

**DRAFT EIA & EMP FOR
PROPOSED ROUGH STONE & GRAVEL QUARRY
CATEGORY – B1 (CLUSTER)**

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

ToR Lr.No.SEIAA-TN/F.No.9621/SEAC/ToR-1337/2023 Dated: 10.02.2023

PROPOSED QUARRY LEASE DETAILS	
SURVEY NOS	211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9
VILLAGE	VADA ALAPIRANDAN
TALUK	CHEYYAR
DISTRICT	TIRUVANNAMALAI
EXTENT	1.55.0 HA
PROPOSED PRODUCTION QUANTITY FOR FIVE YEARS	81,635 m³ OF ROUGH STONE 8,709 m³ OF WEATHERED ROCK 9,160 m³ OF GRAVEL
LAND	PATTA LAND

(Sector No. 1(a) (Sector no.1 as per NABET)
Category of the Project: B1 Cluster Mining, Total Cluster Area – 10.62 Ha
Baseline Monitoring Period – March to May 2023

APPLICANT

**TVL.JCK MINES,
THIRU.J.K.SRINIVASAN (PARTNER),
S/O.KANNAN,
NO.782, MARIAMMAN KOVIL STREET,
JAMBODAI VILLAGE, AZHIVIDAITHANGI POST,
VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT - 604402**

ORGANIZATION

**M/S. GLOBAL MINING SOLUTIONS
(NABET ACCREDITED & ISO 9001 CERTIFIED CONSULTANT)
PLOT NO. 6, SF NO. 13/2, A2, VS CITY, RC CHETTYPATY,
KOTTAMETTUPATY, OMALUR, SALEM, TAMIL NADU – 636 455
NABET ACCREDITATION NO – NABET/EIA/2326/IA 0110**

June -2023



Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

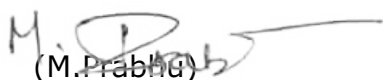
AMENDMENT PAGE

SL	Page No.	Section / Clause / Para / Line (as Applicable)	Date of Amendment	Amendment Made	Reasons of amendment	Signature of Person Authorizing Amendment
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ACKNOWLEDGEMENT

M/s. Global Mining Solutions, Salem is very much thankful to Tvl.JCK Mines, Thiru.J.K.Srinivasan (Partner), Lessee for the confidence and trust placed on the organization for carrying out Environmental Impact Assessment (EIA) study for the proposed Rough Stone & Gravel Quarry over a cluster area of 10.62 Ha at Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu 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 EIA/EMP report. Our sincere thanks to the local people of Vada Alapirandan 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. Prabhu)

Managing Director

UNDERTAKING

In Line with MoEF OM no. J – 11013/41/2006-IA.II (I) dated 5th 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 & Gravel Quarry over a cluster area of 10.62 Ha at Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu.

For Global Mining Solutions



Name: Manikandan

EIA Coordinator – Mining Of Minerals

Global Mining Solutions

UNDERTAKING

In Line with MOEF 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 Letter No: SEIAA-TN/F.No.9619/SEAC/ToR-1354 dated 10.02.2023 for preparation of EIA/EMP report for the proposed Rough Stone & Gravel Quarry over a cluster area of 10.62 Ha at Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu, for the production of 2,37,440 Cu.m of Rough Stone, 18,465 Cu.m of Weathered Rock and 19,125 Cu.m of Gravel from the proposed lease area and the details has been complied in the 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. certificate No. NABET/EIA/2326/IA 0110 valid till 04.01.2026.

For Global Mining Solutions


Name: Manikandan

EIA Coordinator – Mining of Minerals

Global Mining Solutions

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.


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



Certificate of Accreditation

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

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

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

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

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


Sr. Director, NABET
Date: March 31, 2023

Certificate No.
NABET/EIA/2326/IA 0110

Valid up to
January 4, 2026

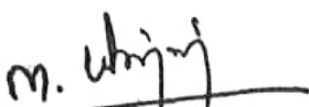
For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to the QCI-NABET website.

ANNEXURE - VII

Declaration by Experts contributing to the proposed Rough Stone & Gravel Quarry over a cluster area of 10.62 Ha at Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu.

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 2023 to May 2023.

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

S. No.	Functional areas	Name of the expert/s	Involvement (period and task**)	Signature and Date
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 2023 to May 2023.</u>	

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

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 2023 to May 2023.</u>	
3	SHW	Ramadoss N	Assessment of waste generated from the project, suggested waste management practices. <u>Period: March 2023 to May 2023.</u>	
4	SE	Sarasvathy K	Baseline SE study. Data compilation and assessment. Impact of the project on SE status of the area. Formulation of CER plan. <u>Period: March 2023 to May 2023.</u>	
5	EB	Saravanan S	Baseline data collection of related to ecology of the area. <u>Period: March 2023 to May 2023.</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 2023 to May 2023.</u>	

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

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 2023 to May 2023.</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 2023 to May 2023.</u>	R. Dhanu
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 2023 to May 2023.</u>	R. Dhanu
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 2023 to May 2023.</u>	S. Prashant
11	SC	Shisupal Sing	Soil monitoring, secondary data collection on soil type, soil management practices, utilization of topsoil.	Shisupal Sing

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

			<u>Period: March 2023 to May 2023.</u>	
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 2023 to May 2023.</u>	

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COMPLIANCE TO **TERMS OF REFERENCE**

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.



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

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

3rd Floor, Panagal Manligai,
No.1, Jeonis Road, Saidapet,
Chennai - 600 015.
Phone No. 044-24359973
Fax No. 044-24359975

TERMS OF REFERENCE (ToR)

Lr.No.SEIAA-TN/E.No.9621/SEAC/ToR-1337/2023 Dated: 10.02.2023

To

Tvl.JCK Mines,
Thiru.J.K.Srinivasan (Partner),
S/o.Kannan,
No.782, Mariamman Kovil Street,
Jambodai Village, Azhividaithangi Post,
Vembakkam Taluk, Tiruvannamalai District - 604 402.

Sir / Madam,

Sub: SEIAA, Tamil Nadu - Terms of Reference with Public Hearing (ToR) for the Proposed Rough Stone and Gravel quarry lease over an extent of 1.55.0 Ha at S.F.Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 of Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu by Tvl. JCK Mines, Thiru.J.K.Srinivasan (Partner) - under project category - "B1" and Schedule S.No.1(a) - ToR issued along with Public Hearing - preparation of EIA report - Regarding.

- Ref:**
1. Online proposal No: SIA/TN/MIN/406086/2022, dated 28.11.2022.
 2. Your application submitted for Terms of Reference dated: 06.12.2022.
 3. Minutes of the 346th SEAC meeting held on 12.01.2023.
 4. Minutes of the 591st SEIAA meeting held on 10.02.2023.

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


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The proponent, Tvl. JCK Mines, Thiru.J.K.Srinivasan (Partner) has submitted application for Terms of Reference (ToR) on 06.12.2022, in Form-I, Pre- Feasibility report for the Proposed Rough Stone and Gravel quarry lease over an extent of 1.55.0 Ha at S.F.Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 of Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu.

Discussion by SEAC and the Remarks:-

Proposed Rough stone & Gravel quarry over an extent of 1.55.0 Ha at S.F.Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9, Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu by M/s.JCK Mines - for Terms of Reference

The proposal was placed in this 346th meeting of SEAC held on 12.01.2023. The details of the project furnished by the proponent are available in the website (parivesh.nic.in).

The SEAC noted the following

1. The Project Proponent, **M/s.JCK Mines** has applied for Terms of Reference for the Proposed Rough stone & Gravel quarry over an extent of 1.55.0 Ha at S.F.Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9, Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu.
2. The proposed quarry/activity is covered under Category "B1" of Item 1(a) "Mining Projects" of the Schedule to the EIA Notification, 2006.
3. The precise area communication was issued for the period of 5 years. The approved mining plan is for the period of five years & production should not exceed 81635 cu.m of Rough Stone, 8709 Cu.m of Weathered Rock & 9160 cu.m of Gravel. The ultimate depth is 22m BGL.

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

1. The PP shall furnish the letter received from DFO concerned stating the proximity details of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., upto a radius of 25 km from the proposed site.
2. The Project Proponent shall conduct an exclusive hydro-geological study considering the existence of Cheyyar River at a distance 120 m and implications of quarrying operations by

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- involving academic & research institution such as Anna University-Department of Geology, CEG Campus Chennai (or) IIT Madras.
3. The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc.
 4. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.
 5. The Proponent shall carry out Bio diversity study through reputed institution and the same shall be included in EIA Report.
 6. The 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.
 7. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall prepare and submit an 'Action Plan' for carrying out the realignment of the benches in the proposed quarry lease after it is approved by the concerned Asst. Director of Geology and Mining during the time of appraisal for obtaining the EC.
 8. 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.
 9. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.
 10. 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.
 11. 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.

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- 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.
12. 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).
13. The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,
14. The PP shall furnish the revised manpower including the statutory & competent persons as required under the provisions of the MMR 1961 for the proposed quarry based on the volume of rock handled & area of excavation.
15. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
16. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.
17. 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.
18. 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.


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- Necessary data and documentation in this regard may be provided.
19. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.
 20. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
 21. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
 22. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
 23. Details of the land for storage of Overburden/Waste 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.
 24. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.
 25. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
 26. Impact on local transport infrastructure due to the Project should be indicated.
 27. 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.
 28. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.

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29. 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.
30. The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.
31. The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.
32. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.
33. 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.
34. 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.
35. 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.
36. 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.
37. 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.


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38. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
39. 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.
40. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
41. 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.
42. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPB.
43. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.
44. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.

Appendix

List of Native Trees Suggested for Planting

1. *Aegle marmelos* – Vilvam
2. *Adenanthera pavonina* - Manjadi
3. *Albizia lebbek* – Vaagai
4. *Albizia amara* - Usil
5. *Bauhinia purpurea* - Mantharai
6. *Bauhinia racemosa* - Aathi
7. *Bauhinia tomentosa* – Iruvathi
8. *Buchanania axillaris* - Kattuma
9. *Borassus flabellifer* - Panni
10. *Butea monosperma* - Murukka maram

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11. *Bobax ceiba* – Ilavu, Sevvilavu
12. *Calophyllum inophyllum* - Punnai
13. *Cassia fistula* - Sarakondrai
14. *Cassia roxburghii*- Sengondrai
15. *Chloroxylon swietenia* - Parasa maram
16. *Cochlospermum religiosum* – Kongu, Marjal Ilavu
17. *Cordia dichotoma* – Mookuchali maram
18. *Creteva adansonii* – Mavalingum
19. *Dillenia indica* – Uva, Uzha
20. *Dillenia pentagyna* – Siru Uva, Siruzha
21. *Diospyros ebenum* - Karungali
22. *Diospyros chloroxylon* – Vaganai
23. *Ficus amplissima* – Kal Ichi
24. *Hibiscus tilloctus* – Aairu poovarasa
25. *Hardwickia binata* – Aacha
26. *Holoptelia integrifolia* - Aayili
27. *Lannea coromandellica* - Odham
28. *Lagerstroemia speciosa* - Poo Marudhu
29. *Lepisanthus tetraphylla* - Neikottai maram
30. *Limonia acidissima* - Vila maram
31. *Litsea glutinosa* – Pisin pattai
32. *Madhuca longifolia* – Illuppal
33. *Manilkara hexandra* – Ulakkai Paalai
34. *Mimusops elengi* - Magizha maram
35. *Mitragyna parvifolia* - Kadambu
36. *Morinda pubescens* – Nuna
37. *Morinda citrifolia* – Vellai Nuna
38. *Phoenix sylvestre* - Eachai
39. *Pongamia pinnata* – Pungam
40. *Premna mollissima* – Munnai
41. *Premna serratifolia* – Narumunnai
42. *Premna tomentosa* - Purangai Naari, Pudanga Naari

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43. *Prosopis cinerea* - Vanni maram
44. *Pterocarpus marsupium* - Vengai
45. *Pterospermum caulescens* - Vennangu, Tada
46. *Pterospermum xylocarpum* - Polavu
47. *Puthranjiva roxburghii* - Puthranjivi
48. *Salvadora persica* - Ugas Maram
49. *Sapindus emarginatus* - Manipungan, Soapu kai
50. *Saraca asoca* - Asoca
51. *Strobilus asper* - Piraya maram
52. *Strychnos nuxvomica* - Yeti
53. *Strychnos potatorum* - Therthang Kottai
54. *Syzygium cumini* - Naval
55. *Terminalia bellerica* - Thandri
56. *Terminalia arjuna* - Ven marudhu
57. *Toona ciliata* - Sandhana vembu
58. *Thespesia populnea* - Puvarasu
59. *Walsuratrifoliata* - vatsura
60. *Wrightia tinctoria* - Veppalai
61. *Pithecellobium dulce* - Kodukkapuli

Discussion by SEIAA and the Remarks:-

The proposal was placed in the 591st Authority meeting held on 10.02.2023. The Authority noted that the subject was appraised in 346th SEAC meeting held on 12.01.2023. After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant Terms of Reference (ToR) along with Public Hearing under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions in addition to the conditions in 'Annexure B' of this minute.

