>12° 28' 51"N</b> <b>12° 28' 57"N</b> <b>79° 24' 06"E</b> <b>79° 24' 10"E</b>	<b>199820</b> <b>Cbm of</b> <b>Rough</b> <b>stone</b>
40	<b>Rough Stone</b>	D. Saravanan,	Venkatapuram, Saidapet, Chennai - 15.	140/K2/2010 <b>18.10.2010</b>	2.00.0	Seeyalam Vandavasi <b>12° 26' 24"N</b> <b>12° 26' 27 N</b> <b>79° 43' 05"E</b> <b>79° 43' 12"E</b>	<b>295245</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
41	<b>Rough Stone</b>	R. Tamilvanan.	Saidapet, Chennai -15.	143/K2/2010 <b>18.10.2010</b>	2.00.0	Seeyalam Vandavasi <b>12° 26' 14"N</b> <b>12° 26' 18 N</b> <b>79°43' 02"E</b> <b>79° 43' 11"E</b>	<b>222720</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>

2	<b>Rough Stone</b>	Siddique Basha,	Kunnathur village, Arni taluk	602/K2/2009 <b>19.11.2009</b>	2.00.0	Melnagar ramasani kuppam Arni <b>12°42'13"N</b> <b>12°42'07" N</b> <b>79°11'01"E</b> <b>79°10' 55"E</b>	<b>353600</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
43	<b>Rough Stone</b>	S.Suresh,	3, Saradha Nagar, Agraharam Koratur, Chennai - 76.	135/K2/2009 <b>23.11.2009</b>	1.00.0	Mullan-diram Arni <b>12°49'02.10"N</b> <b>12°49'06.57" N</b> <b>79°15'31.79"N</b> <b>79°15'36.38"N</b>	<b>204000</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
44	<b>Rough Stone</b>	M.Shajakhan	855, Bazar Street Santhavasal, Polur Tk.	68/K/2012 <b>24.05.2012</b>	1.00.0	Melnagar Arni <b>12° 42' 27"N</b> <b>12° 42' 32"N</b> <b>79° 10' 17"E</b> <b>79° 10' 21"E</b>	<b>136950</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
45	<b>Rough Stone</b>	A.Nazeer Basha,	520/1, C.C.Road, Vannangulam, Arni taluk	51/K2/2010 <b>14.09.2010</b>	2.00.0	Ayyam-palayam Arni <b>12° 42' 10"N</b> <b>12° 42' 18"N</b> <b>79° 10' 15"E</b> <b>79° 10' 21"E</b>	<b>266450</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
46	<b>Rough Stone</b>	A.G.Mohan,	43, V.A.K.Nagar, Arni Taluk	52/K/2015 <b>13.11.2017</b>	0.40.0	Ariyapadi Arni <b>12° 41' 52"N</b> <b>12° 41' 54"N</b> <b>79° 13' 22"E</b> <b>79° 13' 25"E</b>	<b>101250</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
47	<b>Rough Stone</b>	P.Vinayagamoorthi	Ramana Nagar, Thiruvannamalai.	104/K2/2015 <b>02.03.2016</b>	0.75.5	Pavithram Tiruvannamalai <b>12°07'21"N</b> <b>12°07'24"</b> <b>E 79°06'26"</b> <b>79°06'32"E</b>	<b>151840</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>

48	<b>Rough Stone</b>	C.Shanthi	No.3/22 Nehru Street, Vettavalam Taluk	132/K2/2015 <b>15.05.2018</b>	0.65.0	Vettavalam Kilpennathur <b>12°06'15.10"</b> <b>12°06'18.00"</b> <b>79°13'59.75"</b> <b>79°14'04.16"</b>	<b>130000</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
49	<b>Rough Stone</b>	K.S.BABURAJ,	No.12/14,3rd Cross Street, Karpagam Garden, Adayar, chennai -20	101/K/2018 <b>14.11.2018</b>	1.66.0	Kasthambadi Polur <b>N 12°35'55"</b> <b>12°36'01"</b> <b>E 79°11'51"</b> <b>79°11'57"</b>	<b>207480</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
50	<b>Rough Stone</b>	T.Selvaraj,	Harur Main Road, Mothakkal village, Thandarampattu Tk.	31/K/2013 <b>16.06.2014</b>	0.40.5	Mothakkal Tmpt <b>12°05'25.30"N</b> <b>12°05'22.51"N</b> <b>78°43'34.90"E</b> <b>78°43'36.52"E</b>	<b>22276</b> <b>cbm</b> <b>Rough-</b> <b>Stone</b>
51	<b>Rough Stone</b>	R.Gopi,	4/75B, Veerapathran Kovil St., Vijayappanur, Thandarampattu Tk.	101/K/2015 <b>02.06.2016</b>	1.71.0	Varagur Thandarampattu <b>12°08'54"N</b> <b>12°08'58"N</b> <b>79°01'34"E</b> <b>79°01'41"E</b>	<b>171170</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
52	<b>Rough Stone</b>	R.Venkatachalam,.	No.30, New State Bank Colony, West Tambaram, Chennai.	95/K/2015 <b>21.07.2016</b>	2.90.0	Palli Cheyyar <b>12° 42' 53"N</b> <b>12° 43'01"N</b> <b>79° 36' 08"E</b> <b>79° 36'15"E</b>	<b>290000</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
53	<b>Rough Stone</b>	Tvl.Src Projects (P) Ltd.,	4-B, Lakshmiipuram, Gandhi Road, Salem-636 007.	99/K/2015 <b>21.07.2016</b>	4.75.5	Palli Cheyyar <b>12° 43' 20"N</b> <b>12° 43' 30"N</b> <b>79° 36' 14" E</b> <b>79° 36' 24"E</b>	<b>1902000</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>

54	<b>Rough Stone</b>	I.Prakash	Senthamangalam Village S.V.Chathiram (Via), Sriperumpthur Taluk, Kanchipuram District.	122/K/2015 <b>28.07.2016</b>	0.78.0	Painkinar Cheyyar <b>12°41'20.08"</b> <b>12°41'24.79"</b> <b>79°31'11.49"</b> <b>79°31'15.16"</b>	<b>168080</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
55	<b>Rough Stone</b>	S.Suresh Babu	No.5, Kulakkarai Street Anakkaputhur Village, Thambaram Taluk, Chennai District.	147/K/2015 <b>28.07.2016</b>	3.88.5	Kurumbur Cheyyar <b>12°35'56.33" N</b> <b>12°36'07.32" N</b> <b>79°36'54.98" E</b> <b>79°37'02.93" E</b>	<b>900840</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
56	<b>Rough Stone</b>	R.Velmurugan,	304, Theradi Street, Asanamapettai Village, Vembakkam Taluk.	360/K/2017 <b>17.09.2018</b>	1.20.0	Palli Cheyyar <b>N 12°43'15"</b> <b>12°43'19"</b> <b>E 79°35'36"</b> <b>79°35'43"</b>	<b>416080</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
57	<b>Rough Stone</b>	S.MURUGAN,	No.62/2 , Vedanatham Village, Tiruvannamalai Taluk & District.	125/K/2015 <b>03.11.2018</b>	2.06.5	Agatheri-pattu Cheyyar <b>N 12°36'39.77"</b> <b>12°36'46.70"</b> <b>E 79°27'00.45"</b> <b>79°27'05.69"</b>	<b>450740</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
58	<b>Rough Stone</b>	M.Marimuthu,	Kilpudupakkam Village, Cheyyar Taluk, Tiruvannamalai District.	413/K/2017 <b>16.11.2018</b>	0.98.5	Palli Cheyyar <b>N 12°43'14"</b> <b>12°43'20"</b> <b>E 79°35'59"</b> <b>79°36'02"</b>	<b>244200</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
59	<b>Rough Stone</b>	R.Seenuvasan,	Road Street, Arasanipalai village, Vembakkam Taluk	176/K/2013 <b>27.06.2014</b>	3.42.0	Ezhacheri Vembakkam <b>12° 42' 48" N</b> <b>12° 43' 1" N</b> <b>79° 43' 17" E</b> <b>79° 43' 27" E</b>	<b>150155</b> <b>cbm</b> <b>Rough-</b> <b>Stone</b>

60	<b>Rough Stone</b>	Ganesh Kaskar,	RMC Ready mix (India) Sidco Industrial Estate, Thirumudivakkam, Chennai.	105/K/2013 <b>14.07.2014</b>	4.23.5	Sithala-pakkam Vembakkam <b>12°43'23"N</b> <b>12° 43'10"N</b> <b>79°43'29" E</b> <b>79°43'36" E</b>	<b>968970</b> <b>cbm</b> <b>Rough Stone</b>
61	<b>Rough Stone</b>	D.Madhavan	19, Sarangapani street, Krishnapuram, Ambathur, Chennai-53.	116/K/2013 <b>03.03.2015</b>	0.90.0	Girijapuram Vembakkam <b>12° 44'25"</b> <b>12° 44'19"N</b> <b>79° 42' 14"</b> <b>79° 42'11"E</b>	<b>76000</b> <b>cbm</b> <b>Rough Stone</b>
62	<b>Rough Stone</b>	R.Mohanraj	No.33, Pillaiyar koil street, Puliyambedu village, Ambatthur Taluk.	242/K/2012 <b>13.05.2015</b>	0.81.0	Girijapuram Vembakkam <b>12° 44' 11" N</b> <b>12° 44' 08" N</b> <b>79° 42' 12" E</b> <b>79° 42' 09" E</b>	<b>257400</b> <b>cbm</b> <b>Rough Stone</b>
63	<b>Rough Stone</b>	N.Subramani	No 210 , Mandapam Junction Arpakkam Village, Kanchipuram	75/K/2014 <b>21.07.2016</b>	3.02.5	Menallur Vembakkam <b>12°44'08.63"N</b> <b>12°44'18.71"N</b> <b>79°42'16.36"E</b> <b>79°42'21.37"E</b>	<b>89184</b> <b>cbm</b> <b>Rough Stone</b>
64	<b>Rough Stone</b>	B.Sri Devi,	No.56, Balasundaram Street, Chandramohan Nagar, Velingapattarai, Kanchipuram 631 501.	12/K/2015 <b>28.07.2016</b>	1.15.5	Kundiyan-thandalm Vembakkam <b>12°43'55.90"N</b> <b>12°43'59.56"N</b> <b>79°43'6.08" E</b> <b>79°43'12.04"E</b>	<b>316710</b> <b>cbm</b> <b>Rough Stone</b>
65	<b>Rough Stone</b>	K.Kumar,	No.2/32, Mandapam Junction, Arpakkam Village & Post, Kanchipuram.	14/K/2015 <b>28.07.2016</b>	2.29.5	Kundiyan-thandalm Vembakkam <b>12°43'50.86"N</b> <b>12°43'58.24"N</b> <b>79°42'56.50"E</b> <b>79°43'03.46"E</b>	<b>334530</b> <b>cbm</b> <b>Rough Stone</b>



66	<b>Rough Stone</b>	K.Thirumalai,	No.52, Pillaiyar Koil Street, M.G.R. Nagar,Kundrathur, Chennai 600 069.	29/K/2015 <b>28.07.2016</b>	1.50.0	Suruttal Vembakkam <b>12°43' 56.14"N</b> <b>12°44' 02.73"N</b> <b>79°43' 48.82"E</b> <b>79°43' 55.08"E</b>	<b>257475</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
67	<b>Rough Stone</b>	Tmt.Deepa	81, Santhi Nagar First Street, Chengalpattu, Kanchipuram District	11/K/2014 <b>06.06.2016</b>	0.90.5	Thiruppana-moor Vembakkam <b>12°45'34.03"N</b> <b>12°45'39.08"N</b> <b>79°34'44.00"E</b> <b>79°34'49.08"E</b>	<b>20610</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
68	<b>Rough Stone</b>	J. Venkatesan	153-A/1, Pillaiyar Koil Street, Melapattu Vge., Ramakrishnapuram. Cheyyar Taluk.	06/K/2017 <b>14.09.2017</b>	1.00.0	Chithathur Vembakkam N <b>12°43'15"</b> <b>12°43'20"</b> <b>E 79°36'25"</b> <b>79°36'28"</b>	<b>249150</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
69	<b>Rough Stone</b>	E.Panneerselvam	89, Vanniya Mettu St., Arpakkam Village, Kanchipuram Tk & Dt.	131/K/2015 <b>14.09.2017</b>	1.43.0	Kundiyan-thandalm Vembakkam <b>N 12°43'45.58"</b> <b>12°43'51.42"</b> <b>E 79°42'58.50"</b> <b>79°43'02.06"</b>	<b>500500</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
70	<b>Rough Stone</b>	L.Sudhakar ,	89, Palla Street, Agaram Village Thenneri Post, Kanchipuram Taluk.	105/K/2016 <b>14.09.2017</b>	3.51.5	Girijapuram Vembakkam <b>12°44'03.76"</b> <b>12°44'12.07N</b> <b>79°42'00.56E"</b> <b>79°42'08.36E</b>	<b>1127350</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
71	<b>Rough Stone</b>	A.Aron Samuvel,	No.15, Sesha Nagar, Poovirnthavalli, Chennai - 600 056.	80/K/2017 <b>17.09.2018</b>	1.83.5	Kundiyan-thandalm Vembakkam <b>N 12°43'46.58"</b> <b>12°43'52.64"</b> <b>E 79°43'15.17"</b> <b>79°43'21.32"</b>	<b>306990</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>

72	<b>Rough Stone</b>	M.Sudharsan,	Pl.No.37, Parvathi Nagar, 3rd Street, Madampakkam, Chennai- 600 126.	377/K/2017 <b>17.09.2018</b>	3.25.0	Kundiyan-thandalm Vembakkam <b>N 12°43'51.14"</b> <b>12°43'57.08"</b> <b>E 79°43'07.34"</b> <b>79°43'16.63"</b>	<b>634000</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
73	<b>Rough Stone</b>	S.Sridhar	Managing Director, SKT MINES, No.19C, Villakkadi Koil Thoppu Street, Kancheepuram- 635 501.	26/K/2018 <b>17.09.2018</b>	3.96.5	Kaganam Vembakkam <b>N 12°44'36.64"</b> <b>12°44'45.79"</b> <b>E 79°34'38.22"</b> <b>79°34'48.97"</b>	<b>1721925</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
74	<b>Rough Stone</b>	B.Deenan ,	Vembakkam Taluk	78/K/2014 <b>20.07.2018</b>	0.95.5	Ezhacheri Vembakkam <b>N 12°42'51"</b> <b>12°42'48"</b> <b>E 79°43'25"</b> <b>79°43'21"</b>	<b>238000</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
75	<b>Rough Stone</b>	K.Devaraj,	No.105, Gandhisilai Street, Lakshmpuram Village, Vembakkam Taluk, Tiruvannamalai	248/K/2017 <b>17.10.2018</b>	2.10.0	Girijapuram Vembakkam <b>N 12°44'14"</b> <b>12°44'21"</b> <b>E 79°42'03"</b> <b>79°42'09"</b>	<b>822160</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
76	<b>Rough Stone</b>	J.K.Srinivasan	No.782, Mariyamman Koil Street, Jambodai Village, Azhividaithangal, Vembakkam Taluk.	249/K/2017 <b>15.10.2018</b>	1.21.54	Chithathur Vembakkam <b>N 12°44'09"</b> <b>12°44'14"</b> <b>E 79°37'18"</b> <b>79°37'25"</b>	<b>484640</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
77	<b>Rough Stone</b>	M.R.Azhagiri,	No.120, Shanmuganandhar Kovil Street Mangadu, Sriperumbuthur Tk, Kancheepuram	85/K/2018 <b>17.10.2018</b>	3.87.5	Chithala-pakkam Vembakkam <b>N 12°42'46.17"</b> <b>12°42'52.84"</b> <b>E 79°43'25.08"</b> <b>79°43'33.59"</b>	<b>968750</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>