1. The project proponent shall prepare mine closure plan considering mineable quantity of Topsoil, Weathered rock & mineral reject/waste. If any.
2. Copy of valid mining lease approval obtained from the competent Authority.
3. Copy of approved review of scheme of mining plan by the competent authority (Dept. of Geology and Mining / IBM).

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4. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.
5. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.

Annexure 'B'

Cluster Management Committee

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


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Impact study of mining

12. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following
- a) Soil health & soil biological, physical and chemical features .
 - b) Climate change leading to Droughts, Floods etc.
 - c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
 - d) Possibilities of water contamination and impact on aquatic ecosystem health.
 - e) Agriculture, Forestry & Traditional practices.
 - f) Hydrothermal/Geothermal effect due to destruction in the Environment.
 - g) Bio-geochemical processes and its foot prints including environmental stress.
 - h) Sediment geochemistry in the surface streams.

Agriculture & Agro-Biodiversity

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

Forests

19. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.
20. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.


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21. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.
22. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.

Water Environment

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

Energy

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

Climate Change

32. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.


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33. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.

Mine Closure Plan

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

EMP

35. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.
36. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.

Risk Assessment

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

Disaster Management Plan

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

Others

39. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.
40. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.
41. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.

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A. STANDARD TERMS OF REFERENCE

- 1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
- 2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
- 3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
- 4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
- 5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
- 6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
- 7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.
- 8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.


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

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Committee of National Board of Wildlife and copy furnished.

- 18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.
- 19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.
- 20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
- 21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs/STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
- 22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and


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EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.

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


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in AMSL and bgl. A schematic diagram may also be provided for the same.

- 31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
- 32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
- 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
- 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
- 35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
- 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
- 37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
- 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts


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which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.

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


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EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.

- i) As per the circular no. J-11011/618/2010-IA.II (I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the Environment Clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.
- j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

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

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

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


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


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irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.

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

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

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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, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai - 34.
5. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC, Paryavaran Bhavan, CGO Complex, New Delhi - 110 003.
6. The District Collector, Tiruvannamalai District.
7. Stock File.

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S.No	ToR Points	Reply	Pg. No
A. ToR in Addition to Standard ToR			
1	The PP shall furnish the letter received from DFO concerned stating the proximity details of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve, etc., upto a radius of 25 km from the proposed site.	Complied. The copy of the DFO letter has been attached as Annexure 4	295
2	The project proponent shall conduct an exclusive hydro-geological study considering the existence of Cheyyar river at a distance of 120m and implications of quarrying operations by involving academic & research institution such as Anna University-Department of Geology, CEG campus, Chennai or IIT Madras	This compliance is under progress and the same will be incorporated in the final EIA & EMP. However, Water table is found at a depth of 48m in summer and 45m in rainy seasons. As far as the mining lease concern, the area is rocky and no major seepage is envisaged. The production quantity is very less and the depth proposed is only 22m BGL. Hence, there will not be any major impact due to mining on water levels or ground water levels in the area.	-
3	The structures within the radius of i) 50m, ii) 100m iii) 200m, iv) 300m shall be enumerated with details such as dwelling houses with number of occupants, places of worship, industries, factories, sheds, etc.	Complied. There is no approved habitation within 300m radius and the copy of VAO certificate is given as Annexure 5.	297
3	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 is no trees within ML area. The distance between adjacent quarries and from water bodies are given in the chapter 7 and 2. Fencing and plantations are under process.	-

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4	The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the water bodies like lake, water tanks, etc. are located within 1km of the proposed quarry.	Tandarai canal is located at a distance of 19m from the project site. As per the Precise Order safety distance of 50m has been provided to the Tandarai canal. Further, Hydrological study has been conducted and the results are elaborated in Chapter 3 of the Draft EIA report.	130
5	The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.	Under process. It will be complied.	-
6	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 is no trees within ML area. The distance between adjacent quarries and from water bodies are given in the chapter 7 and 2 . Fencing and plantations are under process.	-
7	In the case of proposed lease in an existing or old quarry where the benches are not formed or partially formed as per the approved mining plan, the project proponent (PP) shall prepare and submit an Action plan for carrying out the realignment of the benches in the proposed quarry lease after it is approved by the concerned Asst. Director of Geology and Mining during the time of appraisal for obtaining the EC.	Not applicable. This is a fresh quarry.	-
8	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	Complied.	-
9	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast induced ground vibrations are controlled as well as no fly rock travel beyond 30m from the blast site	Complied. Conceptual design for control blasting has been prepared and the same has been approved by department of Geology and Mining, Tiruvannamalai. The same is incorporated in the Chapter -2 .	99

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

10	The EIA Coordinators shall obtain and furnish the details of quarry/queries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.	The PP has not carried out any quarrying operation before this project.	-
11	If the proponent has already carried out mining activity in the proposed mining 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. Detail of approved depth of mining. d. Actual depth of the mining achieved earlier. e. Name of the person already mined in that leases area. f. If EC and CTO already obtained, the copy of the same shall be submitted. g. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.	Not applicable.	-
12	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).	Project coordinates superimposed in satellite imagery and given as Figure in Chapter 2 . The geology and geomorphology map are provided as Figure in Chapter-3 . The Lithology map and Soil map are provided as Figure in Chapter-3 . The 10km Radius Index plan showing buffer zone is given as in Chapter-3 .	-
13	The PP shall carry out Drone video survey covering the cluster, green belt, fencing etc.,	This compliance is under process.	-

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14	The PP shall furnish the revised manpower including the statutory & competent persons as required under the provisions of the MMR 1961 for the proposed quarry based on the volume of rock handled & area of excavation.	Total manpower remains same as 22. The revised manpower structure including statutory person is given below. <table> <tr> <td>1</td><td>Skilled</td><td>Mines Manager/Foreman</td><td>2 No.</td></tr> <tr> <td></td><td></td><td>Mate</td><td>1 No.</td></tr> <tr> <td></td><td></td><td>Operator</td><td>6 No.</td></tr> <tr> <td></td><td></td><td>Mechanic</td><td>1 No.</td></tr> <tr> <td>2</td><td>Semi-skilled</td><td>Driver</td><td>2 No.</td></tr> <tr> <td>3</td><td>Unskilled</td><td>Labours</td><td>10Nos</td></tr> <tr> <td></td><td></td><td>Total</td><td>22Nos</td></tr> </table>	1	Skilled	Mines Manager/Foreman	2 No.			Mate	1 No.			Operator	6 No.			Mechanic	1 No.	2	Semi-skilled	Driver	2 No.	3	Unskilled	Labours	10Nos			Total	22Nos	-
1	Skilled	Mines Manager/Foreman	2 No.																												
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2	Semi-skilled	Driver	2 No.																												
3	Unskilled	Labours	10Nos																												
		Total	22Nos																												
15	The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	There is no trees within ML area. The distance between adjacent quarries and from water bodies are given in the chapter 7 and 2 . Fencing and plantations are under process.	-																												
16	The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.	Mineral reserves and mineable reserves, planned production capacity, and proposed working methodology are given in Chapter 3. The anticipated impacts and corresponding mitigation measures are provided in Chapter 4.	103 106																												
17	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	187																												
18.	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	This compliance is under progress and the same will be incorporated in the final EIA & EMP. However, Water table is found at a depth of 48m in summer and 45m in rainy seasons. As far as the mining lease concern, the area is rocky and no major seepage is envisaged. The production quantity is	-																												

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	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.	very less and the depth proposed is only 22m BGL. Hence, there will not be any major impact due to mining on water levels or ground water levels in the area.	
19.	The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic /vehicular movement study.	The baseline data for all environments is collected for the Pre-monsoon season (March to May 2023) and the details are given in Chapter 3 .	103
20.	The Proponent shall carry out the cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of air pollution, water pollution, & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	Detailed cumulative impact study has been carried and the same is incorporated in the Chapter 3 . Accordingly, a detailed Environment Management Plan is prepared considering air, water, noise and soil environment and the details are given in Chapter 10 .	103 183
21.	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 10 .	183
22.	Land use of the study area delineating forest area, agricultural land, grazing land. Wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the 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	103
23.	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 generation of the OB & waste.	-

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24.	Proximity to Areas declared as 'Critically Polluted'(or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.	No proximity to Critically polluted areas.	-
25.	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	The 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.	141
26.	Impact on local transport infrastructure due to the Project should be indicated	Since the production is very less, only few trucks of 5/10T will be used for transport. The effect of transport on local transport will be negligible.	-
27.	A tree survey shall be carried out (Nos. name of species, age, diameter, etc) both within the mining lease applied area & 300m buffer zone and its management during mining activity	There are no trees within 300 buffer zone of the project area.	-
28.	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.	164
29.	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF & CC accordingly.	Draft EIA & EMP is being prepared to conduct Public Hearing. These conditions will be complied after PH.	-

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

30.	The public hearing advertisement shall be published in one major national daily and one most circulated vernacular daily	Agreed.	-
31.	The PP shall produce/display the EIA report, executive summary and other related information with respect to public hearing in Tamil language also.	Agreed.	-
32.	As part of the study of flora and fauna around the vicinity of the proposed site, the EIA Coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, where ever possible	Accepted. It will be done.	-
33.	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 0.15.0 Ha. Green belt development plan showing the plant species selected is given in Chapter 4.	136
34.	Taller/one year old saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/horticulturist with regard to site-specific choices. The proponent shall earmark the green belt area with GPS coordinates all along the boundary of the project site with at least 3 m wide and in between blocks in an organized manner	Accepted. The photographs showing green belt will be provided once it is completed.	-

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

35.	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 para 7.8 of Chapter 7	179
36.	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	164
37.	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.	The impacts of the mining operations on the health of employees is studied and mitigation measures are provided. Details are in Chapter 4.	156
38.	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	Since there are no habitations in 500m radius, and the villages are located more than 1km, there will not be any major impact.	-
39.	The Socio-economic studies should be carried out within a 5km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	Socio economic study is conducted both by visits and secondary data collection. Details are given in Chapter 3	103
40.	Details of litigation pending against the project, if any, with direction /order passed by any Court of law against the Project should be given.	No litigation is pending	-

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41.	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	Benefits of the project is given in Chapter 8	181
42.	If any quarrying operations were carried out in the proposed quarrying site for which now EC is sought, the project proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF & CC, Regional Office, Chennai or the concerned DEE/TNPCB.	After obtaining EC, compliance reports will be submitted to Regional office, MoEF & CC, Chennai	-
43.	The PP shall prepare the EMP for the entire life/lease of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	The EMP is planned for the entire life of the mine.	183
44.	Concealing any factual information or submission of false/fabricated data and failure to comply with any of the condition mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986	Agreed	-
Additional Conditions stipulated by SEIAA - TN			
1	The project proponent shall prepare mine closure plan considering mineable quantity of Topsoil, Weathered rock & mineral reject/waste. If any.	Mine Closure Plan has been prepared and approved by Deputy Director, Dept. of Geology and Mining, Tiruvannamalai District. Please refer Annexure 2 of Draft EIA/EMP report.	219
2	Copy of valid mining lease approval obtained from the competent Authority.	Mine Lease Plan has been approved by Deputy Director, Dept. of Geology and Mining, Tiruvannamalai District. Please refer Annexure 2 of Draft EIA/EMP report.	219
3	Copy of approved review of scheme of mining plan by the competent authority (Dept. of Geology and Mining/IBM)	Not applicable. This is a fresh Rough Stone and Gravel quarry project (Minor mineral) for a period of five years. Please refer Annexure 1 & 2 of Draft EIA/EMP report.	215 & 219

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

4	Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.	Complied. There is no approved habitation within 300m radius. The VAO letter has been attached as Annexure 5 of Draft EIA/EMP report.	297
5	The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.	Complied. The copy of the DFO letter has been attached as Annexure 4	294

Annexure 'B'

Cluster Management Committee

1	Cluster management committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry	There are four quarries, including the present proposed quarries and an abandoned quarry, within a 500-metre radius. The proponent will take the initiative to form a cluster management committee once environmental clearance is obtained for this quarry as well as the other three proposed quarries.	-
2	The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,	Agreed. Will be complied.	-
3	The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.	Agreed. The list of members of the committee formed will be submitted to ad/mines after obtaining Environmental Clearance.	-
4	Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.	Agreed. Details of the Operation plan for cluster mining operations will be submitted once we get environmental clearance for all four quarries proposed in the cluster area.	-

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5	The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.	Risk management plan for the individual quarry is given in this report. As far as cluster working condition is concerned, once the committee is formed, risk management as a cluster including inundation of clusters and the evacuation plan will be elaborated and the same will be submitted to the EIAA.	164
6	The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.	Environmental policy for the cluster will be framed by the cluster management committee and the policy will be in accordance with EPA Act, 1986 and its amendments, guidelines by MoEF&CC/SEIAA and other regulatory bodies. This policy will be displayed in the quarry.	-
7	The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.	Agreed. It will be complied as mentioned in the Point No.4	-
8	The committee shall furnish the Emergency Management plan within the cluster.	Agreed. It will be complied as mentioned in the Point No.4	-
9	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.	Agreed. It will be complied as mentioned in the Point No.4	-
10	The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.	Agreed. It will be complied as mentioned in the Point No.4	-
11	The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.	Agreed. It will be complied as mentioned in the Point No.4	-

Impact study of mining

12	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following,		
a	Soil health & soil biological, physical and chemical features	Complied. The details are given in Chapter 3 of the Draft EIA report.	119
b	Climate change leading to Droughts, Floods etc.	The proposed quarry is a very small scale Opencast Semi-Mechanized mining method and the anticipated impacts to the climate change,	-

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		droughts, floods, etc. will be very marginal.	
c	Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people	The proposed quarry is a very small scale Opencast Semi-Mechanized mining method and the anticipated impacts of Greenhouse gases (GHG), rise in Temperature and effect of livelihood of the local people will be negligible. It will be controlled in the source level as per mitigation measures proposed in the Chapter 4 & 10.	136 183
d	Possibilities of water contamination and impact on aquatic ecosystem health	The total water requirement is 5.0 KLD. It will be outsourced from the nearby villages. So no impact in the project area due to water usage. The wastewater generation in the form of runoff water during rainy season will be collected in the bottom quarry through proper drainage pattern and the collected water will be used for plantation and dust separation during dry season. However, there is no wastewater discharge from this quarry is being anticipated. So, possibilities of water contamination and impact on aquatic ecosystem health is not envisaged.	-
e	Agriculture, Forestry & Traditional practices	There are no forest area and traditional practices within the project area. However, there are some agricultural lands around the project site. It may be affected due to the quarry operation as such dust particles sedimentation in the agricultural land. It will be controlled at the source level by proper dust separation as such wet drilling, controlled blasting and water sprinkling on the project roads and project surrounding roads. As per Air Quality Modelling the impact of the air quality limited to 400m radius. So, there is no impact for the Agriculture, Forestry & Traditional practices located within 10km radius.	-
f	Hydrothermal/Geothermal effect due to destruction in the Environment	The proposed quarry operation is Opencast Semi-Mechanized operation with drilling, blasting, excavation, loading and transportation. So, the	-

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		effect of Hydrothermal/Geothermal is not envisaged.	
g	Bio-geochemical processes and its foot prints including environmental stress	This is a simple mining operation, so bio-geochemical processes are not envisaged.	-
h	Sediment geochemistry in the surface streams	Cheyyar river is located at a distance of 120m and Tandarai canal is located at distance of 19m. Due to mining operation there may be minimum impact to the said water bodies due to dust sedimentation. It will be controlled by wet drilling, water sprinkling and plantation.	-

Agriculture & Agro-Biodiversity

13	Impact on surrounding agricultural fields around the proposed mining Area.	Agreed. It is described in the point no. 12 (e) of this ToR Compliance Annexure-B	-
14	Impact on soil flora & vegetation around the project site.	Complied. The details are given in Chapter 3.	119
15	Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.	Complied. The details are given in Chapter 3.	119
16	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	Complied. The details are given in Chapter 3.	120
17	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	The detailed action plan has been described in the EMP (Chapter 10) for the sustainable management for the project area and its surroundings.	183
18	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.	Complied. The details are given in Chapter 4.	136

Forests

19	The project proponent shall detailed study on impact of mining on Reserve Forests free ranging wildlife.	There is no reserved forest located in the buffer zone. The fauna commonly	103

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		found in the core and buffer zone is given in Chapter 3.	
20	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	Complied. The details are given in Chapter 3.	103
21	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	Not Applicable. This is a dry barren land.	-
22	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	There is no protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways located in the buffer zone.	-

Water Environment

23	Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby water bodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.	Complied. The details are given in Chapter 7.	179
24	Erosion Control measures.	There is no waste generation (OB) in this quarry has been envisaged. However, there may be erosion due the rainy season and that is limited within quarry area. The control measures are explained in Chapter 8.	-
25	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.	Complied. The details are incorporated in Chapter 3.	103
26	The project proponent shall study impact on fish habitats and the food	Not applicable.	-

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	WEB/ food chain in the water body and Reservoir.		
27	The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.	Fragmentation impact on environment may be due to drilling and blasting. The anticipated impacts and mitigation measures are discussed in Chapter 4.	136
28	The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.	An ecological and biodiversity study has been conducted and the same is incorporated in the Chapter 3 of the Draft EIA/EMP report. However, there is no any features mentioned in this condition within the M.L area. However, the impacts anticipated with respect to the environment of the project area is very negligible and it will be minimized within the project area. The details are described in Chapter 10.	103 & 183
29	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.	Agreed.	-
30	The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.	Complied. The details are described in Chapter 3.	103
Energy			
31	The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilize the Energy shall be furnished.	Complied. The details are described in Chapter 4.	136
Climate Change			
32	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.	Complied. The details are described in Chapter 4.	136
33	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.	Complied. The details are described in Chapter 4.	136

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

Mine Closure Plan

34	Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.	Complied. Mine Closure Plan has been incorporated in the approved Mining Plan and the same is incorporated in the Chapter 4 &10.	136 & 183

EMP

35	Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.	Complied. The details are described in Chapter 10.	183
36	The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.	Complied. The details are described in Chapter 10.	183

Risk Assessment

37	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	Complied. The details are described in Chapter 7.	164

Disaster Management Plan

38	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.	Complied. The details are described in Chapter 7.	164

Others

39	The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.	Complied. Enclosed as Annexure 4	136

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

40	As per the MoEF& CC office memorandum F.NO.22-65/2017-1A.111 dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	Noted. It will be complied in the Final EIA/EMP report.	-
41	The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.	Complied. The PP has framed detail solid waste management system for the project are and the same will be executed by proper awareness and sign boards. The sign boards will be in two language i.e., Vernacular language (Tamil) and common language (English). 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.	-

C. Standard ToR

1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.	This is a new project. No mining has been carried out in this lease area so far by the proponent.	-
2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given	Precise Area Communication letter received from the Deputy Director, Department of geology & Mining, Tiruvannamalai. (Annexure-1)	-
3	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.	Complied. All the documents in the name of the lessee.	-

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

4	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ topo-sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	Complied. Project coordinates superimposed in satellite imagery and given as Figure in Chapter II. The geology and geomorphology map is provided as Figure in Chapter-III. The Lithology map and Soil map are provided as Figure in Chapter-III. The 10km Radius Index plan showing buffer zone is given as in Chapter-III.	-
5	Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.	Complied. The details are given in Chapter 2.	78
6	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.	Not Applicable. The proposed land is Patta Land.	-
7	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or	The proposed quarry is small scale magnitude operation and controlled by lessee individually by engaging optimum statutory personals. Based on magnitude of the operation the PP has framed Environmental Policy and the same is incorporated in Chapter 10.	183

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

	shareholders or stakeholders at large, may also be detailed in the EIA Report.		
8	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.	Risks are identified and the management is given in para 7.2 of Chapter 4.	164
9	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.	The study area of 10km comprising core zone and buffer zone is used for the study. All details given in Chapter – 3.	103
10	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Satellite imagery has been used to study land use and the details of land use in the core and buffer zone is given in Chapter 3.	103
11	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.	The entire material quarried out will be sold. No waste generation from this quarrying operation.	-
12	Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable	Not Applicable. There is no forest land in the lease area.	-

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

	for representative of the State Forest Department to assist the Expert Appraisal Committees.		
13	Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.	Not Applicable. There is no forest land in the lease area.	-
14	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.	Not Applicable. There is no forest land in the lease area.	-
15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	There is no forest land in the lease area. However, study are forest details are given in Chapter – 2.	78
16	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.	No wildlife sanctuary or national parks or any areas of ecological importance is found in the 10km area.	-
17	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.	Not Applicable. Nil within 10 km radius.	-

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

18	A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.	Flora and fauna composition in the core and buffer zone of the project has been studied through primary field surveys. The details are furnished in Chapter 3.	103
19	Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.	Not Applicable	-
20	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).	Not Applicable.	-

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21	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.	Not applicable. The proposed area is own Patta land. No habitation within 500 meters of the radius.	-
22	One season (non-monsoon) (i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season) primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site- specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.	Baseline data for meteorology, ambient air quality, Water quality, noise level, soil and flora & fauna are collected during Pre-Monsoon season (March 2023 to May 2023) and detailed in Chapter-3.	103

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23	Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre- dominant wind direction may also be indicated on the map.	Modelling is done using AERMOD and the projected values are found to be within the norms. Hence, there is no major impact due to this mining project. Cumulative impact of mining is also studied and the same is found to be within norms. The detail are given in Chapter 3.	103
24	The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.	The entire water requirement for the project is 5.0KLD which will be sourced from outside agencies. Negligible sewage of 0.8 KLD will be generated, for which a septic tank with soak pit will be set up. The water balance diagram is shown in Chapter 4.	136
25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	Not Applicable. The required water will be outsourced from the nearby village.	-
26	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	Details of water conservation plan is given chapter 10.	183
27	Impact of the Project on the water quality, both surface and groundwater should be assessed and necessary safeguard measures, if any required, should be provided.	The surface water condition and ground water condition in the study area is given in Chapter 3.	103
28	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall Include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission	Ground water table of the project surrounding area is 48m BGL and proposed ultimate pit level is 22m BGL. So, the proposed mine working will not intersect the ground water table.	-

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	from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.		
29	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.	Not applicable. There is no stream, seasonal or otherwise, passing through the lease area.	-
30	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.	Details of site elevation and depth are given in Chapter 3.	103
31	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the. Project. Phasc-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.	In the lease area, safety barrier 7.5m is left as safety zone. Greenbelt/Plantation will be carried out in and around the lease area to enhance the vegetative growth and aesthetic in the area.	-
32	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State	This is a small quarry and the production is very less. 2 Nos. of 5T/10T tippers will be used for transport. The trips will be minimum. Hence no major impact on transport is expected	-

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	Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.		
33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	Onsite shelter and facilities will be provided to mine workers	-
34	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.	The post mining land use/conceptual land use of the study area is given in para 4.2 of Chapter 4.	137
35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed	Occupational health and safety study is given in Para 4.10 of Chapter-4.	156
36	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations	No major impact on public health will be there since the villages are located more than 1km from the lease area.	-
37	Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	This project provides employment to 22 people directly. Local people will be hired for unskilled labour. Through CSR, nearby schools, hospitals will be benefitted. For CSR, INR 5.0 Lakh is allocated. Based on the demand of the people during public hearing, further funds will be allocated, if necessary.	-
38	Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.	Environmental Management plan details are given in Chapter 10.	183

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

39	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.	During public hearing process, the opinions and demands of the people will be noted. The replies and commitment made by the proponent along with time bound action plan wherever applicable will be provided in Final EIA/EMP report.	-
40	Details of litigation pending against the project, if any, with direction /order paced by any Court of Law against the Project should be given.	There is no litigation pending against the project.	-
41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.	The cost details including break-up of various costs are given in Chapter 2.	78
42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	The disaster and its management plan is given in Chapter-7.	164
43	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	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. This project provides employment to 22 people directly. Local people will be hired for unskilled labour. Through CSR, nearby schools, hospitals will be benefitted. For CSR, INR 5 Lakhs has been allocated.	-
44	Besides the above, the below mentioned general points are also to be followed.		
	a) Executive Summary of the EIA/EMP Report	Yes, Complied.	-
	b) All documents to be properly referenced with index and continuous page numbering.	Yes, Complied.	-
	c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.	Yes, Complied.	-

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

	d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise, etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.	Yes, Complied.	-
	e) Where the documents provided are in a language other than English, an English translation should be provided.	Yes, Complied.	-
	f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	Yes, Complied.	-
	g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M.No.J-11013/41/2006-IA.II(I) dated 4 th August 2009 which are available on the website of this Ministry, should be followed.	Yes, Complied.	-
	h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the ToR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the ToR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.	Yes, Complied.	-

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	i) As per the circular no.J-11011/618/2010-IA.II (I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the Environmental Clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.	Yes, Complied.	-
	j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.	Yes, Complied.	-

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.

Tvl.JCK Mines, Thiru.J.K.Srinivasan (Partner) has obtained Precise Area communication letter from the Deputy Director, Department of Geology and mining, Tiruvannamalai District, to quarry out 81,635m³ of Rough Stone, 8,709m³ of Weathered rock and 9,160m³ of Gravel over an extent of 1.55.0Ha located at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 and 211/9 located in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu. Hence, this proposed quarry falls under the cluster situation due to the following proposed and abandoned quarries located within 500m radius. The details are given below.

Table 1.1 Cluster Mines Details			
Sl. No.	Extent	Proponent	Status of lease
1	1.55.0 Ha	Srinivasan, M/s.JCK Mines	Proposed
2	2.57.0 Ha	Thiru. Sudhakaran Thiru.	
3	2.00.0 Ha	Thiru. Ramchandran	
4	4.50.0 Ha	Thiru. Ganesan	
5	1.00.0 Ha	Tmt. Poongodhai	Abandoned
Total Cluster extent is 10.62 Ha			

As per EIA notification, 2006 and its subsequent amendments the proposed **“Rough Stone & Gravel Quarry of Tvl.JCK Mines”** cluster is falls under Schedule 1(a) Mining of Minerals. It is further classified under Category B1 due to the overall extent

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of cluster area is 10.62 Ha which is >5 Ha. The ToR for preparation of EIA/EMP was approved vide letter No. SEIAA-TN/F.No.9621/SEAC/ToR-1337/2023 dated 10.02.2023. This report has been prepared in line with the approved TOR for production of maximum excavation of 81,635 Cu.m of Rough Stone, 8,709 Cu.m of Weathered Rock and 9,160 Cu.m of Gravel for a period of five years.