78	<b>Rough Stone</b>	Tvl.Golden Sands,	No.15, 4th Street, VGP Lay Out, East coast Road, Chennai-115.	23/K/2018 <b>07.11.2018</b>	3.74.5	Ezhacheri Vembakkam <b>N12°43'18.09"</b> <b>12°43'24.02"</b> <b>E 79°43'19.41"</b> <b>79°43'11.43"</b>	<b>1310610</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
79	<b>Rough Stone</b>	Thiru.C.Sugumar,	No.18-A, V.V.Kovil Street, Walajabad Taluk, Kancheepuram District.	375/K/2017 <b>16.11.2018</b>	1.82.5	Ezhacheri Vembakkam <b>N 12°43'16.06"</b> <b>12°43'19.39"</b> <b>E 79°43'10.40"</b> <b>79°43'19.71"</b>	<b>638750</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
80	<b>Rough Stone</b>	Muthukrishnan,	No.221,Chenjiamman Koil Street, Chithalappakkam Village, Arasanipalayam Post, Vempakkam Taluk.	337/K/2017 <b>22.11.2018</b>	1.26.0	Chithala-pakkam Vembakkam <b>N 12°43'18.67"</b> <b>12°43'24.09"</b> <b>E 79°43'30.36"</b> <b>79°43'34.30"</b>	<b>441000</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
81	<b>Rough Stone</b>	R.Venkatasubramanian,	No.83/1 Pillaiyar Kovil Street, Sirumayilur Village, Kancheepuram.	05/K/2018 <b>04.12.2018</b>	2.43.0	Kundiyanthandalam Vembakkam <b>N12°44'12"</b> <b>12°44'44'17"</b> <b>E 79°43'03"</b> <b>79°43'12"</b>	<b>107395</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
82	<b>Rough Stone</b>	Tvl.Src Projects (P) Ltd.,	4-B, Lakshmipuram, Gandhi Road, Salem-636 007.	371/K/2017 <b>14.12.2018</b>	4.71.5	Chithathur Vembakkam <b>N 12°43'19.14"</b> <b>12°43'27.05"</b> <b>E 79°36'22.83"</b> <b>79°36'34.83"</b>	<b>2121750</b> <b>cbm</b> <b>Rough</b> <b>Stone</b>
83	<b>Rough Stone</b>	Vijay Ramakrishnan	Door No.52, MGR Road, Kalachitra Colony, Besent Nagar, Chennai-90	193/K/2013 <b>23.09.2014</b>	1.50.5	Kizhnamandi Vandavasi <b>12° 23'15"N</b> <b>12° 23'23"N</b> <b>79°29'40"E</b> <b>79°29'43" E</b>	<b>102767</b> <b>cbm</b> <b>Rough-</b> <b>Stone</b>

84	<b>Rough Stone</b>	G.Vasudevan	Door No.842-D, Vengidamangalam Road, Melakkottaiyur,Chengal pattu Taluk,Kancheepuram.	115/K/2015 <b>08.12.2016</b>	1.04.0	Septangulam Vandavasi <b>12°31' 53.54"</b> <b>12°31' 56.24"</b> <b>79°26'21.93"</b> <b>79°26'28.09"</b>	<b>256700 cbm Rough Stone</b>
85	<b>Rough Stone</b>	G.Rajendran,	No.18, First Street, Rajiv Gandhi Nagar, Urapakkam Village, Chengalpattu .	37/K/2014 <b>22.12.2016</b>	1.68.0	Mavalavadi Vandavasi <b>12°22'32.00"N</b> <b>79°39'29.10"E</b>	<b>202464 cbm Rough Stone</b>
86	<b>Rough Stone</b>	A.C.Mani,	Vettilaikara street, Arni.	36/K/2013 <b>25.09.2014</b>	0.67.0	Ariyapadi Arni <b>12°41'56"N</b> <b>12° 41' 52"N</b> <b>79° 13' 20" E</b> <b>79° 13' 23"E</b>	<b>36244 cbm Rough - Stone</b>
87	<b>Rough Stone</b>	R.Monishkumar	No.35/88, Rajaji Street, Chengalpattu.	Rc.No.379/ Kanimam / 2017 dt:17.07.2018	3.12.5	Ezhacheri Vembakkam <b>12°43'01.10"N</b> <b>12°43'08.27"N</b> <b>79°43'06.48"E</b> <b>79°43'16.34"E</b>	<b>894250 cbm Rough Stone</b>
88	<b>Rough Stone</b>	R.Gunasekaran	No.50/70 Kalyanasundharam St, Merku Thambaram, Chennai.	Rc.No.378/ Kanimam /2017 dt:06.08.2018	1.49.0	Vazhavandal Vembakkam <b>12°44'10.61"N</b> <b>12°44'16.71"N</b> <b>79°41'19.33"E</b> <b>79°41'23.75"E</b>	<b>521500 cbm Rough Stone</b>
89	<b>Rough Stone</b>	Tvl.Suganya Blue Stone	No.505/3, Main Road, Thirupanamoor, Vembakkam Taluk. Tiruvannamalai District.	Rc.No.25 / Kanimam / 2018 dt:05.09.2018	2.95.0	Thirupanamoor Vembakkam <b>12°45'38.82"N</b> <b>12°45'47.05"N</b> <b>79°34'45.63"E</b> <b>79°34'56.70"E</b>	<b>1180000 cbm Rough Stone</b>

90	<b>Rough Stone</b>	A.WILLIAM	No.139, 4 <sup>th</sup> Main Road, Lakshmi Nagar Extension, Porur, Chennai - 600 116.	Rc.No.32 / Kanimam/ 2018 dt.24.09.2018	2.88.0	Kundiyanthandalam Vembakkam 12°44'06.24"N 12°44'21.05"N 79°43'01.47"E 79°43'05.11"E	<b>692200 cbm Rough Stone</b>
91	<b>Rough Stone</b>	Tvl. NRM SONS BLUE METALS	97A, Ottakuthar street, Mamallan Nagar, Kanchipuram District.	Rc.No.56 / Kanimam/2018 dt.19.09.2018	2.75.0	Kiznayacken palayam & Girijapuram vembakkam 12°44'07.37"N 12°44'13.71"N 79°41'53.84"E 79°41'00.88"E	<b>2133360 cbm Rough Stone</b>
92	<b>Rough Stone</b>	R.Nethaji	No.79, Jain Street, Arpakkam Village, Valajabhath Taluk Kanchipuram District.	Rc.No.33/ Kanimam / 2018 dt.14.10.2018	2.45.0	Kundiyanthandalam Vembakkam 12°43'52"N 12°43'57"N 79°43'16"E 79°43'23"E	<b>1326400 cbm Rough Stone</b>
93	<b>Rough Stone</b>	R.K.Sudhakar Ramakrishnan	No.326, Vivekanandar st, Thadaperumbakkam, Thiruvengadapuram, Ponneri, Tiruvallur District.	Rc.No. 78/ Kanimam / 2018 dt:27.09.2018	1.66.0	Thethurai Cheyyar 12°36'39.72"N 12°36'44.60"N 79°37'16.98"E 79°37'22.96"E	<b>566755 cbm Rough Stone</b>
94	<b>Rough Stone</b>	S.Sivasuriya madhava Raja	No.9/13, Shanmuga Nagar, Mannivakkam, Chennai - 600048.	Rc.No. 09/ Kanimam / 2018 dt.14.12.2018	1.05.5	Palli Cheyyar 12°43'11"N 12°43'15"N 79°36'36"E 79°36'41"E	<b>520800 cbm Rough Stone</b>
95	<b>Rough Stone</b>	S.Gopiraj	No.180/2, Pillaiyar Kovil Street, Kangeyanoor Village & Post, Polur Taluk, Tiruvannamalai.	Rc.No.395/ Kanimam / 2017 dt.10.12.2017	1.00.0	Pudhupalayam Polur 12°29'25.02"N 12°29'29.53"N 79°06'32.03"E 79°06'37.17"E	<b>326190 cbm Rough Stone</b>

96	<b>Rough Stone</b>	K.Ashok Kumar	Maganurpatti Village and Post, Uthangarai Taluk, Krishnagiri District.	Rc.No.20/ Kanimam/2017 dt.04.12.2017	1.00.0	Naradapattu Chengan 12°13'09"N 12°13'12"N 78°41'20"E 78°41'25"E	<b>355250 cbm Rough Stone</b>
97	<b>Rough Stone</b>	S.Manokaran	No.33/60 K, TPT Main Road, Vakkanampatti Post, Jolarpettai, Vellore District.	Rc.No.397/ Kanimam/2017 dt.17.11.2017	1.00.0	Thiruvadathanur Thandarampattu N 12°06'36.89" 12°06'42.33" E 78°53'27.56" 78°53'33.85"	<b>182600 cbm Rough Stone</b>
98	<b>Rough Stone</b>	K.Chandreskaran	No.301, Madhrayan Pettai Street, Mamandur Village, Vembakkam Taluk, Tiruvannamalai District	Rc.No.66/ Kanimam / 2018 dt.13.02.2019	1.97.5	Kundiyanthandalam Vembakkam 12°43'59.73"N 12°43'06.66"N 78°43'01.36"E 78°43'06.10"E	<b>681640 cbm Rough Stone</b>
99	<b>Rough Stone</b>	M/s.Bhuvaneshwari Blue Metals	No.37 B, Ground Floor, Vembuliamman Kovil Street, Pazhvanthangal, Chennai.	Rc.No.83/ Kanimam/2018 dt.02.02.2019	2.05.5	Kundiyanthandalam Vembakkam 12°43'50.85"N 79°43'05.5"E	<b>807200 cbm Rough Stone</b>
100	<b>Rough Stone</b>	Thiru.R.Ganesan, Director of SRC Projects Pvt. Ltd.,	No.47, Brindhavan Road, Fairlands, Salem District.	Rc.No.18/ Kanimam / 2019 dt:16.05.2019	4.50.0	Athi Cheyyar 12°38'34.74"N 12°38'43.98"N 79°35'58.85"E 79°36'07.81"E	<b>3294775 cbm Rough Stone</b>
101	<b>Rough Stone</b>	M/s.Rajiraj Minerals Pvt. Ltd.,	O/F Penna Complex, Vellore Main Road, 3 <sup>rd</sup> Street, Anna Nagar, Arcot, Vellore	Rc.No.182/ Kanimam / 2018 dt.20.05.2019	10.90.35	Pavoor & Ezhacheri Vembakkam 12°42'55"N 12°43'08"N 79°41'53"E 79°42'08"E	<b>7630070 cbm Rough Stone</b>

102	<b>Rough Stone</b>	Thiru.Rajganesh	No.192/86, Habibullah Road, Thiyagaraya Nagar, Chennai	Rc.No.135/ Kanimam/2018 dt.02.02.2019	2.58.5	Arugavoor Cheyyar 12°40'40.05"N 12°40'49.43"N 79°30'36.11"E 79°30'42.93"E	<b>1240800 cbm Rough Stone</b>
103	<b>Rough Stone</b>	N.Ragu	S/o.Nadarajan, No.14/2 Center street, Ganapathypuram, East Thambaram, Chennai	Rc.No.117/ Kanimam/2018 dt: 29.05.2019	2.95.0	Menallur Vembakkam 12°43'52.49"N 12°43'58.91"N 79°42'00.13"E 79°42'07.16"E	<b>1178520 cbm Rough Stone</b>
104	<b>Rough Stone</b>	A.Dhasarathan,	No.39, Erikkarai Street, Thiruparuthikundram Village, Sevilimedu, Kanchipuram taluk & District.	Rc.No.79/Kanim am/2018 dt.02.02.2019	2.88.5	Kundiyanthadalam Vembakkam 12°43'42.20"N 12°43'51.08"N 79°42'54.37"E 79°42'59.68"E	<b>1298250 cbm Rough Stone</b>

## 15) QUALITY/ GRADE OF MINERAL AVAILABLE IN THE DISTRICT

### ROUGH STONE

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 a strongly pleochroic, reddish or green orthopyroxene (formerly known as hypersthene).

## 16. USE OF MINERAL

### ROUGH STONE:

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.

## 17. DEMAND AND SUPPLY OF THE MINERAL IN THE LAST THREE YEARS :-

There is a huge demand for Rough stone and Gravel in the district due to the sudden increase of Construction activities and highway projects around the district.

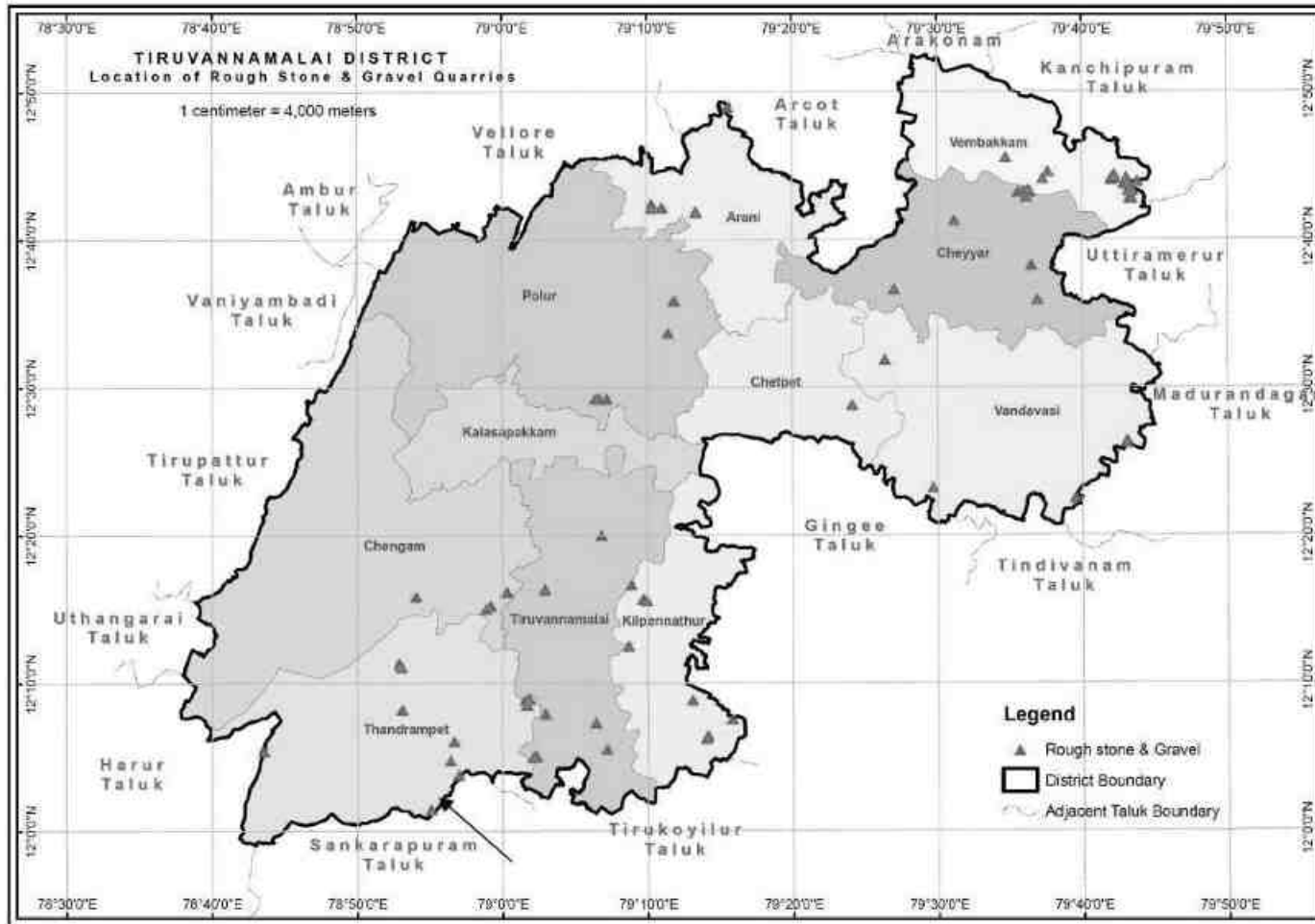
Sl.No	Year	Production of Rough Stone	Revenue realized
1.	2016-2017	688198	33519675
2.	2017-2018	825787	38311705
3.	2018-2019	1023023	59673732

Granite quarry leases are considerably low in the district compare to the other district but the demand and supply of Granite stone is not much more.



**18. MINING LEASES MARKED ON THE MAP OF THE DISTRICT**

**Figure 18.0 Rough stone quarry Leases marked in the District Map**



Mining leases marked in the Madathukulam Taluk map

**19. DETAILS OF THE AREA OF WHERE THERE IS A CLUSTER OF MINING VIZ., NUMBER OF MINING LEASES, LOCATION (LATITUDE AND LONGITUDE):-**

S. No	Name of the Mineral	No. of Mining Lease	Taluk	village	Location of the Mining lease (Latitude & Longitude)
1	Rough Stone	5	Vembakkam	Ezhacheri	1. N 12°42'46.17" 12°42'52.84" E 79°43'25.08" 79°43'33.59"
					2. 12° 42' 48" N 12° 43' 1" N 79° 43' 17" E 79° 43' 27" E
					3. N 12°42'51" 12°42'48" E 79°43'25" 79°43'21"
					4. N 12°43'16.06" 12°43'19.39" E 79°43'10.40" 79°43'19.71"
				Chithalapakkam	5. N12°43'18.09" 12°43'24.02" E 79°43'19.41" 79°43'11.43"
2		5	Vembakkam	Girijapuram	1. 12°44'03.76" 12°44'12.07N 79°42'00.56E" 79°42'08.36E
				Mennalur	2. 12°44'08.63"N 12°44'18.71"N 79°42'16.36"E 79°42'21.37"E
				Girijapuram	3. 12° 44' 11" N 12° 44' 08" N 79° 42' 12" E 79° 42' 09" E
					4. N 12°44'14" 12°44'21" E 79°42'03" 79°42'09"
					5. 12° 44'25" 12° 44'19N" 79° 42' 14" 79° 42'11"E
3	7	Cheyyar	Palli	1. 12° 42' 53"N 12° 43'01"N 79° 36' 08"E 79° 36'15"E	
				2. N 12°43'14" 12°43'20" E 79°35'59" 79°36'02"	
				3. N 12°43'15" to 12°43'19" E 79°35'36" to 79°35'43"	
				4. 12° 43' 20"N 12° 43' 30"N 79° 36' 14" E 79° 36' 24"E	
		Vembakkam	Chithathur	5. N 12°43'15" 12°43'20" E 79°36'25" 79°36'28"	
			Chithathur	6. N 12°43'19.14" 12°43'27.05" E 79°36'22.83" 79°36'34.83"	
			Chithathur	7. N 12°44'09" to 12°44'14" E 79°37'18" to 79°37'25"	
4	5	Vembakkam	Kundiyanthandalam	1. N 12°43'45.58" 12°43'51.42" E 79°42'58.50" 79°43'02.06"	
				2. N 12°43'46.58" 12°43'52.64" E 79°43'15.17" 79°43'21.32"	
				3. 12°43'50.86"N 12°43'58.24"N 79°42'56.50"E 79°43'03.46"E	
				4. N 12°43'51.14" 12°43'57.08" E 79°43'07.34" 79°43'16.63"	
				5. 12°43'55.90"N 12°43'59.56"N 79°43'6.08" E 79°43'12.04"E	

## **20 .DETAILS OF ECO – SENSITIVE AREA, IF ANY, IN THE DISTRICT.**

- There is no Wild Life Sanctuaries and National Park as per The Indian Wildlife (Protection) Act, 1972.
- There is no Western Ghats region near the district
- There is No Interstate Boundary crossing in the Tiruvannamalai District.
- There is No Coastal Regulation Zone (CRZ) within the district.

## **21.IMPACT ON THE ENVIRONMENT (AIR, WATER, NOISE, SOIL FLORA & FAUNA, LAND USE, AGRICULTURE, FOREST ETC.,) DUE TO MINING ACTIVITY**

Generally, the Environmental impacts can be categorized as either primary or secondary. Primary impacts are those, which are attributed directly by the project, secondary impacts are those, which are indirectly induced and typically include the associated investment and changed pattern of social and economic activities by the proposed action.

The impact has been ascertained for the project assuming that the pollution due to mining activity has been completely spelled out under the baseline environmental status for the entire ROM which is proposed to exploit from the mines.

### **Air**

Mining Operations are carried out by opencast semi mechanized/ Mechanized method, dust particles are generated due to various activities like, Excavation, Loading, handling of mineral and transportation. The air quality in the mining area depends upon the nature and concentration of emissions and meteorological conditions.

The major air pollutants due to mining activity includes:-

- Particulate Matter (Dust) of various sizes.
- Gases, such as, Sulphur Dioxide, Oxides of Nitrogen, Carbon Monoxide etc., from vehicular exhaust.
- Dust is the single Air pollutant observed in the open cast mines. Diesel operating drilling machines, small amount of blasting and movement of machinery/ vehicles produce NO<sub>x</sub>,SO<sub>2</sub>and CO emissions, usually at low

levels. Dust can be of significant nuisance surrounding land users and potential health risk in some circumstances.

### **Water**

#### **Impact**

The mining operation leads to intersect the water table cause ground water depletion.

Due to the interruption surface water sources like River, Nallah, Odai etc., surface water system, Drainage pattern of the area is altered.

#### **Noise**

Noise pollution is mainly due to operation of Machineries and occasional plying of machineries. These activities will create Noise pollution in the surrounding area.

#### **Land Environment**

The topography of the area will change, due to the Topographical changes the entire Eco system will be altered.

#### **Flora and Fauna**

The impact on biodiversity is difficult to quantify because of its diverse and dynamic characteristics.

Mining activities generally result in the deforestation, land degradation, water, air and noise pollution which directly or indirectly affect the faunal and floral status of the project area.

However, occurrence and magnitude of these impacts are entirely dependent upon the project location, mode of operation and technology involved.

## **22. REMEDIAL MEASURE TO MITIGATE THE IMPACT OF MINING ON THE ENVIRONMENT**

### **Air**

Mitigated measures suggested for air pollution controls are based on the baseline ambient air quality of the area

**The following measures are proposed to adopted in the mines such as,**

- Dust generation shall be reduced by using sharp teeth of shovels.
- Wet drilling shall be carried out to contain the dust.
- Controlled blasting techniques shall be adopted.

- Water spraying on haul roads, service roads and overburden dumps will help in reducing considerable dust pollution.
- Proper and regular maintenance of mining equipment's have to be considered.
- Transport of material in trucks covered with tarpaulin.
- The mine pit water can be utilized for dust suppression in and around mine areas.
- Information on wind direction and meteorology will be considered while planning, so that pollutants, which cannot be fully suppressed by engineering technique, will be prevented from reaching the nearby agriculture area.
- Comprehensive green belt around overburden dumps has to be carried out to reduce to fugitive dust emissions in order to create clean and healthy environment.

#### **Water**

- Construction of garland drains to divert surface run-off into the mining area.
- Construction of check dams / gully plugs at strategic places to arrest silt wash off from broken up area.
- Retaining walls with weep hole will be constructed around the mine boundaries to arrest silt wash off.
- The mined out pits shall be converted into the water reservoir at the end of mine life. This will help in recharging ground water table by acting as a water harvesting structure.
- Periodic analysis of mine pit water and ground water quality in nearby villages.
- Domestic sewage from site office & urinals/latrines provided in ML is discharged in septic tank followed by soak pits.

#### **Noise**

##### **Mitigation measures**

- Periodic maintenance of machinery, equipment's shall be ensured to keep the noise generated at minimum.
- Development of thick green belt around mining area and haul roads to reduce the noise.

- Provision of earplugs to workers exposed to high noise generating activities. Workers and operators at work site will be provided with earmuffs.
- Conducting periodical medical check up of all workers for any noise related health problems.
- Proper training to personnel to create awareness about adverse noise level effects.
- Periodic noise monitoring at suitable locations in the mining area and nearby habitations to assess efficacy of adopted control measures.
- During the blasting, optimum Spacing, Burden and charging of holes will be made under the supervision of competent qualified mines foreman, Mate as approved by Director of Mines safety.

### **Biological Environment**

#### **MITIGATION MEASURES:**

- Development of gap filling saplings in the safety barrier left around the quarry area.
- Carrying out thick greenbelt with local flora species predominantly with long canopy leaves on the inactive mined out upper benches.
- Development of dense poly-culture plantation using local flora species in the mining area at conceptual stage.
- Adoption of suitable air pollution control measures as suggested above.
- Transport of materials in trucks covered with tarpaulin.
- Construction of garland drains and settling tank to arrest silt wash off from lease area.
- Construction of retention walls around lower boundary of mining area to arrest silt wash off and roll down boulders.
- Retaining walls with weep hole will be constructed around the mine boundaries to arrest silt wash off.

### **23. RECLAMATION OF MINED OUT AREA (BEST PRACTICE ALREADY IMPLEMENTED IN THE DISTRICT, REQUIREMENT AS PER RULES AND REGULATION, PROPOSED RECLAMATION PLAN):-**

Under Rule 23A, Mine Closure Plan: Every mine shall have Mine Closure Plan, which shall be of two types:-

- (i) Progressive mine closure plan; and
- (ii) Final mine closure plan.

### **Conceptual Final Landform-**

The broad rehabilitation objective for the post-quarry landform is to establish a similar land use on the disturbed areas, with the exception of the final void. The topography of the final landform will consist of a large number of stepped benches formed in an amphitheatre configuration, each with a re-vegetated bench as shown in Figure-1.

Figure 2 shows plan and sectional views of the final landform. The void will be some approximately 1.88.8 Ha in area. Until such time that extraction has ceased, rehabilitation will occur around the perimeter of the pit only along the benches, and will not involve the pit floor. The primary purpose of rehabilitation during the operational phase is to mitigate any visual impacts.



**Figure 23.0: Example of Bench Rehabilitation**

Once operations have ceased, all buildings and infrastructure will be removed. These areas will be reshaped and ripped where necessary for top-soiling and re-vegetation.

The top benches will be vegetated with appropriate native species. The lower benches will be formed as a shallow depression of retention pond/ rain water harvesting structure.

### **Rehabilitation and Re-vegetation -**

Rehabilitation of the site will be undertaken once extraction is complete. As the extraction progresses through the resource, 5 m wide benches will be left every



5 m of depth to provide a horizontal platform on which native flora species will be established.

The plantation in the mine lease area also includes gap filling plantation on the safety barrier zone left around the mine lease area. Gap filling plantation has been carried out in the safety barrier zone left around the mine lease area from the beginning of the mining operations.

Additional plantation will be carried out in the inactive mining area. Grass and bushes will be planted in areas prone to erosion. Other areas will be spread with organic manures and planted with local species.

The characteristics of this vegetation will resemble that of the natural environment except for the early growth, which may be a protective cover crop of non-seeding annuals. Before re-vegetation, the land will be properly prepared by spreading the top soil, which is rich in organic contents along with mulches and organic manure. Vegetation will be self-sufficient after planting and require no fertilizers or maintenance.

The re-vegetation program will re-establish native tree / shrub / ground cover and will stabilize reshaped and benched areas. Benches will be deep ripped to actively promote infiltration of water which will enhance soil moisture requirements for direct tree seeding and minimize surface runoff to underlying benches. Re-vegetation will also visually screen disturbed areas and will re-establish habitat for native fauna.

#### **24. RISK ASSESSMENT & DISASTER MANAGEMENT PLAN:-**

The Disaster Management Plan (DMP) is supposed to be a dynamic, changing, document focusing on continual improvement of emergency response planning and arrangements.

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/induction conducted by the respective department from time to time.

### **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 DMP.

#### **Co-ordination with Local Authorities:**

The mine manager who is responsible for emergency will always keep a jeep ready at site. In case any eventualities the victim will be taken to the nearby hospitals after carrying out the first aid at site. A certified first aid certificate holder will be responsible to carryout the first aid at site. The mine manager should collect and have adequate information of the nearby hospitals, fire station, police station, village panchayat heads, taxy stands, medical shop, district revenue authorities etc., and use them efficiently during the case of emergency.

**25. DETAILS OF THE OCCUPATION HEALTH ISSUES IN THE DISTRICT. (LAST FIVE-YEAR DATE OF NUMBER OF PATIENTS OF SILICOSIS & TUBERCULOSIS IS ALSO NEEDS TO BE SUBMITTED):-**

As per the guidelines of the Mine Rules 1955, occupational health safety stipulated by the ILO/WHO. The proponent's will take all necessary precautions. Normal sanitary facilities should be provided within the lease area. The management will carry out periodic health check up of workers.

Occupational hazards involved in mines are related to dust pollution, Noise pollution, blasting and injuries from moving machineries & equipment and fall from high places. DGMS has given necessary guidelines for safety against these occupational hazards. The management will strictly follow these guidelines.