1.2 IDENTIFICATION OF PROJECT AND PROJECT PROPONENT

The proposed project is for mining of Rough Stone & Gravel (under cluster) from the S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 and 211/9 located in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu. 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

Sl. No.	Description	Status/Remarks
1.	Sector	Non-coal mining
2.	Category of the project	B1 (Cluster)
3.	Proposed mineral	Rough Stone and Gravel
4.	Type of Lease	Fresh Lease
5.	Extent of the lease	1.55.0 Ha
6.	Proposed depth of mining	22 m BGL
7.	Method of mining	Opencast Semi-mechanized
8.	Proposed lease period	5 Years
9.	Proposed Environmental Clearance	5 Years
10.	Proposed production quantity for five years	Rough Stone - 81,635 m ³ , Weathered rock - 8,709 m ³ and Gravel - 9,160 m ³

(b) Profile of the project proponent

The proposed lessee Tvl.JCK Mines, Thiru.J.K.Srinivasan (Partner) is a Partnership firm with sound experience in the identification of quarry, operation and marketing in

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the field of Rough Stone. The proposed land are Patta land in the name of partners of JCK Mines Thiru.Srinivasan, Thiru.Boopalan, Thiru.Gopalan, Thiru.Vetrivelan and Thiru.Sudhakaran vide Patta no.765 document has been attached as Annexure 8. The landowner's details are given below.

Table 1.2 Proposed land details			
Sl. No.	S.F. Nos.	Area (Ha)	Owner
1	211/2B	0.48.30	Srinivasan, Boopalan, Gopalan, Vetrivelan, Sudhakaran
2	211/3B	0.09.20	Srinivasan, Boopalan, Gopalan, Vetrivelan, Sudhakaran
3	211/4	0.08.50	Srinivasan, Boopalan, Gopalan, Vetrivelan, Sudhakaran
4	211/5	0.05.50	Srinivasan, Boopalan, Gopalan, Vetrivelan, Sudhakaran
5	211/6	0.08.00	Srinivasan, Boopalan, Gopalan, Vetrivelan, Sudhakaran
6	211/7	0.13.00	Srinivasan, Boopalan, Gopalan, Vetrivelan, Sudhakaran
7	211/8	0.32.50	Srinivasan, Boopalan, Gopalan, Vetrivelan, Sudhakaran
8	211/9	0.30.00	Srinivasan, Boopalan, Gopalan, Vetrivelan, Sudhakaran
Total extent - 1.55.0 Ha			

(c) Project proponent details

Name of the proponent : Tvl.JCK Mines, Thiru.J.K.Srinivasan (Partner)
Status of the Proponent : Partnership Firm
Address Tvl.JCK Mines, Thiru.J.K.Srinivasan (Partner)
S/o.Kannan,
No.782, Mariamman Kovil Street,
Jambodai Village,
Azhividaithangi Post,
Vembakkam Taluk,
Tiruvannamalai District – 604 402

1.3 BRIEF DESCRIPTION OF NATURE OF THE PROJECT

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

1.4 SIZE AND LOCATION OF THE PROJECT

(a) Size of the project

Table 1.3 Proposed project details		
Sl. No.	Feature	Description
1	Type of land	Patta land
2	Extent of lease area	1.55.0 Ha
3	Type of lease	Fresh lease
4	Geological Resource	3,09,820 m ³ of Rough Stone, 15,491 m ³ of Weathered rock and 15,491 m ³ of Gravel
5	Mineable Resource	81,635 m ³ of Rough Stone, 8,709 m ³ of Weathered rock and 9,160 m ³ of Gravel
6	Proposed production quantity for five years	81,635 m ³ of Rough Stone, 8,709 m ³ of Weathered rock and 9,160 m ³ of Gravel
6	Proposed depth of mining	22m BGL

(b) Location of the project

The proposed project site is located in Vala Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District and its Latitude 12°38'30.31"N to 12°38'37.08"N & Longitude 79°35'54.79"E to 79°35'58.45"E with Survey of India Topo Sheet No. 57-P/10.

1.5 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 stones & gravel. Thus, this project will contribute not only to the demand of Rough Stone, but also provide employment opportunities to the nearby villages.

1.6 SCOPE OF THE STUDY WITH DETAILS OF REGULATORY SCOPING

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 gives 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, Tamilnadu has issued a Terms of Reference vide Letter No. SEIAA-TN/F.No.9621/SEAC/ToR-1337/2023 dated 10.02.2023 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 2023 (March 2023 to May 2023) 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.

1.7 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 2023 to May 2023 by Swasti Enviro Solutions Pvt. Ltd, Chennai and the data generated by the FAE of the Global Mining Solutions, Salem. The study evaluates

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

the prevailing baseline environmental conditions. The objectives of the present study is 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.

1.8 STATUS OF LITIGATIONS

This is a fresh Rough Stone & Gravel Quarry project. There is no litigation/court cases 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. 159/Kanimam/2022 dated 21.09.2022. The letter copy enclosed as Annexure – 1.

b. Mining Plan Approval Letter:

The project proponent has prepared mining plan under rule L9(l),41 &42 of Tamil Nadu Minor Mineral Concession Rules, 1959 and the same has been approved by the Deputy Director, Dept. of Geology & Mining, Tiruvannamalai vide Rc.No.159/Kanimam/2022 dated 03.10.2022. The approval letter along with approved plan is enclosed as Annexure – 2.

c. 500m radius quarry features:

The project proponent has obtained an official letter from Deputy Director, Dept. of Geology & Mining, Tiruvannamalai vide Rc.No.159/Kanimam/2022 dated 03.10.2022. The letter copy enclosed as Annexure – 3.

d. VAO certification regarding 300 meter features of the project area.

There are no historical places, schools, cemeteries, HT and LT lines, temples, bird sanctuaries, and wildlife sanctuaries within 300 metres of the proposed project area. In this regard, the project proponent has received an official letter from the Village Administrative Officer, Vada Alapirandan village, dated 21.10.2022. The letter copy enclosed as Annexure – 4.

e. 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 & Others. The Affidavit copy is enclosed as Annexure – 5.

f. Blasting Agreement:

The Project Proponent have agreement with T.M.K. Explosives to carry out the blasting operation for the proposed quarry. The Blasting Agreement is enclosed as Annexure – 6.

g. Land document of the proposed lease area:

It is patta land jointly registered in the name of partners of JCK Mines (Thiru.Srinivasan, Thiru.Boopalan, Thiru.Gopalan, Thiru.Vettrivelan and Thiru.Sudhakaran vide Patta no.765. The copy of the documents are enclosed as Annexure -7.

CHAPTER 2

PROJECT DESCRIPTION

2.1 TYPE OF PROJECT

The type of the project is opencast semi-mechanized mining method to excavate Rough Stone & Gravel within the proposed Mine Lease area with drilling, blasting, loading and transportation. This project is located at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 and 211/9 over an area of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu.

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 10.62 Ha. The details of mines located in the cluster area is certified by Deputy Director of Department of Geology and Mining, Tiruvannamalai District through 500m radius letter vide Rc.No.159/Kanimam/2022 dated 03.10.2022.

The cluster includes four mining leases i.e., **this proposed quarry (1.55.0 Ha)** and other 3 proposed Quarries (9.07.0 Ha). The lessee's details are Thiru. R. Ganesan Director of SRC project Pvt. Ltd. Door No. 47, Brindavan Porlands, Salem, proposed for an extent of 4.50.0 Ha, Thiru. M. Ramachandran, S/o. Mogili Naidu, Door No. 15B, Medutheru, old Perukozhathuvor, Tambaram, Chennai proposed for an extent of 2.00.0 Ha and Thiru.K.Sudhakaran, S/o.Kannan, No.782, Mariyamman Koil Street, Jamodai Village, Vembakkam Taluk, Tiruvannamalai District proposed for an extent of 2.57.0 Ha.

The proposed production is 81,635m³ of Rough Stone, 8,709m³ of Weathered Rock and 9,160m³ of Gravel for the period of five years by open cast semi mechanized mining method.

2.2 SALIENT FEATURES OF THE PROJECT

The salient features of the proposed Rough Stone and Gravel quarry of Tvl.JCK Mines, Thiru.J.K.Srinivasan (Partner) is given below.

Table 2.1 Salient features of the project		
S.No.	Type of Detail	Description
1	Sector	1(a) Non coal mining
2	Fresh/Existing project	Fresh project
3	Category	B1 Cluster
4	Nature of mineral	Minor mineral
5	Life of the mine	5 years
6	Production Quantity for five years	81,635m ³ of Rough Stone, 9,160 m ³ of Gravel, 8,709 m ³ of Weathered rock
7	Waste generation and management	Nil
8	Bench height and width	5m
9	Ultimate pit depth	27m BGL
10	End use	Rough Stone, Gravel and Weathered rock will be sold to nearby crushers and construction industries.

2.3 GEOLOGY AND TOPOGRAPHY

a. Topography

The mine lease area of 1.55.0 Ha is covered in the Survey of India Toposheet 57-P/10 and is bounded by Latitude: 12°38'30.31" N to 12°38'37.08" N and Longitude- 79°35'54.79"E to 79°35'58.45"E. Tandarai canal is located at a distance of 19m western side of the project area and Cheyyar River is located at a distance of 120m on the Northwestern side of the project site. Water table is found at a depth of 48m in summer and 45m in rainy seasons. Temperature of the area is reported to be 18°C to a maximum of 42°C during summer. Rainfall of this area is about 800mm to 900 mm during the both NE & SW monsoons. The topomap 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.

PROPOSED ROUGH STONE AND GRAVEL QUARRY OF T/J JCK MINES, THIRU J J K SRINIVASAN (PARTNER) OVER AN EXTENT 1.55 OHA LOCATED AT S.F NOS 211/28, 211/38, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 OF VADA ALAPIRANDAN VILLAGE, CHEYYARTALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE

INDEX
TOPO SHEET NO: 57 P/10

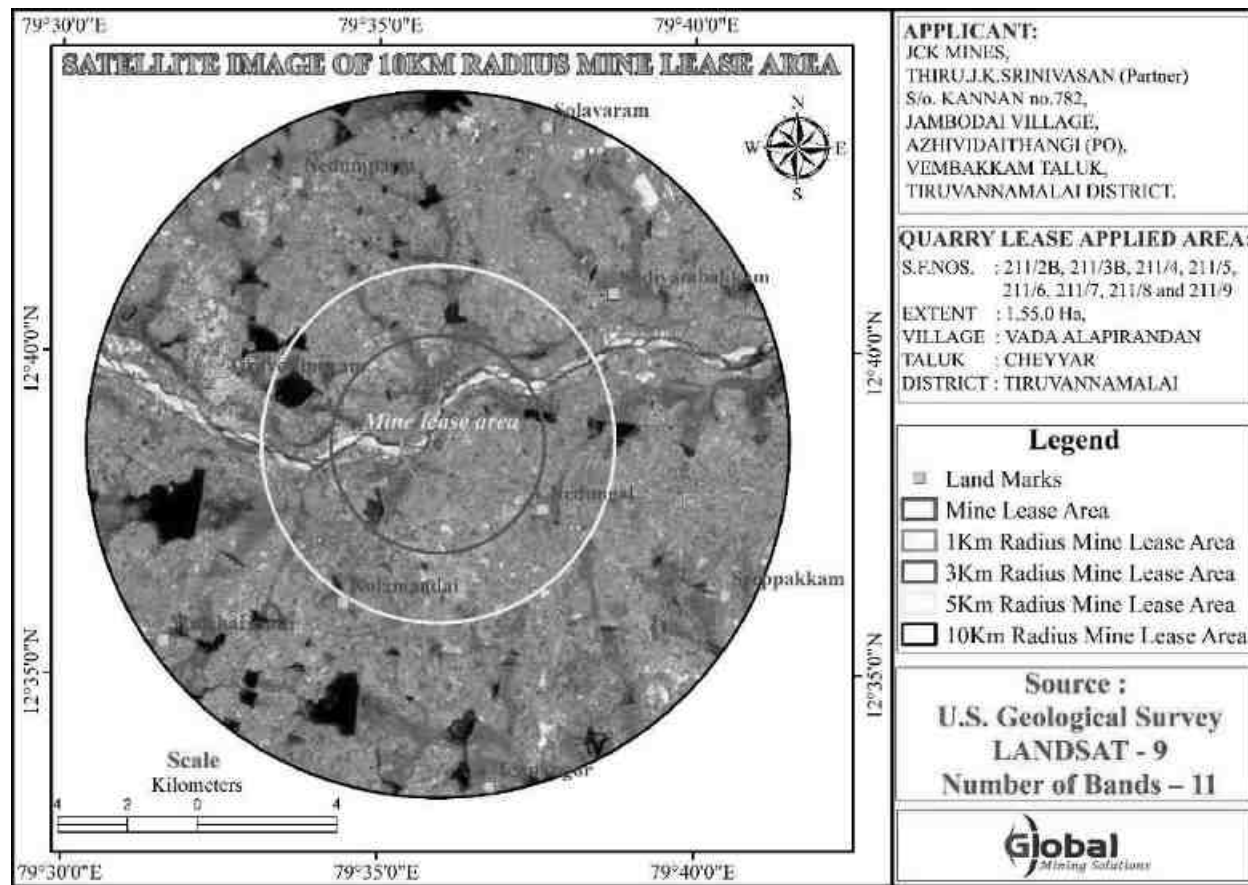
CONVENTIONAL SYMBOLS

Contour lines with or without spot heights	1000	1100	1200
Water, marshy according to topography	1300	1400	1500
Roads, double-lane, according to topography	1600	1700	1800
Communication lines, double-lane, according to topography	1900	2000	2100
Water, with or without spot heights	2200	2300	2400
Water, with or without spot heights	2500	2600	2700
Water, with or without spot heights	2800	2900	3000
Water, with or without spot heights	3100	3200	3300
Water, with or without spot heights	3400	3500	3600
Water, with or without spot heights	3700	3800	3900
Water, with or without spot heights	4000	4100	4200
Water, with or without spot heights	4300	4400	4500
Water, with or without spot heights	4600	4700	4800
Water, with or without spot heights	4900	5000	5100
Water, with or without spot heights	5200	5300	5400
Water, with or without spot heights	5500	5600	5700
Water, with or without spot heights	5800	5900	6000
Water, with or without spot heights	6100	6200	6300
Water, with or without spot heights	6400	6500	6600
Water, with or without spot heights	6700	6800	6900
Water, with or without spot heights	7000	7100	7200
Water, with or without spot heights	7300	7400	7500
Water, with or without spot heights	7600	7700	7800
Water, with or without spot heights	7900	8000	8100
Water, with or without spot heights	8200	8300	8400
Water, with or without spot heights	8500	8600	8700
Water, with or without spot heights	8800	8900	9000
Water, with or without spot heights	9100	9200	9300
Water, with or without spot heights	9400	9500	9600
Water, with or without spot heights	9700	9800	9900
Water, with or without spot heights	10000	10100	10200
Water, with or without spot heights	10300	10400	10500
Water, with or without spot heights	10600	10700	10800
Water, with or without spot heights	10900	11000	11100
Water, with or without spot heights	11200	11300	11400
Water, with or without spot heights	11500	11600	11700
Water, with or without spot heights	11800	11900	12000
Water, with or without spot heights	12100	12200	12300
Water, with or without spot heights	12400	12500	12600
Water, with or without spot heights	12700	12800	12900
Water, with or without spot heights	13000	13100	13200
Water, with or without spot heights	13300	13400	13500
Water, with or without spot heights	13600	13700	13800
Water, with or without spot heights	13900	14000	14100
Water, with or without spot heights	14200	14300	14400
Water, with or without spot heights	14500	14600	14700
Water, with or without spot heights	14800	14900	15000
Water, with or without spot heights	15100	15200	15300
Water, with or without spot heights	15400	15500	15600
Water, with or without spot heights	15700	15800	15900
Water, with or without spot heights	16000	16100	16200
Water, with or without spot heights	16300	16400	16500
Water, with or without spot heights	16600	16700	16800
Water, with or without spot heights	16900	17000	17100
Water, with or without spot heights	17200	17300	17400
Water, with or without spot heights	17500	17600	17700
Water, with or without spot heights	17800	17900	18000
Water, with or without spot heights	18100	18200	18300
Water, with or without spot heights	18400	18500	18600
Water, with or without spot heights	18700	18800	18900
Water, with or without spot heights	19000	19100	19200
Water, with or without spot heights	19300	19400	19500
Water, with or without spot heights	19600	19700	19800
Water, with or without spot heights	19900	20000	20100
Water, with or without spot heights	20200	20300	20400
Water, with or without spot heights	20500	20600	20700
Water, with or without spot heights	20800	20900	21000
Water, with or without spot heights	21100	21200	21300
Water, with or without spot heights	21400	21500	21600
Water, with or without spot heights	21700	21800	21900
Water, with or without spot heights	22000	22100	22200
Water, with or without spot heights	22300	22400	22500
Water, with or without spot heights	22600	22700	22800
Water, with or without spot heights	22900</		



Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

FIGURE - 2.2 SATELLITE MAP OF THE PROJECT AREA (10 KM RADIUS)

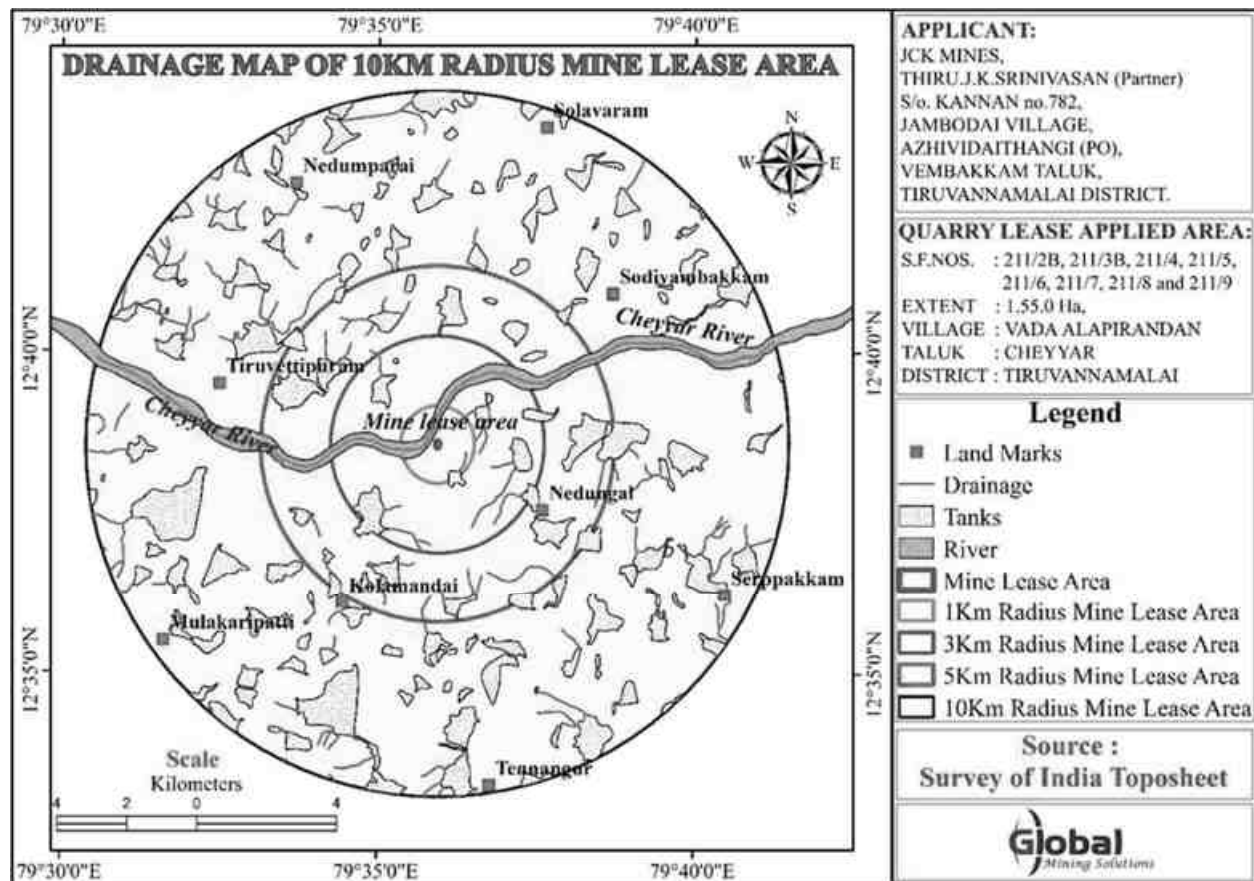


b. Drainage

There is no seasonal or perennial Odai within the M.L area. The drainage pattern of the region is plane to sub-dendritic. 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. The nearest river is Cheyyar River flows from northwestern to northeastern at a distance of 120m from the proposed ML area. There is other water body nearer to the proposed quarry area i.e., a canal located at a distance of 19m western side from the project site. Drainage map showing 10 km radius of the project area is given as Figure 2.3.

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

FIGURE 2.3 DRAINAGE MAP SHOWING 10 KM RADIUS OF THE PROJECT



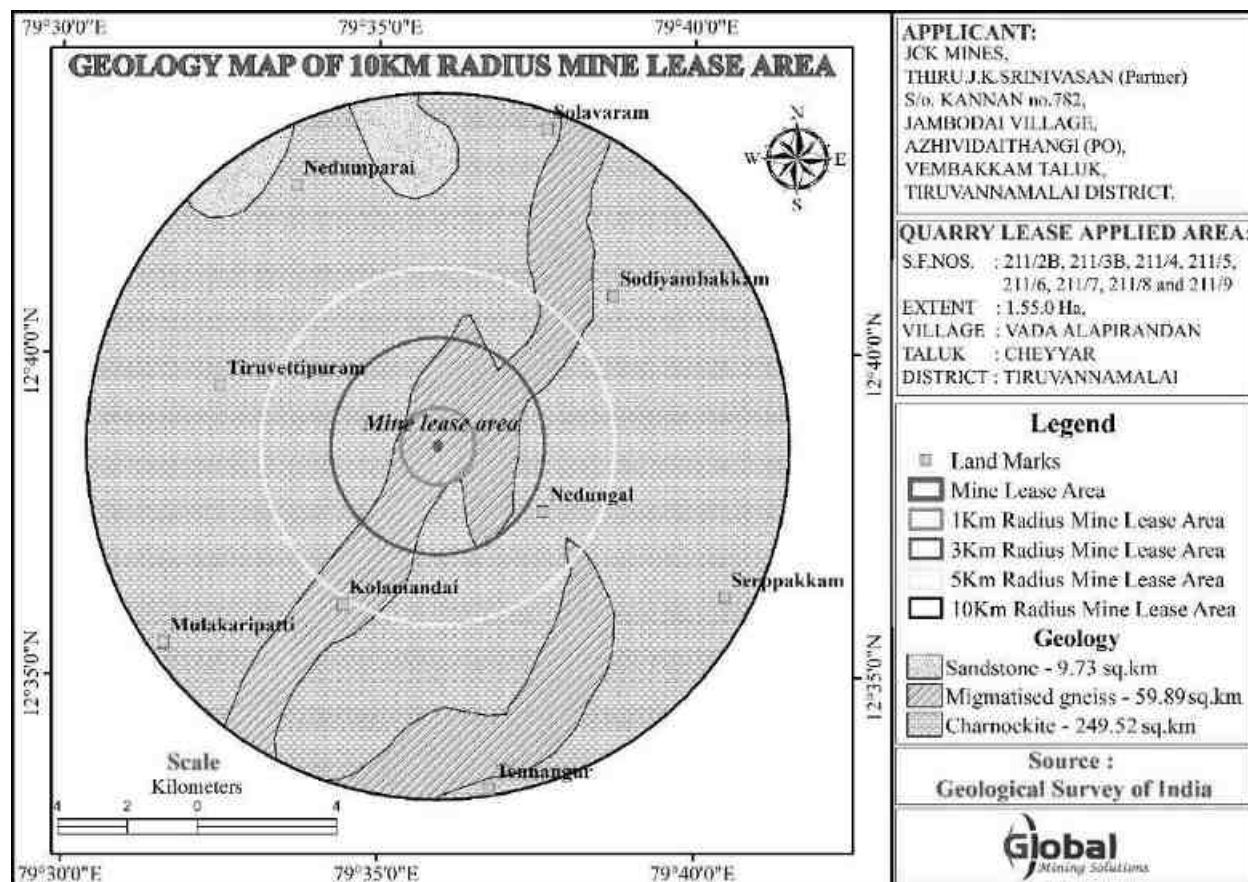
c. Regional Geology

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

More than 95% of the area of this district is underlain by hard rock formations. These hard rock formations are predominantly occupied by gneissic rock. Charnockites are prevalent in the western part in and around Javadu Hills around central part of Tiruvannamalai block and as narrow limbs in parts of Cheyyar and Vandavasi Taluk. Regional Geology map for the 10 Km radius from the proposed project site is given as Figure 2.4.

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

FIGURE 2.4 REGIONAL GEOLOGY MAP OF THE 10 Km RADIUS FROM PROJECT AREA



d. Local Geology

The area is underlain by the wide range of metamorphic rocks of peninsular gneissic complex. These rocks are extensively weathered and overlain by the recent valley fills and alluvium at places. The geological formations found in the district are Archaean rocks like Gneisses, Granites, Charnockites, basic granulites and calc-gneisses. The younger formations are Quartz veins and pegmatite. The rock type noticed in the area for lease is Charnockite which contains mostly Quartz and Feldspar with some ferromagnesian minerals. The Charnockite is part of peninsular Gneisses, a high grade metamorphic rock. The strike of the Charnockite formation is N50°E –

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

S50°W with dipping towards SE70°. The general geological succession of the area is given as under.