All necessary first aid and medical facilities will be provided to the workers. The mine shall be well equipped with Personal Protective Equipment (PPE). Further all the necessary protective equipment's such as helmets, safety goggles, earplugs, earmuffs, etc. will be provided to persons working in mines as per Mines Rules. All operators and mechanics will be trained to handle fire-fighting equipment's.

**26. PLANTATION OF GREEN BELT DEVELOPMENT IN RESPECT OF LEASES ALREADY GRANTED IN THE DISTRICT:-**

***Green Belt Development***

- ❖ A well planned Green Belt with multi rows (Three tier) preferably with long canopy leaves shall be developed with dense plantations around the boundary and haul rods to prevent air, dust noise propagation to undesired places. Efforts will be taken for the enhancement of survival rate since the soil is alkaline in nature.

***Species Recommended for Plantation***

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

- ❖ Natural growth of existing species and survival rate of various species.
- ❖ Suitability of a particular plant species for a particular type of area.
- ❖ Creating of bio-diversity.
- ❖ Fast growing, thick canopy cover, perennial and evergreen large leaf area,
- ❖ Efficient in absorbing pollutants without major effects on natural growth.
- ❖ The following species may be considered primarily for plantation best suited for the prevailing climatic condition in the area.

### RECOMMENDED SPECIES TO PLANT IN THE GREENBELT

S.No	Name of the plant (Botanical)	Family Name	Common Name	Habit
1.	<i>Azadirachta indica</i>	<i>Meliaceae</i>	Neem, Vembu	Tree
2.	<i>Albizia falcataria</i>	<i>Fabaceae</i>	Tamarind, Puliyaaram	Tree
3.	<i>Polyalthia longifolia</i>	<i>Annonaceae</i>	Kattumaram	Tree
4.	<i>Borassus flabellifer</i>	<i>Arecaceae</i>	Palmyra Palm	Tree

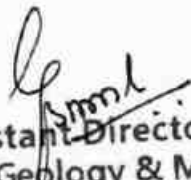
### 27. ANY OTHER INFORMATION:-


The well developed Environmental management plan and remedial measures is proposed to carryout in all mining areas in the District.

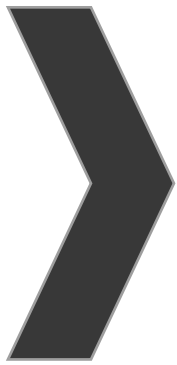
CER/CSR activities shall be carried out by providing social and welfare measures to the local community of the nearby villages. The main activities would be like drinking water facilities for the government schools children, public toilets to the local community and government schools, conducting free medical camps, providing solar lights to the villages besides encouraging the local cultural activities of the area.

This District Survey Report has been prepared in a short span of time by doing rapid field work. The details related to the occurrence of mineral resources and other data of the district are subject to updation from time to time. Before grant of any quarry lease, the parameters related to geosciences and sustainable developments are to be considered on the basis of ground reality.

The Thiruvannamalai District is having very large deposits of Charnockite rock which is the raw material for the production of aggregates and M-sand. M-sand is the need of the hour to replace the utilisation of river sand. The Charnockite / Rough Stones are crushed in the crushing units for the manufacture of aggregates and M-sand which gives direct and indirect employment to the local people. Preferences and encouragements can be given to the Entrepreneurs for set up of new units for the production of M-sand.

  
Assistant Director  
Dept. of Geology & Mining  
Thiruvannamalai District.

  
COLLECTOR  
Thiruvannamalai District,  
Thiruvannamalai.



# ANNEXURE-8



# Shrient Analytical and Research Labs Pvt. Ltd

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## TEST REPORT

Report No.	SARL/24/2105	Report Date.	16.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
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-2105	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	05.03.2024	Test Completed on	16.03.2024
Temperature	35°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	60.5	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	26.4	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.2	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

Please Contact:

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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2106	Report Date.	16.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Arasanipalai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2106	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	05.03.2024	Test Completed on	16.03.2024
Temperature	35°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	45.6	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	23.2	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.6	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

8 Feb  
Verified



\*\*\*END OF THE REPORT\*\*\*

J. G.  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2107	Report Date.	16.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
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-2107	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	06.03.2024	Test Completed on	16.03.2024
Temperature	35°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	62.1	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	26.9	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.4	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2108	Report Date.	16.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Arasanipalai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2108	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	06.03.2024	Test Completed on	16.03.2024
Temperature	35°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	42.7	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	22.2	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.2	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	6.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

8 Feb  
Verified



\*\*\*END OF THE REPORT\*\*\*

J. G.  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

Please Contact:

For any Technical Issues & Complaints: [vimalnath@shrientanalytical.com](mailto:vimalnath@shrientanalytical.com)

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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R





# Shrient Analytical and Research Labs Pvt. Ltd

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[www.shrientanalytical.com](http://www.shrientanalytical.com)

## TEST REPORT

Report No.	SARL/24/2109	Report Date.	16.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Chithalapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2109	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	07.03.2024	Test Completed on	16.03.2024
Temperature	36°C	Relative Humidity	22%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	50.7	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	23.8	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.7	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2110	Report Date.	16.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Ezacheri
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2110	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	07.03.2024	Test Completed on	16.03.2024
Temperature	36°C	Relative Humidity	22%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	53.2	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	25.4	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.9	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2111	Report Date.	16.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Chithalapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2111	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	08.03.2024	Test Completed on	16.03.2024
Temperature	36°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	53.1	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.9	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.1	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2112	Report Date.	16.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Ezacheri
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2112	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	08.03.2024	Test Completed on	16.03.2024
Temperature	36°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	56.2	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	27.1	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.5	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

8 Feb  
Verified



J. G.  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2113	Report Date.	16.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Pavoor
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2113	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	09.03.2024	Test Completed on	16.03.2024
Temperature	36°C	Relative Humidity	24%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	48.5	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	23.2	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.1	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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[www.shrientanalytical.com](http://www.shrientanalytical.com)

## TEST REPORT

Report No.	SARL/24/2114	Report Date.	16.02.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Punnai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2114	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	09.03.2024	Test Completed on	16.03.2024
Temperature	36°C	Relative Humidity	24%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	45.5	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	20.7	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.4	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2115	Report Date.	16.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Pavoor
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2115	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	10.03.2024	Test Completed on	16.03.2024
Temperature	35°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	53.3	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	25.6	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	5.3	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	9.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

8 Pkt  
Verified



J. G  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



# Shrient Analytical and Research Labs Pvt. Ltd

416/15, Dhargas Road, West Tambaram, Chennai- 600045  
Phone Number +91 82208 36377 Email: - [info@shrientanalytical.com](mailto:info@shrientanalytical.com)  
[www.shrientanalytical.com](http://www.shrientanalytical.com)

## TEST REPORT

Report No.	SARL/24/2116	Report Date.	16.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Punnai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2116	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	10.03.2024	Test Completed on	16.03.2024
Temperature	35°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	49.1	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	22.4	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.6	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R





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## TEST REPORT

Report No.	SARL/24/2253	Report Date.	23.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Pavoor
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2253	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	12.03.2024	Test Completed on	23.03.2024
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 <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	44.5	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	21.3	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.1	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	6.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2254	Report Date.	23.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Punnai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2254	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	12.03.2024	Test Completed on	23.03.2024
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 <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	50.9	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	23.5	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.9	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

8 Feb  
Verified



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J. G.  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

Please Contact:

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## TEST REPORT

Report No.	SARL/24/2255	Report Date.	23.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Pavoor
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2255	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	13.03.2024	Test Completed on	23.03.2024
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 <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	49.3	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	23.6	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.2	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2256	Report Date.	23.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Punnai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2256	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	13.03.2024	Test Completed on	23.03.2024
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 <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	54.5	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	25.0	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.2	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

8 Feb  
Verified



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J. G.  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

Please Contact:

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## TEST REPORT

Report No.	SARL/24/2257	Report Date.	23.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Chithalapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2257	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	14.03.2024	Test Completed on	23.03.2024
Temperature	37°C	Relative Humidity	20%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	51.1	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.1	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.8	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2258	Report Date.	23.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Ezacheri
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2258	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	14.03.2024	Test Completed on	23.03.2024
Temperature	37°C	Relative Humidity	20%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	46.1	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	22.1	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.3	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	6.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

Please Contact:

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



# Shrient Analytical and Research Labs Pvt. Ltd

416/15, Dhargas Road, West Tambaram, Chennai- 600045  
Phone Number +91 82208 36377 Email: - [info@shrientanalytical.com](mailto:info@shrientanalytical.com)  
[www.shrientanalytical.com](http://www.shrientanalytical.com)

## TEST REPORT

Report No.	SARL/24/2259	Report Date.	23.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Chithalapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2259	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	15.03.2024	Test Completed on	23.03.2024
Temperature	37°C	Relative Humidity	19%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	48.7	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	22.9	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.5	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	6.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

8 Feb  
Verified



\*\*\*END OF THE REPORT\*\*\*

J. G.  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

Please Contact:

For any Technical Issues & Complaints: [vimalnath@shrientanalytical.com](mailto:vimalnath@shrientanalytical.com)

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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2260	Report Date.	23.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Ezacheri
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2260	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	15.03.2024	Test Completed on	23.03.2024
Temperature	37°C	Relative Humidity	19%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	49.4	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	23.7	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.5	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

8 Pkt  
Verified



\*\*\*END OF THE REPORT\*\*\*

J. G.  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R





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## TEST REPORT

Report No.	SARL/24/2261	Report Date.	23.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
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-2261	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	16.03.2024	Test Completed on	23.03.2024
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 <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	58.9	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	25.4	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.8	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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## TEST REPORT

Report No.	SARL/24/2262	Report Date.	23.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Arasanipalai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2262	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	16.03.2024	Test Completed on	23.03.2024
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 <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	50.8	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	25.6	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.1	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

8 Feb  
Verified



J. G.  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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## TEST REPORT

Report No.	SARL/24/2263	Report Date.	23.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
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-2263	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	17.03.2024	Test Completed on	23.03.2024
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 <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	55.7	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	23.9	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.4	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2264	Report Date.	23.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Arasanipalai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2264	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	17.03.2024	Test Completed on	23.03.2024
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 <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	49.2	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.8	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.9	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

8 Feb  
Verified



J. G  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2253	Report Date.	30.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
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-2253	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	19.03.2024	Test Completed on	30.03.2024
Temperature	35°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	57.3	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	25.3	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.7	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2254	Report Date.	30.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Arasanipalai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2254	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	19.03.2024	Test Completed on	30.03.2024
Temperature	35°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	53.4	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	27.8	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.6	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

8 Pkt  
Verified



J. G  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2255	Report Date.	30.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
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-2255	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	20.03.2024	Test Completed on	30.03.2024
Temperature	35°C	Relative Humidity	22%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	66.9	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	28.5	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.5	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2256	Report Date.	30.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Arasanipalai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2256	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	20.03.2024	Test Completed on	30.03.2024
Temperature	35°C	Relative Humidity	22%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	51.2	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	26.1	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.4	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R





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## TEST REPORT

Report No.	SARL/24/2257	Report Date.	30.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Chithalapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2257	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	21.03.2024	Test Completed on	30.03.2024
Temperature	32°C	Relative Humidity	44%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	50.3	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	23.5	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.7	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2258	Report Date.	30.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Ezacheri
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2258	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	21.03.2024	Test Completed on	30.03.2024
Temperature	32°C	Relative Humidity	44%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	57.2	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	27.3	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.7	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2259	Report Date.	30.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Chithalapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2259	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	22.03.2024	Test Completed on	30.03.2024
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 <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	52.7	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.7	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.1	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2260	Report Date.	30.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Ezacheri
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2260	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	22.03.2024	Test Completed on	30.03.2024
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 <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	53.7	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	25.9	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.1	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2261	Report Date.	30.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Pavoor
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2261	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	23.03.2024	Test Completed on	30.03.2024
Temperature	36°C	Relative Humidity	29%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	52.9	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	25.7	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	5.2	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

Please Contact:

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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2262	Report Date.	30.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Punnai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2262	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	23.03.2024	Test Completed on	30.03.2024
Temperature	36°C	Relative Humidity	29%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	48.5	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	22.4	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.6	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2263	Report Date.	30.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Pavoor
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2263	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	24.03.2024	Test Completed on	30.03.2024
Temperature	37°C	Relative Humidity	24%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	48.1	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	23.5	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.1	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

8 Feb  
Verified



J. G.  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2264	Report Date.	30.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Punnai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2264	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	24.03.2024	Test Completed on	30.03.2024
Temperature	37°C	Relative Humidity	24%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	42.5	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	19.3	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.1	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	6.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R





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## TEST REPORT

Report No.	SARL/24/2327	Report Date.	06.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Pavoor
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2327	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	26.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	22%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	53.7	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	25.8	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	5.4	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	9.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

Please Contact:

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2328	Report Date.	06.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Punnai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2328	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	26.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	22%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	50.3	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	23.1	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.7	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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For any Technical Issues & Complaints: [vimalnath@shrientanalytical.com](mailto:vimalnath@shrientanalytical.com)

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2329	Report Date.	06.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Pavoor
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2329	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	27.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	22%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	48.9	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	23.6	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.2	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.0	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

Please Contact:

For any Technical Issues & Complaints: [vimalnath@shrientanalytical.com](mailto:vimalnath@shrientanalytical.com)

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2330	Report Date.	06.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Punnai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2330	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	27.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	22%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	53.9	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.9	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.1	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2331	Report Date.	06.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Chithalapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2331	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	28.03.2024	Test Completed on	06.04.2024
Temperature	38°C	Relative Humidity	22%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	56.5	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	26.2	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	5.4	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	9.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



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Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2332	Report Date.	06.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Ezacheri
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2332	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	28.03.2024	Test Completed on	06.04.2024
Temperature	38°C	Relative Humidity	22%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	46.6	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	22.6	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.3	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	6.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
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J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2333	Report Date.	06.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Chithalapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2333	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	29.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	24%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	53.4	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.5	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.2	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2334	Report Date.	06.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Ezacheri
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2334	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	29.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	24%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	49.8	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	23.9	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.5	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2335	Report Date.	06.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
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-2335	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	30.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	24%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	68.5	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	29.1	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.8	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	9.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
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J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2336	Report Date.	06.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Arasanipalai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2336	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	30.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	24%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	48.6	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.6	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.9	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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## TEST REPORT

Report No.	SARL/24/2337	Report Date.	06.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
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-2337	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	31.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	17%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	65.3	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	28.0	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.3	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



# Shrient Analytical and Research Labs Pvt. Ltd

416/15, Dhargas Road, West Tambaram, Chennai- 600045  
Phone Number +91 82208 36377 Email: - [info@shrientanalytical.com](mailto:info@shrientanalytical.com)  
[www.shrientanalytical.com](http://www.shrientanalytical.com)

## TEST REPORT

Report No.	SARL/24/2338	Report Date.	06.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Arasanipalai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2338	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	31.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	17%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	43.2	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	22.7	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.4	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	6.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2401	Report Date.	13.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
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-2401	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	02.04.2024	Test Completed on	13.04.2024
Temperature	39°C	Relative Humidity	19%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	47.8	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	21.6	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.4	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	6.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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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## TEST REPORT

Report No.	SARL/24/2402	Report Date.	13.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Arasanipalai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2402	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	02.04.2024	Test Completed on	13.04.2024
Temperature	39°C	Relative Humidity	19%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	42.9	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	23.0	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	BDL (D.L – 3.0)	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	6.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
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## TEST REPORT

Report No.	SARL/24/2403	Report Date.	13.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
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-2403	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	03.04.2024	Test Completed on	13.04.2024
Temperature	39°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	50.7	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	22.8	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.9	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
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*J. Gnanaprakasam*  
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J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2404	Report Date.	13.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Arasanipalai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2404	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	03.04.2024	Test Completed on	13.04.2024
Temperature	39°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	45.4	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	21.4	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.2	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	6.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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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Verified



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## TEST REPORT

Report No.	SARL/24/2405	Report Date.	13.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Chithalapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2405	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	04.04.2024	Test Completed on	13.04.2024
Temperature	39°C	Relative Humidity	24%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	49.9	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	23.6	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.6	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



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J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2406	Report Date.	13.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Ezacheri
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2406	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	04.04.2024	Test Completed on	13.04.2024
Temperature	39°C	Relative Humidity	24%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	51.7	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.6	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.7	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



# Shrient Analytical and Research Labs Pvt. Ltd

416/15, Dhargas Road, West Tambaram, Chennai- 600045  
Phone Number +91 82208 36377 Email: - [info@shrientanalytical.com](mailto:info@shrientanalytical.com)  
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## TEST REPORT

Report No.	SARL/24/2407	Report Date.	13.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Chithalapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2407	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	05.04.2024	Test Completed on	13.04.2024
Temperature	40°C	Relative Humidity	17%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	52.3	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.7	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.9	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2408	Report Date.	13.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Ezacheri
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2408	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	05.04.2024	Test Completed on	13.04.2024
Temperature	40°C	Relative Humidity	17%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	48.9	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	23.2	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.3	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	6.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2409	Report Date.	13.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Pavoor
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2409	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	06.04.2024	Test Completed on	13.04.2024
Temperature	40°C	Relative Humidity	17%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	44.9	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	21.7	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.3	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.0	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2410	Report Date.	13.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Punnai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2410	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	06.04.2024	Test Completed on	13.04.2024
Temperature	40°C	Relative Humidity	17%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	47.9	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	21.9	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.5	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2411	Report Date.	13.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Pavoor
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2411	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	07.04.2024	Test Completed on	13.04.2024
Temperature	39°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	49.7	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	23.9	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.5	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2412	Report Date.	13.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Punnai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2412	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	07.04.2024	Test Completed on	16.03.2024
Temperature	39°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	43.1	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	19.4	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.2	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	6.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2475	Report Date.	20.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Pavoor
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2475	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	09.04.2024	Test Completed on	20.04.2024
Temperature	37°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	47.7	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	22.7	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.9	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



# Shrient Analytical and Research Labs Pvt. Ltd

416/15, Dhargas Road, West Tambaram, Chennai- 600045  
Phone Number +91 82208 36377 Email: - [info@shrientanalytical.com](mailto:info@shrientanalytical.com)  
[www.shrientanalytical.com](http://www.shrientanalytical.com)

## TEST REPORT

Report No.	SARL/24/2476	Report Date.	20.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Punnai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2476	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	09.04.2024	Test Completed on	20.04.2024
Temperature	37°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	56.3	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	25.7	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.5	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

Please Contact:

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2477	Report Date.	20.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Pavoor
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2477	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	10.04.2024	Test Completed on	20.04.2024
Temperature	37°C	Relative Humidity	26%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	52.5	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	25.5	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	5.2	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2478	Report Date.	20.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Punnai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2478	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	10.04.2024	Test Completed on	20.04.2024
Temperature	37°C	Relative Humidity	36%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	52.7	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.3	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.9	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2479	Report Date.	20.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Chithalapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2479	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	11.04.2024	Test Completed on	20.04.2024
Temperature	37°C	Relative Humidity	26%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	56.7	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	26.3	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	5.4	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	9.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

8 Bal  
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\*\*\*END OF THE REPORT\*\*\*

J. G  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

Please Contact:

For any Technical Issues & Complaints: [vimalnath@shrientanalytical.com](mailto:vimalnath@shrientanalytical.com)

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## TEST REPORT

Report No.	SARL/24/2480	Report Date.	20.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Ezacheri
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2480	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	11.04.2024	Test Completed on	20.04.2024
Temperature	37°C	Relative Humidity	26%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	50.2	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.3	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.6	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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## TEST REPORT

Report No.	SARL/24/2481	Report Date.	20.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Chithalapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2481	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	12.04.2024	Test Completed on	20.04.2024
Temperature	38°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	55.3	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	25.5	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.7	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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## TEST REPORT

Report No.	SARL/24/2482	Report Date.	20.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Ezacheri
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2482	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	12.04.2024	Test Completed on	20.04.2024
Temperature	38°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	47.4	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	22.5	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.2	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	6.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R





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## TEST REPORT

Report No.	SARL/24/2483	Report Date.	20.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
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-2483	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	13.04.2024	Test Completed on	20.04.2024
Temperature	37°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	46.3	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	20.5	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.3	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	6.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2484	Report Date.	20.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Arasanipalai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2484	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	13.04.2024	Test Completed on	20.04.2024
Temperature	37°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	39.6	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	18.9	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	BDL (D.L – 3.0)	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	5.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2485	Report Date.	20.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
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-2485	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	14.04.2024	Test Completed on	20.04.2024
Temperature	37°C	Relative Humidity	29%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	52.1	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	23.7	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.5	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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## TEST REPORT

Report No.	SARL/24/2486	Report Date.	20.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Arasanipalai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2486	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	14.04.2024	Test Completed on	20.04.2024
Temperature	37°C	Relative Humidity	29%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	41.3	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	19.6	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.1	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	6.0	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2549	Report Date.	27.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
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-2549	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	16.04.2024	Test Completed on	27.04.2024
Temperature	38°C	Relative Humidity	22%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	54.8	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.7	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2550	Report Date.	27.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Arasanipalai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2550	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	16.04.2024	Test Completed on	27.04.2024
Temperature	38°C	Relative Humidity	22%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	46.1	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	21.8	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.3	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	6.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2551	Report Date.	27.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
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-2551	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	17.04.2024	Test Completed on	27.04.2024
Temperature	39°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	56.6	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	26	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.6	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2552	Report Date.	27.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Arasanipalai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2552	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	17.04.2024	Test Completed on	27.04.2024
Temperature	39°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	48.5	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	22.6	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.9	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.0	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R





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## TEST REPORT

Report No.	SARL/24/2553	Report Date.	27.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Chithalapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2553	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	18.04.2024	Test Completed on	27.04.2024
Temperature	40°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	49.5	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	23.2	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.7	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	6.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2554	Report Date.	27.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Ezacheri
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2554	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	18.04.2024	Test Completed on	27.04.2024
Temperature	40°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	58.2	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	27.6	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.9	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2555	Report Date.	27.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Chithalapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2555	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	19.04.2024	Test Completed on	27.04.2024
Temperature	40°C	Relative Humidity	26%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	51.9	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.6	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2556	Report Date.	27.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Ezacheri
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2556	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	19.04.2024	Test Completed on	27.04.2024
Temperature	40°C	Relative Humidity	26%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	52.1	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	25.1	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.8	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2557	Report Date.	27.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Pavoor
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2557	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	20.04.2024	Test Completed on	27.04.2024
Temperature	40°C	Relative Humidity	24%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	50.1	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.1	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.5	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2558	Report Date.	27.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Punnai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2558	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	20.04.2024	Test Completed on	27.04.2024
Temperature	40°C	Relative Humidity	24%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	43.7	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	19.6	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.3	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	6.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2559	Report Date.	27.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Pavoor
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2559	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	21.04.2024	Test Completed on	27.04.2024
Temperature	40°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	45.3	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	21.7	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.3	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2560	Report Date.	27.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Punnai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2560	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	21.04.2024	Test Completed on	27.04.2024
Temperature	40°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	46.1	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	21.0	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.5	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R





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## TEST REPORT

Report No.	SARL/24/2623	Report Date.	04.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Pavoor
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2623	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	23.04.2024	Test Completed on	04.05.2024
Temperature	39°C	Relative Humidity	19%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	52.1	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	25.1	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.9	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2624	Report Date.	04.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Punnai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2624	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	23.04.2024	Test Completed on	04.05.2024
Temperature	39°C	Relative Humidity	19%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	52.1	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.2	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.9	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2625	Report Date.	04.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Pavoor
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2625	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	24.04.2024	Test Completed on	04.05.2024
Temperature	39°C	Relative Humidity	20%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	47.3	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	22.7	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.8	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2626	Report Date.	04.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Punnai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2626	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	24.04.2024	Test Completed on	04.05.2024
Temperature	39°C	Relative Humidity	20%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	55.7	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	25.6	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.4	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2627	Report Date.	04.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Chithalapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2627	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	25.04.2024	Test Completed on	04.05.2024
Temperature	39°C	Relative Humidity	29%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	56.3	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	25.8	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	5.2	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	9.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

8 Pkt  
Verified



\*\*\*END OF THE REPORT\*\*\*

J. G  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

Please Contact:

For any Technical Issues & Complaints: [vimalnath@shrientanalytical.com](mailto:vimalnath@shrientanalytical.com)

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2628	Report Date.	04.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Ezacheri
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2628	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	25.04.2024	Test Completed on	04.05.2024
Temperature	39°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	55.2	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	26.6	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.2	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



# Shrient Analytical and Research Labs Pvt. Ltd

416/15, Dhargas Road, West Tambaram, Chennai- 600045  
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## TEST REPORT

Report No.	SARL/24/2629	Report Date.	04.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Chithalapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2629	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	26.04.2024	Test Completed on	04.05.2024
Temperature	39°C	Relative Humidity	20%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	55.1	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	25.4	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.6	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2630	Report Date.	04.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Ezacheri
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2630	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	26.04.2024	Test Completed on	04.05.2024
Temperature	39°C	Relative Humidity	20%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	52.9	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	25.4	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.9	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R





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## TEST REPORT

Report No.	SARL/24/2631	Report Date.	04.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
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-2631	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	27.04.2024	Test Completed on	04.05.2024
Temperature	40°C	Relative Humidity	19%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	53.4	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.2	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.1	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2632	Report Date.	04.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Arasanipalai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2632	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	27.04.2024	Test Completed on	04.05.2024
Temperature	40°C	Relative Humidity	19%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	50.2	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.1	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.1	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2633	Report Date.	04.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
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-2633	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	28.04.2024	Test Completed on	04.05.2024
Temperature	40°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	49.3	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	22.4	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.7	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
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J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2634	Report Date.	04.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Arasanipalai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2634	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	28.04.2024	Test Completed on	04.05.2024
Temperature	40°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	47.5	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	22.1	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.6	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	6.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2697	Report Date.	11.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
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-2697	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	30.04.2024	Test Completed on	11.05.2024
Temperature	40°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	52.3	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	25.3	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.4	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Pal*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



# Shrient Analytical and Research Labs Pvt. Ltd

416/15, Dhargas Road, West Tambaram, Chennai- 600045  
Phone Number +91 82208 36377 Email: - [info@shrientanalytical.com](mailto:info@shrientanalytical.com)  
[www.shrientanalytical.com](http://www.shrientanalytical.com)

## TEST REPORT

Report No.	SARL/24/2698	Report Date.	11.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Arasanipalai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2698	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	30.04.2024	Test Completed on	11.05.2024
Temperature	40°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	48.9	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	22.5	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.8	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Pal*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2699	Report Date.	11.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
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-2699	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	01.05.2024	Test Completed on	11.05.2024
Temperature	42°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	50.6	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.3	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.5	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

8 Pat  
Verified



J. 4  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2700	Report Date.	11.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Arasanipalai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2700	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	01.05.2024	Test Completed on	11.05.2024
Temperature	42°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	45.2	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	20.8	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.2	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	6.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
**Verified**



*J. Gnanaprakasam*  
**Authorized Signatory**  
**J. GNANAPRAKASAM**  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2701	Report Date.	11.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Chithalapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2701	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	02.05.2024	Test Completed on	11.05.2024
Temperature	42°C	Relative Humidity	22%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	56.1	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	25.9	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	5.2	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Pal*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2702	Report Date.	11.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Ezacheri
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2702	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	02.05.2024	Test Completed on	11.05.2024
Temperature	42°C	Relative Humidity	22%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	57.6	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	27.9	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.9	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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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J. G  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2703	Report Date.	11.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Chithalapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2703	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	03.05.2024	Test Completed on	11.05.2024
Temperature	42°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	54.7	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	25.1	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.5	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Pal*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2704	Report Date.	11.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Ezacheri
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2704	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	03.05.2024	Test Completed on	11.05.2024
Temperature	42°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	54.8	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	26.2	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.2	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

8 Pat  
Verified



J. G  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



# Shrient Analytical and Research Labs Pvt. Ltd

416/15, Dhargas Road, West Tambaram, Chennai- 600045  
Phone Number +91 82208 36377 Email: - [info@shrientanalytical.com](mailto:info@shrientanalytical.com)  
[www.shrientanalytical.com](http://www.shrientanalytical.com)

## TEST REPORT

Report No.	SARL/24/2705	Report Date.	11.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Pavoor
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2705	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	04.05.2024	Test Completed on	11.05.2024
Temperature	40°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	50.9	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.3	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.7	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

8 Pat  
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J. G  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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Please Contact:

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2706	Report Date.	11.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Punnai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2706	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	04.05.2024	Test Completed on	11.05.2024
Temperature	40°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	46.7	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	21.2	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.5	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Pal*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2707	Report Date.	11.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Pavoor
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2707	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	05.05.2024	Test Completed on	11.05.2024
Temperature	42°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	46.1	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	22.1	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.6	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

8 Pat  
Verified



J. 4  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2708	Report Date.	11.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Punnai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2708	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	05.05.2024	Test Completed on	11.05.2024
Temperature	42°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	44.3	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	20.3	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.2	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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## TEST REPORT