↑	Age		Rock Type
	Recent	-	Reddish and gravelly soil
	Unconformity		
	Archaean	-	Dolerite dyke Charnockite Peninsular Gneissic complex and Calc Gneiss

e. Geological Resources

Geological Resources is estimated at 3,09,820m³ of Rough Stone, 15,491m³ of Weathered Rock and 15,491m³ of Gravel and Mineable Reserves is estimated at 81,635m³ of Rough Stone, 8,709m³ of Weathered Rock and 9,160m³ of Gravel and after leaving necessary safety distance from the lease boundary as indicated in the Precise area letter and relevant mining laws in force.

TABLE 2.2 GEOLOGICAL RESOURCES IN THE LEASE AREA							
Section	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Gravel formation in m ³	Weathered Rock in m ³	Geological Resources of Rough stone in m ³
XY-AB	112	102	1	11424	11424		
	112	102	1	11424		11424	
	112	102	20	228480			228480
	Total				11424	11424	228480
XY-CD	83	49	1	4067	4067		
	83	49	1	4067		4067	
	83	49	20	81340			81340
	Total				4067	4067	81340
	Grand Total				15491	15491	309820

Gravel Formation : 15,491 m³

Weathered Rock Formation : 15,491 m³

The Geological Resources of Rough Stone : 3,09,820 m³

The Geological Plan is given as Figure 2.5 & Geological cross section is given figure 2.6.

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

FIGURE - 2.5 GEOLOGY MAP OF PROJECT AREA

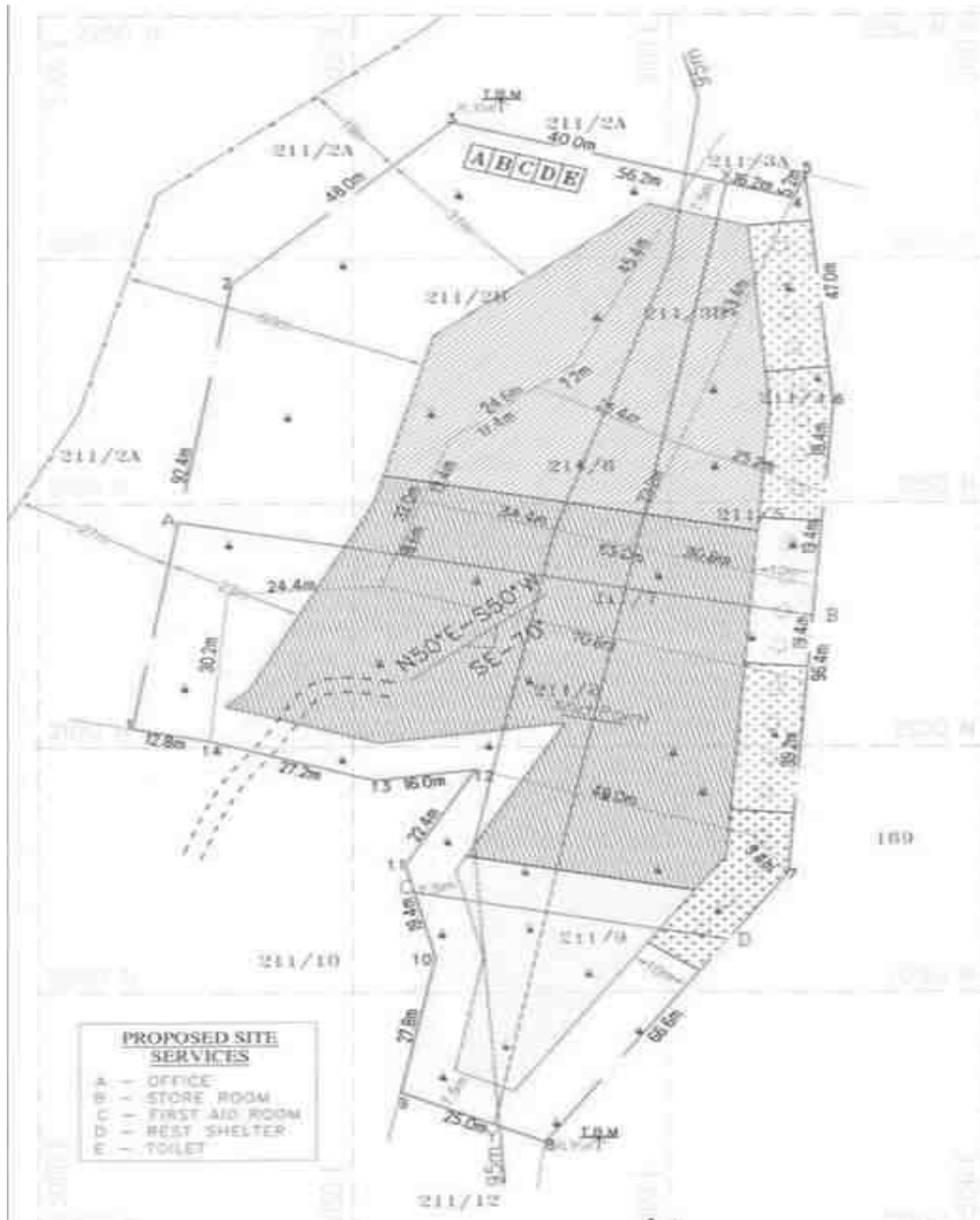
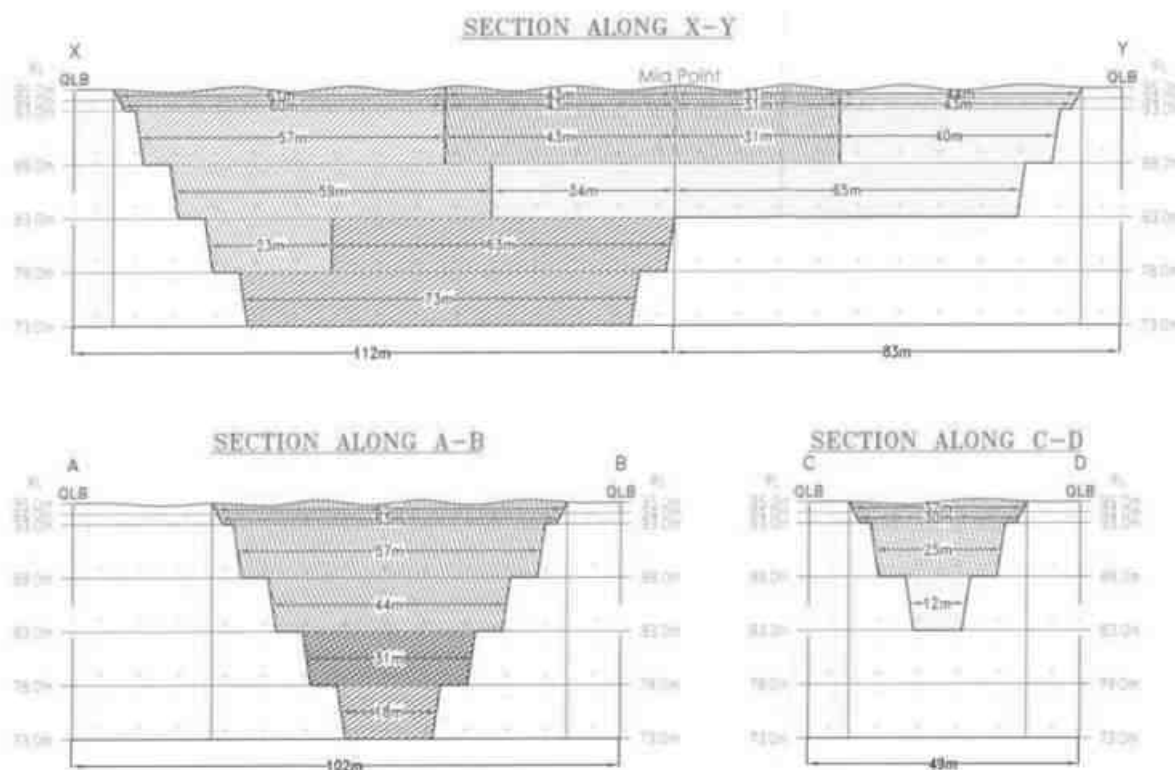


FIGURE - 2.6 GEOLOGY CROSS SECTION



2.4 AVAILABLE MINEABLE RESERVES

The mineable reserves calculated by deducting 7.5m and 10m safety distance and bench loss.

Table 2.3 Mineable Resources in the Lease Area

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Gravel formation in m ³	Weathered Rock in m ³	Mineable Reserves of Rough stone in m ³
XY-AB	I	104	65	1	6760	6760		
	II	103	63	1	6489		6489	
	III	100	57	5	28500			28500
	IV	93	44	5	20460			20460
	V	86	31	5	13330			13330
	VI	73	18	5	6570			6570

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

Total						6760	6489	68860
XY-CD	I	75	32	1	2400	2400		
	II	74	30	1	2220		2220	
	III	71	25	5	8875			8875
	IV	65	12	5	3900			3900
Total						2400	2220	12775
Grand Total						9160	8709	81635

2.5 NEED FOR THE PROJECT

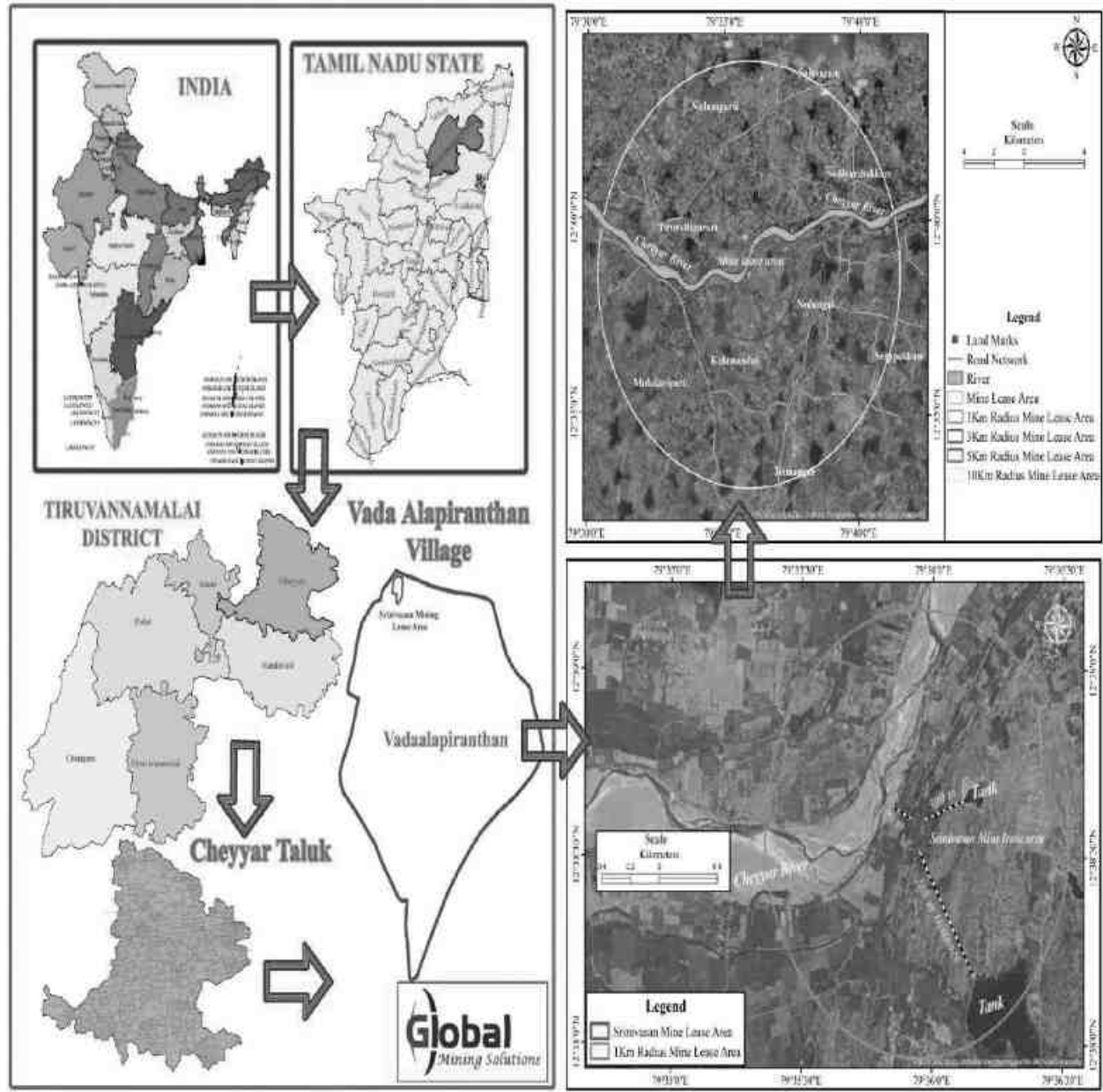
The construction industry is growing at a very faster rate so there is an increasing demand for Rough Stone and Gravel. Also in the international market there is a good demand for Indian cut and raw stones. Thus this project will contribute to the demand of rough stone and provide employment opportunities to the nearby villages.