Report No.	SARL/24/2845	Report Date.	18.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Pavoor
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2845	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	07.05.2024	Test Completed on	18.05.2024
Temperature	40°C	Relative Humidity	26%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	51.7	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.8	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.9	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2846	Report Date.	18.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Punnai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2846	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	07.05.2024	Test Completed on	18.05.2024
Temperature	40°C	Relative Humidity	26%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	53.3	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.6	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.0	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2847	Report Date.	18.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Pavoor
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2847	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	08.05.2024	Test Completed on	18.05.2024
Temperature	24°C	Relative Humidity	87%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	46.9	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	22.4	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.7	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2848	Report Date.	18.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Punnai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2848	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	08.05.2024	Test Completed on	18.05.2024
Temperature	24°C	Relative Humidity	87%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	49.7	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	22.9	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.7	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2849	Report Date.	18.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Chithalapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2849	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	09.05.2024	Test Completed on	18.05.2024
Temperature	39°C	Relative Humidity	33%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	55.9	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	25.5	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.8	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2850	Report Date.	18.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Ezacheri
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2850	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	09.05.2024	Test Completed on	18.05.2024
Temperature	39°C	Relative Humidity	33%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	47.5	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	22.7	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.4	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	6.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2851	Report Date.	18.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Chithalapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2851	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	10.05.2024	Test Completed on	18.05.2024
Temperature	38°C	Relative Humidity	31%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	54.3	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.6	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.4	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2852	Report Date.	18.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Ezacheri
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2852	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	10.05.2024	Test Completed on	18.05.2024
Temperature	38°C	Relative Humidity	31%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	50.7	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.4	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.6	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2853	Report Date.	18.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
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-2853	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	11.05.2024	Test Completed on	18.05.2024
Temperature	37°C	Relative Humidity	35%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	55.6	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	26.7	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.7	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2854	Report Date.	18.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Arasanipalai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2855	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	11.05.2024	Test Completed on	18.05.2024
Temperature	37°C	Relative Humidity	35%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	50.6	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	23.3	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.5	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2855	Report Date.	18.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
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-2855	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	12.05.2024	Test Completed on	18.05.2024
Temperature	38°C	Relative Humidity	32%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	57.3	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	27.5	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.9	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2856	Report Date.	18.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Arasanipalai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2856	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	12.05.2024	Test Completed on	18.05.2024
Temperature	38°C	Relative Humidity	32%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	54.2	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.5	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.8	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	9.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2845	Report Date.	25.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
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-2845	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	14.05.2024	Test Completed on	25.05.2024
Temperature	37°C	Relative Humidity	32%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	49.6	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	23.9	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.4	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	6.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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## TEST REPORT

Report No.	SARL/24/2846	Report Date.	25.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Arasanipalai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2846	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	14.05.2024	Test Completed on	25.05.2024
Temperature	37°C	Relative Humidity	32%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	55.4	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	25.7	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	5.2	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2847	Report Date.	25.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
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-2847	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	15.05.2024	Test Completed on	25.05.2024
Temperature	36°C	Relative Humidity	34%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	51.4	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.7	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.1	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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## TEST REPORT

Report No.	SARL/24/2848	Report Date.	25.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Arasanipalai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2848	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	15.05.2024	Test Completed on	25.05.2024
Temperature	36°C	Relative Humidity	34%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	52.9	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.6	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.4	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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## TEST REPORT

Report No.	SARL/24/2849	Report Date.	25.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Chithalapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2849	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	16.05.2024	Test Completed on	25.05.2024
Temperature	31°C	Relative Humidity	51%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	55.7	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	25.4	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.9	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2850	Report Date.	25.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Ezacheri
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2850	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	16.05.2024	Test Completed on	25.05.2024
Temperature	31°C	Relative Humidity	51%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	48.1	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	23.1	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.4	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	6.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2851	Report Date.	25.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Chithalapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2851	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	17.05.2024	Test Completed on	25.05.2024
Temperature	33°C	Relative Humidity	48%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	53.9	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.8	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.4	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2852	Report Date.	25.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Ezacheri
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2852	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	17.05.2024	Test Completed on	25.05.2024
Temperature	33°C	Relative Humidity	48%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	51.2	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.6	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.7	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2853	Report Date.	25.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Pavoor
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2853	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	18.05.2024	Test Completed on	25.05.2024
Temperature	35°C	Relative Humidity	41%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	45.7	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	21.9	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.4	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2854	Report Date.	25.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Punnai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2854	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	18.05.2024	Test Completed on	25.05.2024
Temperature	35°C	Relative Humidity	41%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	44.9	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	20.4	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.3	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2855	Report Date.	25.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Pavoor
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2855	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	19.05.2024	Test Completed on	25.05.2024
Temperature	36°C	Relative Humidity	41%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	50.5	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.3	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.7	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2856	Report Date.	25.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Punnai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2856	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	19.05.2024	Test Completed on	25.05.2024
Temperature	36°C	Relative Humidity	41%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	47.3	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	21.5	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.6	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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## TEST REPORT

Report No.	SARL/24/2977	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Pavoor
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2977	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	21.05.2024	Test Completed on	01.06.2024
Temperature	36°C	Relative Humidity	40%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	51.3	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.6	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.8	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2978	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Punnai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2978	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	21.05.2024	Test Completed on	01.06.2024
Temperature	36°C	Relative Humidity	40%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	55.1	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	25.3	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.2	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
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J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2979	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Pavoor
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2979	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	22.05.2024	Test Completed on	01.06.2024
Temperature	35°C	Relative Humidity	43%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	46.5	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	22.3	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.6	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2980	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Punnai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2980	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	22.05.2024	Test Completed on	01.06.2024
Temperature	35°C	Relative Humidity	43%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	51.5	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	23.7	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.8	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2981	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Chithalapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2981	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	23.05.2024	Test Completed on	01.06.2024
Temperature	34°C	Relative Humidity	50%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	49.1	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	23.2	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.5	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	6.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2982	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Ezacheri
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2982	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	23.05.2024	Test Completed on	01.06.2024
Temperature	34°C	Relative Humidity	50%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	56.7	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	27.1	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.7	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2983	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Chithalapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2983	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	24.05.2024	Test Completed on	01.06.2024
Temperature	31°C	Relative Humidity	61%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	51.5	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.2	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.8	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2984	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Ezacheri
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2984	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	24.05.2024	Test Completed on	01.06.2024
Temperature	31°C	Relative Humidity	61%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	54.2	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	26.0	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.1	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	7.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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Please Contact:

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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R





# Shrient Analytical and Research Labs Pvt. Ltd

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## TEST REPORT

Report No.	SARL/24/2985	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
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-2985	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	25.05.2024	Test Completed on	01.06.2024
Temperature	36°C	Relative Humidity	38%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	48.9	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	23.2	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.6	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	6.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2986	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Arasanipalai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2986	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	25.05.2024	Test Completed on	01.06.2024
Temperature	36°C	Relative Humidity	38%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	51.3	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	24.6	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	4.7	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	8.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

\*\*\*END OF THE REPORT\*\*\*

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2987	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
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-2987	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Temperature	35°C	Relative Humidity	39%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	46.2	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	22.2	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	3.2	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	6.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/2988	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Arasanipalai
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2988	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Temperature	35°C	Relative Humidity	39%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM <sub>10</sub> )	IS:5182: Part 23:2006	µg/m <sup>3</sup>	55.6	100
2	Particulate Matter less than 2.5micron size (PM <sub>2.5</sub> )	IS 5182 (Part 24):2019	µg/m <sup>3</sup>	26.4	60
3	Sulphur dioxide (SO <sub>2</sub> )	IS:5182: Part 02:2001	µg/m <sup>3</sup>	5.1	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182: Part 06:2006	µg/m <sup>3</sup>	9.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m <sup>3</sup>	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

*S. Paul*  
Verified



*J. Gnanaprakasam*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No.	SARL/24/3003	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	NOISE LEVEL DATA

Customer Reference	As per work order	Sampling Method	SARL/IOP/023
Sample Reference No	SARL/N/CHE-3003	Date of Monitoring	25.05.2024/ 26.05.2024
Sample Collected by	LABORATORY		

Time in hrs	N1	N2	N3	N4	N5	N6
06.00	42.3	41.4	42.8	40.5	43.6	40.5
07.00	44.6	40.2	41.7	39.5	45.2	42.9
08.00	47.3	42.8	43.6	41.2	50.3	44.8
09.00	49.6	43.7	42.4	42.5	47.5	49.2
10.00	55.9	41.2	44.3	43.8	53.6	53.7
11.00	53.2	42.6	45.2	45.2	52.3	52.4
12.00	51.8	44.8	48.9	46.7	54.9	53.2
13.00	49.5	45.7	44.6	46.5	51.2	49.5
14.00	52.3	47.9	42.5	48.6	52.9	52.6
15.00	53.8	46.7	45.8	49.2	53.8	54.7
16.00	52.6	45.9	49.6	50.8	52.7	53.2
17.00	51.8	46.6	52.6	48.1	50.7	52.8
18.00	52.8	45.6	47.2	39.5	48.9	51.8
19.00	50.7	44.2	45.6	44.9	47.5	48.4
20.00	48.2	43.1	42.7	42.7	45.3	47.9
21.00	45.3	42.3	43.8	39.6	43.6	45.2
22.00	43.6	43.8	41.5	40.2	42.7	43.6
23.00	42.8	40.9	42.6	41.9	41.5	42.7
24.00	41.3	41.9	41.9	40.5	40.2	40.5
01.00	41.2	40.5	42.3	41.7	40.9	39.7
02.00	39.6	41.6	43.5	38.2	39.2	38.1
03.00	37.5	39.4	44.7	36.5	38.7	39.4
04.00	39.1	40.8	42.6	38.1	37.5	40.2
05.00	40.8	40.5	41.6	39.5	38.2	42.6

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## TEST REPORT

Report No. SARL/24/3003

Report Date. 01.06.2024

	N1	N2	N3	N4	N5	N6
DAY EQUIVALENT	51.3	44.6	46.4	45.8	50.9	51.1
NIGHT EQUIVALENT	41.1	41.4	42.7	39.9	40.2	41.2
DAY & NIGHT EQUIVALENT	49.8	43.7	45.5	44.6	49.4	49.5

Remarks:

### LOCATIONS:

- N1-Proposed ML Area
- N2-Arasanipalai
- N3-Chithalapakkam
- N4-Ezacheri
- N5-Pavoor
- N6-Punnai

For Shrient Analytical and Research Labs Pvt. Ltd

  
Verified



\*\*\*END OF THE REPORT\*\*\*

  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2997	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	SOIL
Sample Mark	S1-PROPOSED MINE LEASE AREA

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-2997	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	6.54
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	80.64
3	Dry matter content	IS 15106: 2002	%	93.24
4	Water Content	IS 15106: 2002	%	6.76
5	Organic Matter	IS 2720: Part 22: 1972	%	1.32
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	310
7	Soil Texture	Methods Manual - Soil testing in India - P. No-67: 2011	%	LOAM
8	<u>Grain Size Distribution</u>	Methods Manual - Soil testing in India - P. No-67: 2011	%	54.60
	i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	34.94
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	10.46
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	BDL (D.L.0.02)
9	Phosphorus as P	IS 10158: 1982	mg/kg	1.18
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	890
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	610
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	%	19.9
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	42

BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd

*S. Bal*  
Verified



*J. G*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

Please Contact:

For any Technical Issues & Complaints: [vimalnath@shrientanalytical.com](mailto:vimalnath@shrientanalytical.com)

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/24/2998	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	SOIL
Sample Mark	S2-Arasanipalai

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-2998	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	5.17
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	97.63
3	Dry matter content	IS 15106: 2002	%	97.72
4	Water Content	IS 15106: 2002	%	2.28
5	Organic Matter	IS 2720: Part 22: 1972	%	1.17
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	220
7	Soil Texture	Methods Manual - Soil testing in India - P. No-67: 2011	%	LOAM
8	<u>Grain Size Distribution</u>	Methods Manual - Soil testing in India - P. No-67: 2011	%	8.24
	i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	62.18
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	29.59
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	BDL (D.L.0.02)
9	Phosphorus as P	IS 10158: 1982	mg/kg	0.97
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	556
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	280
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	%	20.4
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	38

BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd

*S. Bal*  
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*J. G*  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R





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## TEST REPORT

Report No.	SARL/24/2999	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	SOIL
Sample Mark	S3-Chithalapakkam

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-2999	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	6.20
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	149.9
3	Dry matter content	IS 15106: 2002	%	93.65
4	Water Content	IS 15106: 2002	%	6.35
5	Organic Matter	IS 2720: Part 22: 1972	%	1.97
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	212
7	Soil Texture	Methods Manual - Soil testing in India - P. No-67: 2011	%	CLAY LOAM
8	<u>Grain Size Distribution</u>	Methods Manual - Soil testing in India - P. No-67: 2011	%	
	i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	7.80
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	60.09
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	32.11
9	Phosphorus as P	IS 10158: 1982	mg/kg	0.22
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	974
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	692
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	%	23.1
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	40

BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd

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## TEST REPORT

Report No.	SARL/24/3000	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	SOIL
Sample Mark	S4-Ezacheri

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-3000	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	7.43
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	125.6
3	Dry matter content	IS 15106: 2002	%	89.90
4	Water Content	IS 15106: 2002	%	10.10
5	Organic Matter	IS 2720: Part 22: 1972	%	2.99
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	345
7	Soil Texture	Methods Manual - Soil testing in India - P. No-67: 2011	%	SILT LOAM
8	<u>Grain Size Distribution</u>	Methods Manual - Soil testing in India - P. No-67: 2011	%	
	i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	8.31
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	55.59
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	36.10
9	Phosphorus as P	IS 10158: 1982	mg/kg	0.77
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	860
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	554
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	%	25.4
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	42

BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd

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## TEST REPORT

Report No.	SARL/24/3001	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	SOIL
Sample Mark	S5-Pavoor

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-3001	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	7.56
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	74.6
3	Dry matter content	IS 15106: 2002	%	90.70
4	Water Content	IS 15106: 2002	%	9.30
5	Organic Matter	IS 2720: Part 22: 1972	%	2.09
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	160
7	Soil Texture	Methods Manual - Soil testing in India - P. No-67: 2011	%	SANDY CLAY LOAM
8	<u>Grain Size Distribution</u>	Methods Manual - Soil testing in India - P. No-67: 2011	%	39.57
	i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	40.32
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	20.11
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	BDL (D.L.0.02)
9	Phosphorus as P	IS 10158: 1982	mg/kg	0.75
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	460
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	230
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	%	21.6
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	39

BDL – Below Detectable limit (DL - Detectable limit).