2.6 LOCATION

This project site is located in Vada Alapirandan village, Cheyyar Taluk, Tiruvannamalai District. The nearest highway is Kanchipuram – Vandavasi road (SH 116) at a distance of 4.5km, SE. The nearest railway station is Kanchipuram Railway Station which is located at a distance of 25km, NE from the project site. The nearest airport is Chennai (Meenambakkam) Airport which is located at a distance of 90km, NE. The general location is given in Figure 2.7. The specific location is given in Figure 2.8.

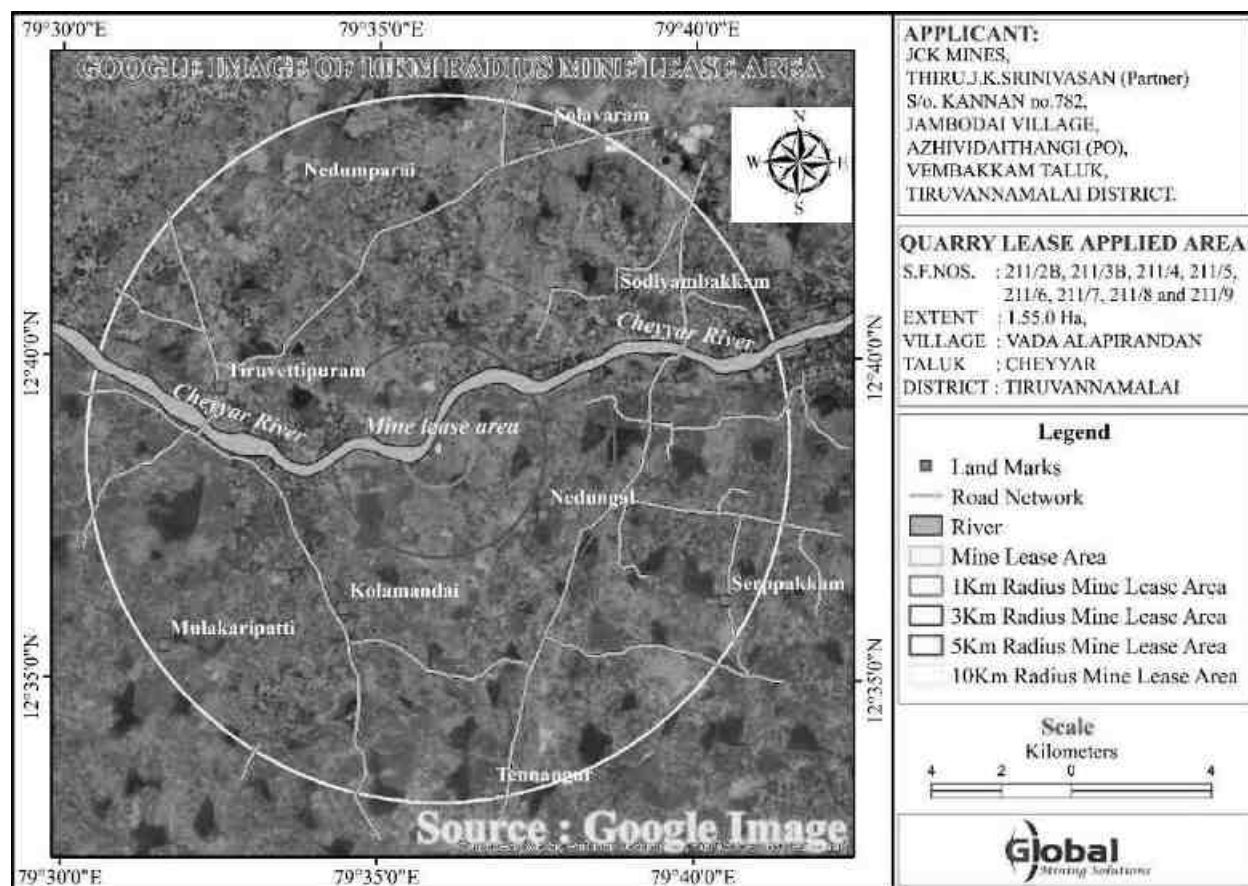
Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

FIGURE 2.7 KEY MAP OF THE PROJECT AREA



Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

FIGURE 2.8 MAP OF THE PROJECT AREA



As shown in the map above, the project is approachable from Anappathur road which is located in the South side about 440m. The Anappathur road is connected to Kanchipuram - Vandavasi road (SH - 116) at a distance of 4.5km in the South Eastern side of the project site.

2.7 PROJECT BOUNDARY AND PROJECT SITE LAYOUT:

The lease area has 14 corners and the latitude and longitude values are given below.

Table 2.4 Co-Ordinates of the Project Site			
Corners	Co- ordinates		Distance between the corners
	Latitude	Longitude	
1	12° 38' 33.03" N	79° 35' 54.79" E	1-2 = 92.4m
2	12° 38' 36.00" N	79° 35' 55.29" E	2-3 = 48.0m
3	12° 38' 37.08" N	79° 35' 56.45" E	3-4 = 56.2m

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

4	12° 38' 36.58" N	79° 35' 58.24" E	4-5 = 5.2m
5	12° 38' 36.74" N	79° 35' 58.30" E	5-6 = 47.0m
6	12° 38' 35.22" N	79° 35' 58.45" E	6-7 = 96.4m
7	12° 38' 32.09" N	79° 35' 58.24" E	7-8 = 66.6m
8	12° 38' 30.31" N	79° 35' 56.97" E	8-9 = 25.0m
9	12° 38' 30.63" N	79° 35' 56.21" E	9-10 = 27.8m
10	12° 38' 31.52" N	79° 35' 56.39" E	10-11 = 19.4m
11	12° 38' 32.13" N	79° 35' 56.23" E	11-12 = 22.4m
12	12° 38' 32.77" N	79° 35' 56.59" E	12-13 = 16.0m
13	12° 38' 32.69" N	79° 35' 56.07" E	13-14 = 27.2m
14	12° 38' 32.95" N	79° 35' 55.21" E	14-1 = 12.8m

The site layout is shown below as Figure 2.9.

2.8 SIZE OR MAGNITUDE OF OPERATION

The proposed production is 81,635m³ of Rough Stone, 8,709m³ of Weathered Rock and 9,160m³ of Gravel for the period of five years by Opencast Semi Mechanized mining method.

2.9 LAND USE OF THE PROJECT AREA

The proposed Mine Lease area is dry barren Patta land and the Land use pattern of the project site is given below Table 2.5

Table 2.5 Current Land Use Pattern			
S. No.	Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)
1	Quarrying Pit	Nil	0.83.0
2	Infrastructure	Nil	0.01.0
3	Roads	Nil	0.01.0
4	Green Belt	Nil	0.15.0
5	Unutilized	1.55.0	0.55.0
	Total	1.55.0	1.55.0

2.10 LAND USE AT MINE CLOSURE STAGE

Table 2.6 Land Use at Mine Closure Stage		
S. No.	Land Use	Area in use during the quarrying period (Hect)
1	Area left for water body	0.83
2	Green Belt	0.15
3	Remaining area	0.57
	Total	1.55

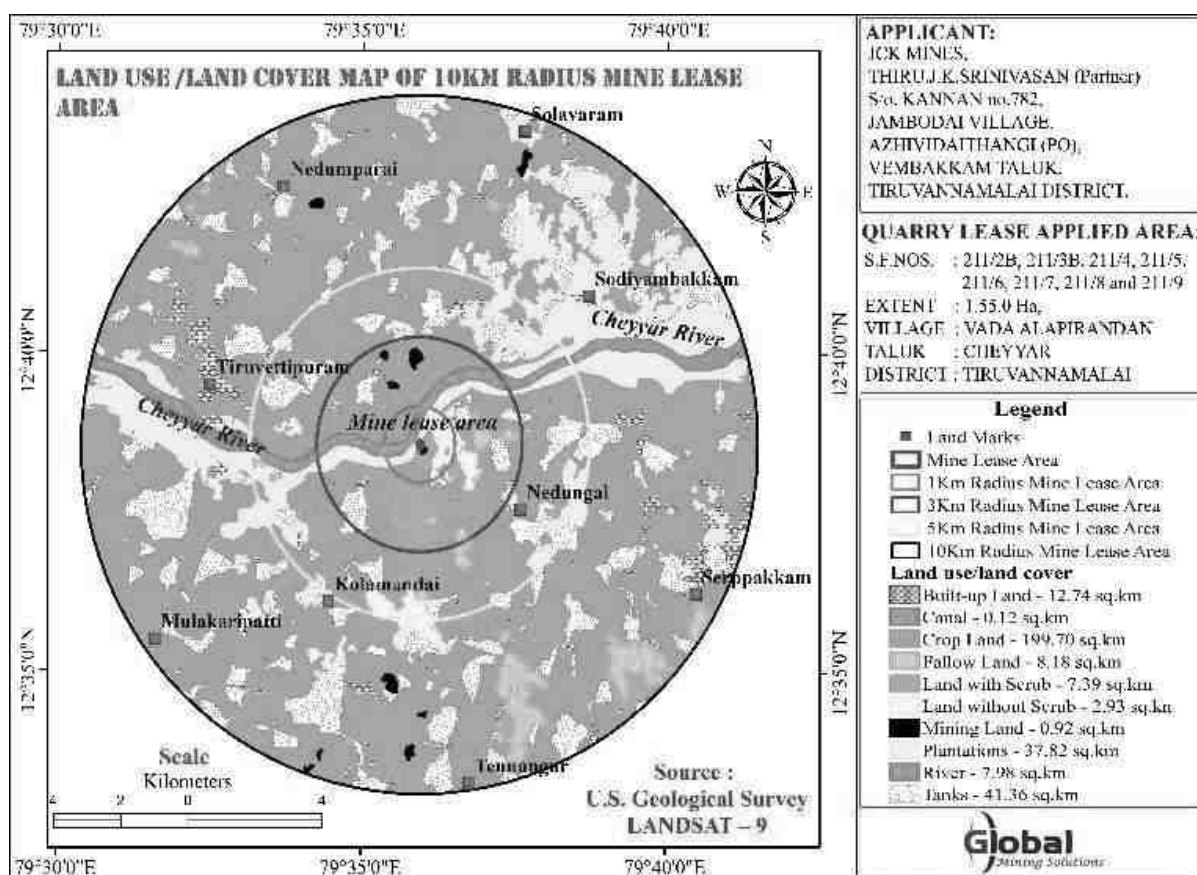
2.11 LAND USE OF THE STUDY AREA

Table 2.7 Land Use at Study Area		
S. No	Land Use	Area in Sq.Km
1	Buildup area	13.13
2	Canal	0.12
3	Crop land	201.15
4	Fallow Land	8.34
5	Hill and Forest	0.01

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6	Land with scrub	7.55
7	Mining land	2.93
8	Plantations	37.53
9	River	7.96
10	Tanks	41.54
Total		320.66

FIGURE 2.10 LAND USE OF THE STUDY AREA



2.12 METHOD OF MINING

Opencast Semi-mechanized mining with a bench height of 5m and bench width of 5m and 80° Slope is proposed. The quarry operation involves shallow jack hammer drilling, slurry blasting, excavation, loading and transportation of Rough Stone to the

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

2.13 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.

2.14 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° with the horizontal.