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/24/3002	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District		
Sample Description	SOIL		
Sample Mark	S6-Punnai		

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-3002	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	
1	pH at 25 °C	IS 2720: Part 26: 1987	-	8.86	
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	58.97	
3	Dry matter content	IS 15106: 2002	%	95.57	
4	Water Content	IS 15106: 2002	%	4.43	
5	Organic Matter	IS 2720: Part 22: 1972	%	1.34	
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	296	
7	Soil Texture	Methods Manual - Soil testing in India - P. No-67: 2011	%	CLAY LOAM	
8	<u>Grain Size Distribution</u>	Methods Manual - Soil testing in India - P. No-67: 2011	%	6.88	
	i. Sand				
	ii. Silt				61.76
	iii. Clay				31.45
9	Phosphorus as P	IS 10158: 1982	mg/kg	1.12	
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	795	
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	398	
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	%	24.5	
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	44	

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For Shrient Analytical and Research Labs Pvt. Ltd

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## TEST REPORT

Report No.	SARL/2024/2989	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
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-2989	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result	*Limits
					Permissible
<b>A.</b>	<b>Physical parameters</b>				
1	Odour	IS 3025 (Part 5): 2018	-	Agreeable	Agreeable
2	Turbidity	APHA 24 <sup>th</sup> Edition 2130 B: 2023	NTU	<1.0	5.0
3	pH at 25 °C	APHA 24 <sup>th</sup> Edition 4500 – H+ B: 2023	-	7.89	6.50-8.50
4	Electrical Conductivity	APHA 24 <sup>th</sup> Edition 2510 B: 2023	(µS/cm)	1253.0	-
<b>B.</b>	<b>Chemical parameters</b>				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	752	2000
6	Total hardness (as CaCO <sub>3</sub> )	APHA 24th Edition 2340 C: 2023	mg/L	285	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	74.4	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	23.8	100
9	Calcium Hardness (as CaCO <sub>3</sub> )	APHA 24th Edition 3500 Ca B: 2023	mg/L	186	-
10	Magnesium Hardness (as CaCO <sub>3</sub> )	APHA 24th Edition 3500 Mg B: 2023	mg/L	99.0	-
11	Total alkalinity (as CaCO <sub>3</sub> )	APHA 24th Edition 2320 B: 2023	mg/L	184	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	230	1000



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## TEST REPORT

Report No. SARL/2024/2989

Report Date. 01.06.2024

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	169	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.05	0.3
16	Nitrate (as NO3)	IS 3025 (Part 34): 1988	mg/L	2.65	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.46	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



\*\*\*END OF THE REPORT\*\*\*

  
Authorized Signatory  
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Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No. SARL/2024/2990

Report Date. 01.06.2024

Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	WATER
Sample Mark	W2-Arasanipalai

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-2990	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result	*Limits
					Permissible
<b>A.</b>	<b>Physical parameters</b>				
1	Odour	IS 3025 (Part 5): 2018	-	Agreeable	Agreeable
2	Turbidity	APHA 24 <sup>th</sup> Edition 2130 B: 2023	NTU	<1.0	5.0
3	pH at 25 °C	APHA 24 <sup>th</sup> Edition 4500 – H+ B: 2023	-	7.63	6.50-8.50
4	Electrical Conductivity	APHA 24 <sup>th</sup> Edition 2510 B: 2023	(µS/cm)	788.2	-
<b>B.</b>	<b>Chemical parameters</b>				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	472	2000
6	Total hardness (as CaCO <sub>3</sub> )	APHA 24th Edition 2340 C: 2023	mg/L	202	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	39.6	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	24.7	100
9	Calcium Hardness (as CaCO <sub>3</sub> )	APHA 24th Edition 3500 Ca B: 2023	mg/L	99.0	-
10	Magnesium Hardness (as CaCO <sub>3</sub> )	APHA 24th Edition 3500 Mg B: 2023	mg/L	103	-
11	Total alkalinity (as CaCO <sub>3</sub> )	APHA 24th Edition 2320 B: 2023	mg/L	214	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	136	1000



# Shrient Analytical and Research Labs Pvt. Ltd

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[www.shrientanalytical.com](http://www.shrientanalytical.com)

## TEST REPORT

Report No. SARL/2024/2990

Report Date. 01.06.2024

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	72.6	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.05	0.3
16	Nitrate (as NO3)	IS 3025 (Part 34): 1988	mg/L	2.75	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.46	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



\*\*\*END OF THE REPORT\*\*\*

  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

Please Contact:

For any Technical Issues & Complaints: [vimalnath@shrientanalytical.com](mailto:vimalnath@shrientanalytical.com)

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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R





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## TEST REPORT

Report No. SARL/2024/2991

Report Date. 01.06.2024

Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	WATER
Sample Mark	W3-Chithalapakkam

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-2991	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result	*Limits
					Permissible
<b>A.</b>	<b>Physical parameters</b>				
1	Odour	IS 3025 (Part 5): 2018	-	Agreeable	Agreeable
2	Turbidity	APHA 24 <sup>th</sup> Edition 2130 B: 2023	NTU	<1.0	5.0
3	pH at 25 °C	APHA 24 <sup>th</sup> Edition 4500 – H+ B: 2023	-	6.98	6.50-8.50
4	Electrical Conductivity	APHA 24 <sup>th</sup> Edition 2510 B: 2023	(µS/cm)	949.8	-
<b>B.</b>	<b>Chemical parameters</b>				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	570	2000
6	Total hardness (as CaCO <sub>3</sub> )	APHA 24th Edition 2340 C: 2023	mg/L	321	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	95.0	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	20.0	100
9	Calcium Hardness (as CaCO <sub>3</sub> )	APHA 24th Edition 3500 Ca B: 2023	mg/L	238	-
10	Magnesium Hardness (as CaCO <sub>3</sub> )	APHA 24th Edition 3500 Mg B: 2023	mg/L	83.2	-
11	Total alkalinity (as CaCO <sub>3</sub> )	APHA 24th Edition 2320 B: 2023	mg/L	256	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	162	1000



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## TEST REPORT

Report No. SARL/2024/2991

Report Date. 01.06.2024

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	96.7	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.03	0.3
16	Nitrate (as NO3)	IS 3025 (Part 34): 1988	mg/L	1.65	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.46	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



\*\*\*END OF THE REPORT\*\*\*

  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No. SARL/2024/2992

Report Date. 01.06.2024

Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	WATER
Sample Mark	W4-Ezacheri

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-2992	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result	*Limits
					Permissible
<b>A.</b>	<b>Physical parameters</b>				
1	Odour	IS 3025 (Part 5): 2018	-	Agreeable	Agreeable
2	Turbidity	APHA 24 <sup>th</sup> Edition 2130 B: 2023	NTU	<1.0	5.0
3	pH at 25 °C	APHA 24 <sup>th</sup> Edition 4500 – H+ B: 2023	-	7.82	6.50-8.50
4	Electrical Conductivity	APHA 24 <sup>th</sup> Edition 2510 B: 2023	(µS/cm)	681.2	-
<b>B.</b>	<b>Chemical parameters</b>				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	408	2000
6	Total hardness (as CaCO <sub>3</sub> )	APHA 24th Edition 2340 C: 2023	mg/L	162	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	36.4	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	17.1	100
9	Calcium Hardness (as CaCO <sub>3</sub> )	APHA 24th Edition 3500 Ca B: 2023	mg/L	91.1	-
10	Magnesium Hardness (as CaCO <sub>3</sub> )	APHA 24th Edition 3500 Mg B: 2023	mg/L	71.3	-
11	Total alkalinity (as CaCO <sub>3</sub> )	APHA 24th Edition 2320 B: 2023	mg/L	190	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	124	1000



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## TEST REPORT

Report No. SARL/2024/2992

Report Date. 01.06.2024

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	65.5	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	1.32	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.46	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



\*\*\*END OF THE REPORT\*\*\*

  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No. SARL/2024/2993

Report Date. 01.06.2024

Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	WATER
Sample Mark	W5-Pavoor

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-2993	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result	*Limits
					Permissible
<b>A.</b>	<b>Physical parameters</b>				
1	Odour	IS 3025 (Part 5): 2018	-	Agreeable	Agreeable
2	Turbidity	APHA 24 <sup>th</sup> Edition 2130 B: 2023	NTU	<1.0	5.0
3	pH at 25 °C	APHA 24 <sup>th</sup> Edition 4500 – H+ B: 2023	-	7.98	6.50-8.50
4	Electrical Conductivity	APHA 24 <sup>th</sup> Edition 2510 B: 2023	(µS/cm)	1121	-
<b>B.</b>	<b>Chemical parameters</b>				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	675	2000
6	Total hardness (as CaCO <sub>3</sub> )	APHA 24th Edition 2340 C: 2023	mg/L	408	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	127	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	21.9	100
9	Calcium Hardness (as CaCO <sub>3</sub> )	APHA 24th Edition 3500 Ca B: 2023	mg/L	317	-
10	Magnesium Hardness (as CaCO <sub>3</sub> )	APHA 24th Edition 3500 Mg B: 2023	mg/L	91.1	-
11	Total alkalinity (as CaCO <sub>3</sub> )	APHA 24th Edition 2320 B: 2023	mg/L	343	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	175	1000



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## TEST REPORT

Report No. SARL/2024/2993

Report Date. 01.06.2024

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	121	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.11	0.3
16	Nitrate (as NO3)	IS 3025 (Part 34): 1988	mg/L	2.75	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.46	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



\*\*\*END OF THE REPORT\*\*\*

  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

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## TEST REPORT

Report No. SARL/2024/2994

Report Date. 01.06.2024

Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	WATER
Sample Mark	W6-Punnai

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-2994	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result	*Limits
					Permissible
<b>A.</b>	<b>Physical parameters</b>				
1	Odour	IS 3025 (Part 5): 2018	-	Agreeable	Agreeable
2	Turbidity	APHA 24 <sup>th</sup> Edition 2130 B: 2023	NTU	<1.0	5.0
3	pH at 25 °C	APHA 24 <sup>th</sup> Edition 4500 – H+ B: 2023	-	7.56	6.50-8.50
4	Electrical Conductivity	APHA 24 <sup>th</sup> Edition 2510 B: 2023	(µS/cm)	598.3	-
<b>B.</b>	<b>Chemical parameters</b>				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	358	2000
6	Total hardness (as CaCO <sub>3</sub> )	APHA 24th Edition 2340 C: 2023	mg/L	143	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	28.5	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	17.1	100
9	Calcium Hardness (as CaCO <sub>3</sub> )	APHA 24th Edition 3500 Ca B: 2023	mg/L	71.3	-
10	Magnesium Hardness (as CaCO <sub>3</sub> )	APHA 24th Edition 3500 Mg B: 2023	mg/L	71.3	-
11	Total alkalinity (as CaCO <sub>3</sub> )	APHA 24th Edition 2320 B: 2023	mg/L	174	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	98.6	1000



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## TEST REPORT

Report No. SARL/2024/2994

Report Date. 01.06.2024

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	82.2	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.03	0.3
16	Nitrate (as NO3)	IS 3025 (Part 34): 1988	mg/L	3.64	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.46	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**

*S. Pal*  
**Verified**



\*\*\*END OF THE REPORT\*\*\*

*J. Gnanaprakasam*  
**Authorized Signatory**  
**J. GNANAPRAKASAM**  
Technical Manager

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## TEST REPORT

Report No.	SARL/2024/2994	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	WATER
Sample Mark	SW1-Palar River(US)

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-2994	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result
<b>A.</b>				
1	Odour	IS 3025 (Part 5): 2018	-	Agreeable
2	Turbidity	APHA 24 <sup>th</sup> Edition 2130 B: 2023	NTU	<1.0
3	pH at 25 °C	APHA 24 <sup>th</sup> Edition 4500 – H+ B: 2023	-	6.97
4	Electrical Conductivity	APHA 24 <sup>th</sup> Edition 2510 B: 2023	(µS/cm)	710
<b>B.</b>	<b>Chemical parameters</b>			
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	430
6	Total hardness (as CaCO <sub>3</sub> )	APHA 24th Edition 2340 C: 2023	mg/L	232
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	64.4
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	17.6
9	Calcium Hardness (as CaCO <sub>3</sub> )	APHA 24th Edition 3500 Ca B: 2023	mg/L	161
10	Magnesium Hardness (as CaCO <sub>3</sub> )	APHA 24th Edition 3500 Mg B: 2023	mg/L	73.3
11	Total alkalinity (as CaCO <sub>3</sub> )	APHA 24th Edition 2320 B: 2023	mg/L	264
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	124.0



# Shrient Analytical and Research Labs Pvt. Ltd

416/15, Dhargas Road, West Tambaram, Chennai- 600045  
Phone Number +91 82208 36377 Email: - [info@shrientanalytical.com](mailto:info@shrientanalytical.com)  
[www.shrientanalytical.com](http://www.shrientanalytical.com)

## TEST REPORT

Report No. SARL/2024/2994

Report Date. 01.06.2024

Sl. No	Parameters	Protocol	Unit	Result
13	Free Residual chlorine	APHA 24th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L - 0.2)
14	Sulphate as (SO42-)	APHA 24th Edition 4500 SO42- E: 2023	mg/L	23.6
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.14
16	Nitrate (as NO3)	IS 3025 (Part 34): 1988	mg/L	BDL(DL-1.0)
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.42
18	Manganese (as Mn)	APHA 24th Edition 3500 Mn B: 2023	mg/L	BDL (D.L - 0.05)
19	Chemical Oxygen Demand	APHA 24th Edition 5220 B: 2023	mg/L	BDL (D.L – 4.0)
20	Bio Chemical Oxygen Demand 3 Days at 27°C	IS 3025 (Part 44): 1993	mg/L	BDL (D.L – 2.0)
21	Total Suspended Solids	APHA 24th Edition 2540 D: 2023	mg/L	BDL (D.L – 2.0)
22	Dissolved Oxygen	IS 3025 (Part 38): 1989	mg/L	5.9

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



\*\*\*END OF THE REPORT\*\*\*

  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

Please Contact:

For any Technical Issues & Complaints: [vimalnath@shrientanalytical.com](mailto: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.

LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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## TEST REPORT

Report No.	SARL/2024/2996	Report Date.	01.06.2024
------------	----------------	--------------	------------

Customer Name & Address	Rough stone & Gravel Quarry of Thiru.M.N.Balasundram extent of 3.87.5 Ha in S.F.Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M,8/3A and 8/3B, of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District
Sample Description	WATER
Sample Mark	SW2-Cheyyar (DS)

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-2996	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result
<b>A.</b>				
1	Odour	IS 3025 (Part 5): 2018	-	Agreeable
2	Turbidity	APHA 24 <sup>th</sup> Edition 2130 B: 2023	NTU	<1.0
3	pH at 25 °C	APHA 24 <sup>th</sup> Edition 4500 – H+ B: 2023	-	6.99
4	Electrical Conductivity	APHA 24 <sup>th</sup> Edition 2510 B: 2023	(µS/cm)	626
<b>B.</b>	<b>Chemical parameters</b>			
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	375
6	Total hardness (as CaCO <sub>3</sub> )	APHA 24th Edition 2340 C: 2023	mg/L	189
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	63.2
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	16.9
9	Calcium Hardness (as CaCO <sub>3</sub> )	APHA 24th Edition 3500 Ca B: 2023	mg/L	158
10	Magnesium Hardness (as CaCO <sub>3</sub> )	APHA 24th Edition 3500 Mg B: 2023	mg/L	70.5
11	Total alkalinity (as CaCO <sub>3</sub> )	APHA 24th Edition 2320 B: 2023	mg/L	254
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	110



# Shrient Analytical and Research Labs Pvt. Ltd

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## TEST REPORT

Report No. SARL/2024/2996

Report Date. 01.06.2024

Sl. No	Parameters	Protocol	Unit	Result
13	Free Residual chlorine	APHA 24th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L - 0.2)
14	Sulphate as (SO42-)	APHA 24th Edition 4500 SO42- E: 2023	mg/L	19.7
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.11
16	Nitrate (as NO3)	IS 3025 (Part 34): 1988	mg/L	BDL(DL-1.0)
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.36
18	Manganese (as Mn)	APHA 24th Edition 3500 Mn B: 2023	mg/L	BDL (D.L - 0.05)
19	Chemical Oxygen Demand	APHA 24th Edition 5220 B: 2023	mg/L	BDL (D.L – 4.0)
20	Bio Chemical Oxygen Demand 3 Days at 27°c	IS 3025 (Part 44): 1993	mg/L	BDL (D.L – 2.0)
21	Total Suspended Solids	APHA 24th Edition 2540 D: 2023	mg/L	BDL (D.L – 2.0)
22	Dissolved Oxygen	IS 3025 (Part 38): 1989	mg/L	5.7

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



\*\*\*END OF THE REPORT\*\*\*

  
Authorized Signatory  
J. GNANAPRAKASAM  
Technical Manager

Please Contact:

For any Technical Issues & Complaints: [vimalnath@shrientanalytical.com](mailto:vimalnath@shrientanalytical.com)

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**ANNEXURE-9**



National Accreditation Board for  
Testing and Calibration Laboratories

**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.

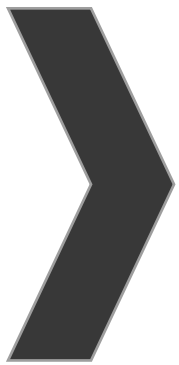
(To see the scope of accreditation of this laboratory, you may also visit NABL website [www.nabl-india.org](http://www.nabl-india.org))

Name of Legal Entity: SHRIENT ANALYTICAL AND RESEARCH LABS PRIVATE LIMITED

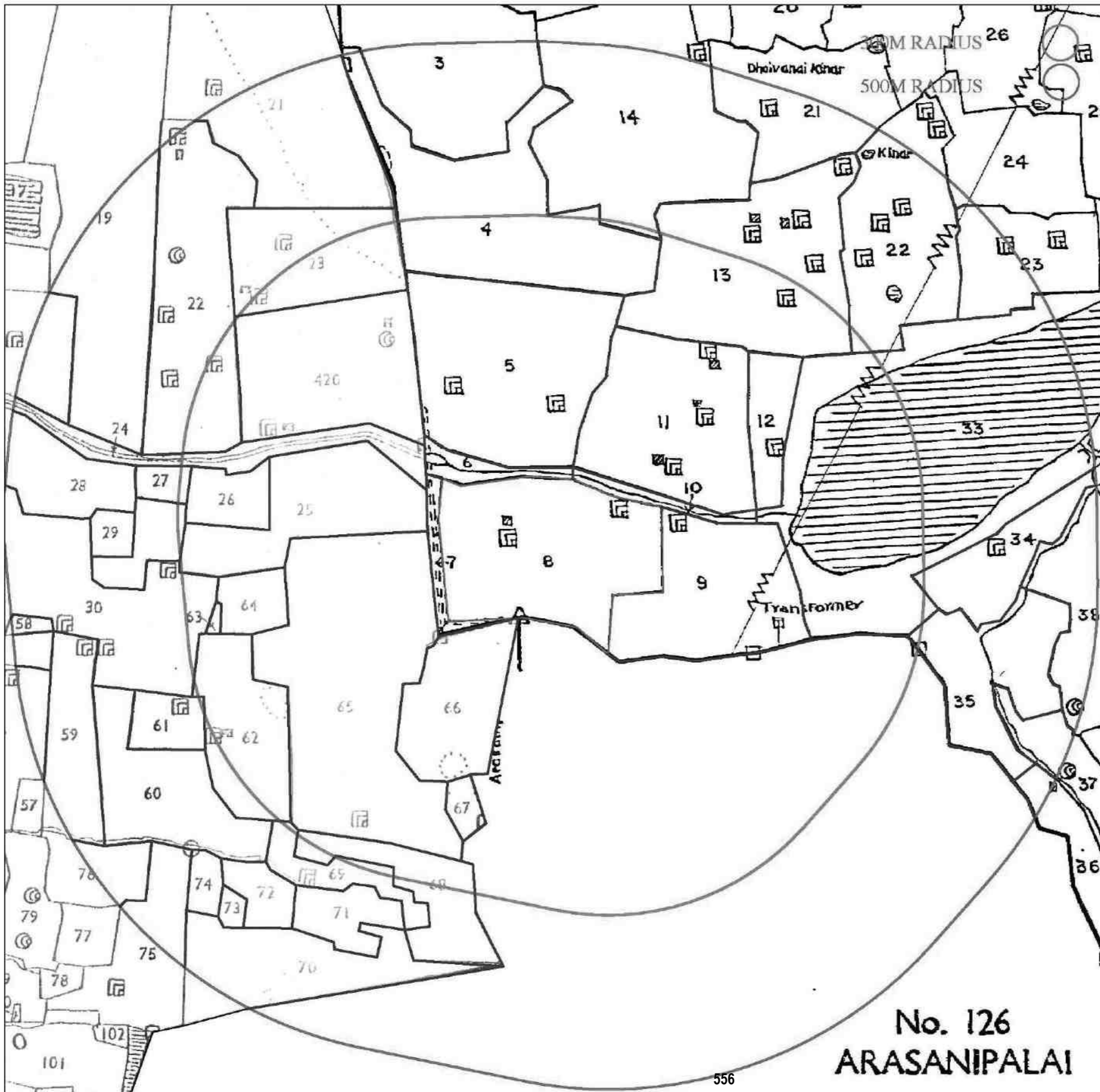
Signed for and on behalf of NABL



N. Venkateswaran  
Chief Executive Officer



**ANNEXURE-10**



**APPLICANT:**

THIRU.M.N.BALASUNDARAM,  
S/o.NATARAJAN,  
NO.72, MAIN ROAD,  
MANKADU, KUNDRATHUR TALUK,  
KANCHEEPURAM DISTRICT.

**QUARRY APPLIED LEASE AREA:**

S.F.NO's : 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F,  
8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L,  
8/1M, 8/3A & 8/3B,

EXTENT : 3.87.5 Ha,

VILLAGE : SITHALAPAKKAM,

TALUK : VEMBAKKAM,

DISTRICT : TIRUVANNAMALAI.

**INDEX**

Q. L. A. AREA :

TOPO SHEET NO : 57 P/ 10

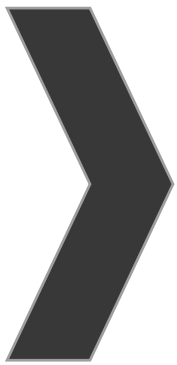
LATITUDE : 12°42'45.97"N to 12°42'52.67"N

LONGITUDE : 79°43'25.08"E to 79°43'33.64"E

**No. 126  
ARASANIPALAI**

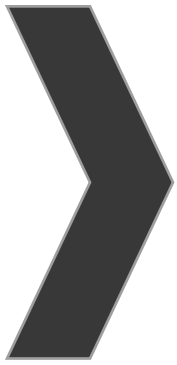






**ANNEXURE-11**





**ANNEXURE-12**



தமிழ்நாடு தமில்நாடு TAMILNADU 09.01.2024

THIRU.M.N.BALASUNDARAM  
KANCHEEPURAM

RS 100  
DD 779273  
M. Jai  
M. கோபி (அ) தாமிரவளி. மு.க.  
உரிமை எண்: 6206-14/91  
கச்சேரி வீதி, ஓமலூர்  
சேலம் மாவட்டம்



**AFFIDAVIT TO SEIAA - TAMIL NADU**

I, M.N.Balasundram, S/o. Natarajan, No.72, Main Road, Mangadu, Kundrathur Taluk, Kancheepuram District, Pincode - 600 122, is applying for Environmental Clearance to SEIAA - Tamil Nadu for my proposed Rough Stone and Gravel Quarry lease over an extent of 3.87.5 Ha located at the S.F. Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State, do hereby solemnly declare and sincerely affirm that;

1. None of the following features are located within a 10 km radius from my proposed quarry site;
  - a. Protected areas notified under the Wildlife (Protection) Act, 1972 (NBWL).
  - b. Wild Life Sanctuary
  - c. Critically polluted areas as notified by the central pollution control board constituted under Water (Prevention and Control of



560  
158  
M. N. Balasundaram



Pollution) Act 1974.

2. The proposed Corporate Environment Responsibility (CER) activities are given as follows;

PROPOSED CER ACTIVITIES	PROJECT COST (INR)	CER COST 2.0% OF PROJECT COST (INR)
Tree plantation, improvement in infrastructural facilities in a nearby government school	84,45,000	1,68,900
Revised CER budget allotted	5,00,000 (5.92% of the project cost)	

I assure you that, I will complete the above proposed Corporate Environment Responsibility (CER) activities before the commencement of the quarrying operations.

3. Details of quarries located within a 500m radius from the applied mine lease area:

Sl. No	Name of the owner (Tvl.)	Village & S. F. Nos.	Extent (Ha)	Lease Period	Lease Status
<b>Existing Quarries</b>					
1	Thiru.R.Elumalai, S/o.Rajagopal, No.20, Pillaiyar Koil Street, Arasanipalai Village, Vembakkam Taluk.	Ezhacheri & 62/1A, 1B, 2C, 2D, 4, 5, 6, 7, 9, 10, 11	1.24.0	02.11.2021 to 01.11.2031	Existing Quarry
2	Thiru.P.Sanker, S/o.Ponnappan, No.1/63, Pillaiyar koil street, Eruamiyur Village, Thirumudivakkam, Chennai.	Ezhacheri & 21/2F, 2G, 2H, 2I, 2J & 2K	2.09.5	02.11.2021 to 01.11.2031	Existing Quarry
3	Thiru.R.Monishkumar, S/o.Rajendiran, No.35/58, Rajaji Street, Chengalpattu.	Ezhacheri & 16/5A, 16/5B, 19/1B3, 4A1, 4B1, 4C1, 4D1, 5A, 5B1, 21/1C, 1D, 1E, 1F, 22/2B	3.12.5	02.11.2021 to 01.11.2031	Existing Quarry
<b>Abandoned Quarries</b>					
1	B.Deenan, No.79, Gajapathi Street, Sanai Nagar, Chennai.	Ezhacheri & 25/2	1.00.5	19.3.2010 to 18.3.2015	Expired Quarry
2	R.Seenuvasan, Road Street, Arasanipalai village, Vembakkam Taluk.	Ezhacheri & 65/4, 5, 7, 8A, 66/4	3.42.0	27.06.2014 to 26.06.2019	Expired Quarry
3	B.Deenan, No.79, Gajapathi Street, Sanai Nagar, Chennai.	Ezhacheri & 65/6	0.95.5	20.07.2018 to 01.03.2021	Expired Quarry
<b>Present Proposed Quarries</b>					



561  
M/B  
159

1	Thiru.M.N.Balasundaram, S/o.Natarajan, No.72, Main Road, Mangadu, Kundrathur Taluk, Kanchipuram District.	Chithalapakkam 8/1A, 8/1A, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A & 8/3B	3.87.5	-	-
<b>Future Proposed quarries</b>					
Nil					
<b>Total Extent = 10.33.5 Ha</b>					

4. There will be no hindrance/disturbance due to the proposed quarrying activities to the people living nearby my proposed quarry site.
5. There are no approved habitations within a 300m radius from the periphery of my proposed quarry lease.
6. I assure you that the greenbelt will be developed and maintained before commencing the quarrying operations as proposed in the EC application.
7. I assure you that the required life insurance policy for the employees engaged in the quarrying operations will be taken without fail.
8. The existing main road connecting the quarry road will be maintained in good condition and it will be utilized for the mineral transportation.
9. 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.
10. Personnel Protective Equipment (PPE) will be provided to all the employees engaged in the quarrying operations.
11. No permanent structures, such as temples, etc., are located within a 300 meter radius of the periphery of our quarry.



562  
MNB  
160

12. I will erect the wire fence with barbed wires all around the periphery of the quarry lease before the commencement of mining activities.
13. The mining operations will be carried out in a systematic and scientific manner by employing a qualified statutory person as per the requirement of the Mines Act, Mines Rules, and other Guidelines issued by Govt.
14. I will inform DGMS before the commencement of mining activities.
15. To the best of our knowledge, I ensure to do the social and environmental commitments as mentioned in the mining plan.

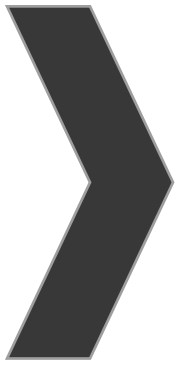
**Notary Sign & Seal**



**Lessee Sign & Seal**

*M.N. Balasundram*  
**M.N. Balasundram**

*R. Ramathan*  
11-1-24  
**R. RAMANATHAN, B.Sc., MA., B.L.,**  
**ADVOCATE & NOTARY**  
Enroll No: 588/97  
B.D.O. Office Opposite, Sukumaran L  
Omalur, Salem (Dt)-636 455.  
Cell: 9486762208



**ANNEXURE-13**



விடுதலை

சீ. சாண்டிராணி,  
தலைமை அலுவலர்,  
உள். ஒ. தொ. பள்ளி,  
அரசாணியப்பாலை,  
தொழில்நுட்பம் வட்டம்,  
தமிழ்நாட்டினியாமை வட்டம்.

புதுநகர்

சீ. M. N. பாலசுந்தரம்,  
த/உய. நலநாயகர்,  
எண் 72 மெயின் சாலை,  
மாண்புமிகு கல்வித்துறை வட்டம்,  
காந்தியூர் வட்டம்.

அலுவலர்

புதுநகர் : அரசாணியப்பாலை அறாட்சி ஒன்றிய  
தொடக்கப்பள்ளி - பள்ளி வளர்ச்சிக்காக  
நிதி கோருதல் - கார்பு.

வணக்கம். தலைமை அலுவலர் வட்டம், உள். ஒ. தொ. பள்ளி  
தொழில்நுட்பம் வட்டம் அரசாணியப்பாலை கிராமத்தில் புதிதாக  
கல்வி அறாட்சி உள். ஒ. தொ. பள்ளி அறாட்சி ஒன்றிய  
அரசாணியப்பாலை கிராமத்தில் அறாட்சி ஒன்றிய தொடக்கப்  
பள்ளி கட்டும் கிராமியர் சிவங்கி வந்திருக்கிறது. எங்கள்  
பள்ளிக்கான தேவை விவரம் கீழ்க்கண்டது.

1. விடா அரங்க மடை தேவைப்படுகிறது.
2. புதிய கட்டிடம் தேவைப்படுகிறது.
3. Parking tiles தேவைப்படுகிறது.
4. வாயில் கட்ட & பள்ளி  
நுழைவாயில் கட்ட தேவைப்படுகிறது.
5. விடுதலை கட்டிடம் புனரமைக்க வேண்டுகிறோம்.



தலைமை அலுவலர்  
அறாட்சி ஒன்றிய தொடக்கப் பள்ளி  
அரசாணியப்பாலை 631702

M. N. Balasundaram