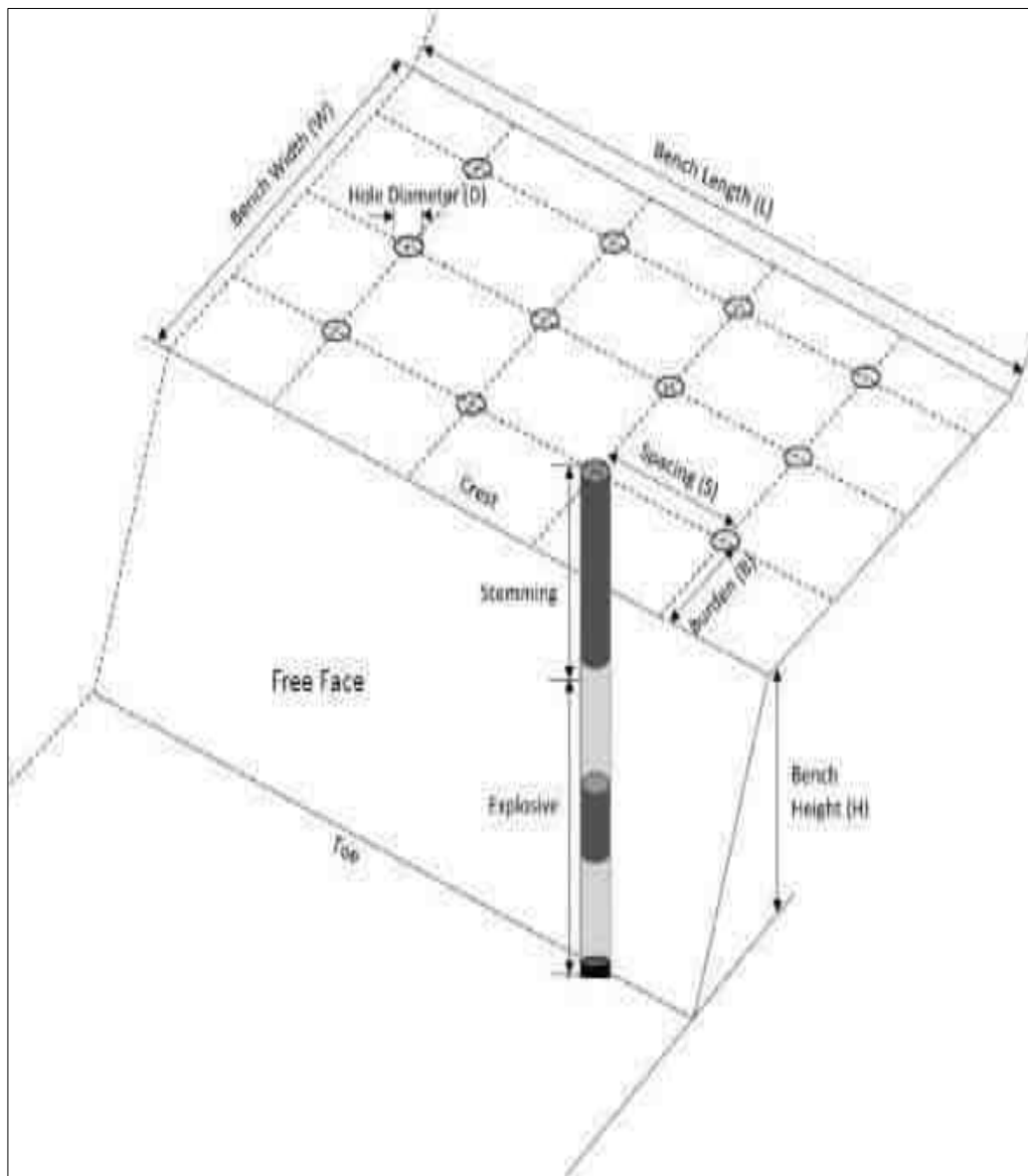
2.15 DEVELOPMENT OF MINING FACES

The proposed mining method is Opencast Semi 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 January 2024.

2.16 DRILLING & BLASTING

Drilling will be done upto maximum depth of 1.5m at 0.6m interval and drilling diameter will be 32-36 mm. Jack Hammer will be used for drilling with water spray. Powder factor of explosives for breaking such hard rock shall be in the order of 6 to 7 Tonnes per Kg of explosives. Small dia 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal of Rough Stone. The proposed blasting pattern is given as Figure 2.11

FIGURE 2.11 BLASTING PATTERN

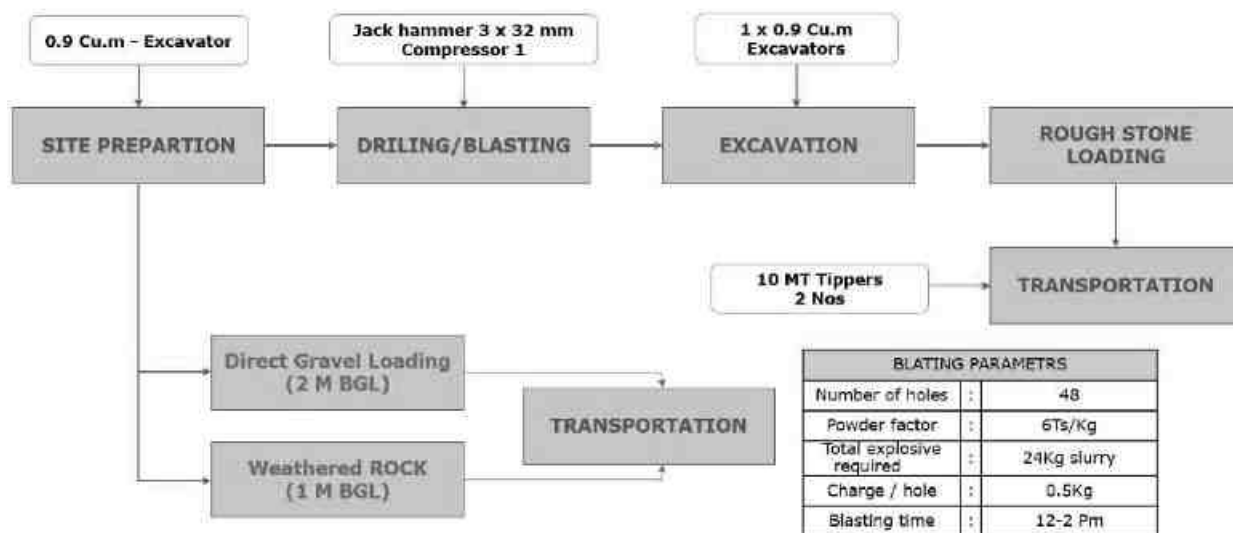


2.17 LOADING & TRANSPORTATION OF ROUGH STONE

Hydraulic excavator will be used for lifting and loading of the rough stone. This excavator in combination with Tippers (5/10Ts) capacity of 2 nos will be used.

2.18 PROCESS FLOW CHART FOR MINING OF DECORATIVE STONE

FIGURE 2.12 FLOW CHART OF THE QUARRY OPERATION



2.19 LAYOUT

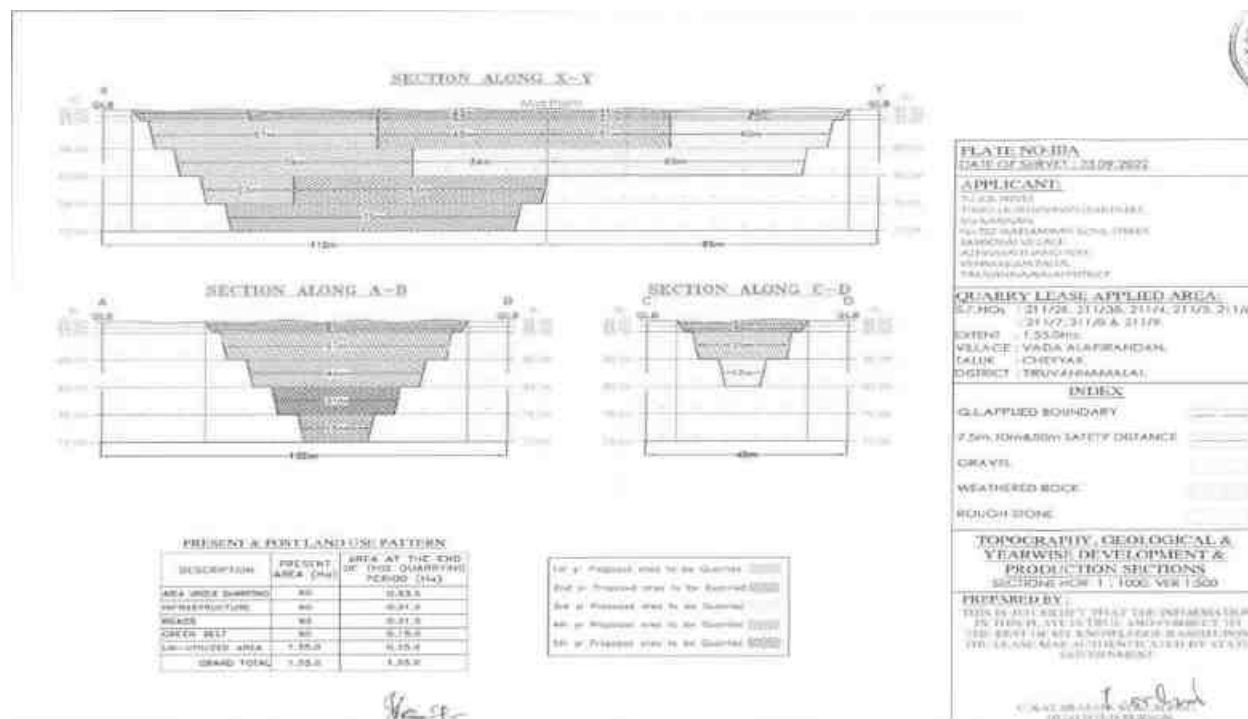
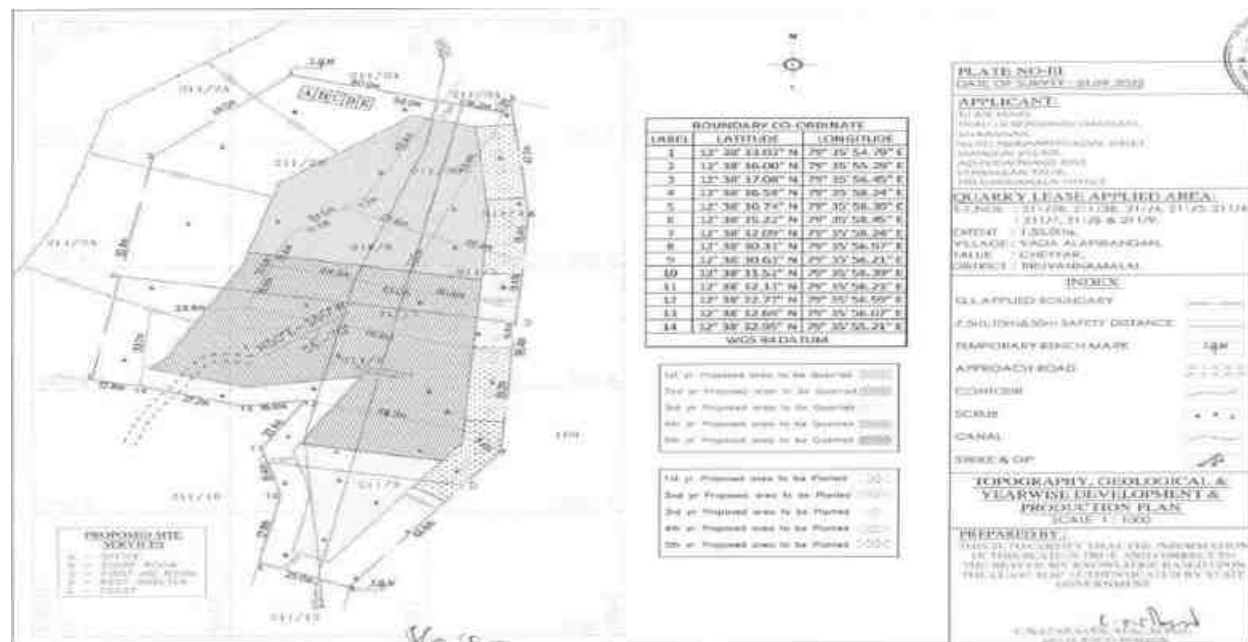
Layout of the proposed quarry working has been shown in development Plan/Sections (Figure 2.13) Colouring has been done distinctly for easy identification of year wise excavation programme.

2.20 MACHINERY DETAILS

Table 2.8 Machineries Involved in the Project				
S.No.	Activity	Machinery	Capacity	Numbers
1	Drilling	Jack hammer	1.2 to 6 m	3
2	Drilling	Compressor	400 psi	1
3	Loading	Excavator	0.90m ³	1
4	Transporting	Tipper	5/10T	2

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FIGURE 2.13 PROJECT LAYOUT PLAN AND SECTIONS



2.21 PROPOSED SCHEDULE FOR IMPLEMENTATION

The project proponent has proposed to carry out 81,635m³ of Rough Stone 8,709m³ of Weathered rock and 9,160m³ of Gravel at the rate of 100% recovery upto a depth of 22m below ground level for the period of five years.

Table 2.9: Proposed Year Wise Development									
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m³	Gravel in m³	Weathered Rock in m³	Mineable reserve of Rough stone in m³
I	XY-AB	I	61	65	1	3965	3965		
		II	60	63	1	3780		3780	
		III	57	57	5	16245			16245
	Total						3965	3780	16245
II	XY-AB	I	43	65	1	2795	2795		
		II	43	63	1	2709		2709	
		III	43	57	5	12255			12255
	XY-CD	I	31	32	1	992	992		
		II	31	30	1	930		930	
		III	31	25	5	3875			3875
	Total						3787	3639	16130
III	XY-CD	I	44	32	1	1408	1408		
		II	43	30	1	1290		1290	
		III	40	25	5	5000			5000
		IV	65	12	5	3900			3900
	XY-AB	IV	34	44	5	7480			7480
	Total						1408	1290	16380
IV	XY-AB	IV	59	44	5	12980			12980
		V	23	31	5	3565			3565
	Total								16545
V	XY-AB	V	63	31	5	9765			9765
		VI	73	18	5	6570			6570
	Total								16335
Grand Total							9160	8709	81635

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The brief summary of production for the proposed 5 years is given below.

Table 2.10 Summary of production For 5 Years				
S.No.	Year	Rough Stone (m³)	Weathered rock (m³)	Gravel (m³)
1	I	16245	3780	3965
2	II	16130	3639	3787
3	III	16380	1290	1408
4	IV	16545	-	-
5	V	16335	-	-
Total		81635	8709	9160

2.22 CONCEPTUAL PERIOD

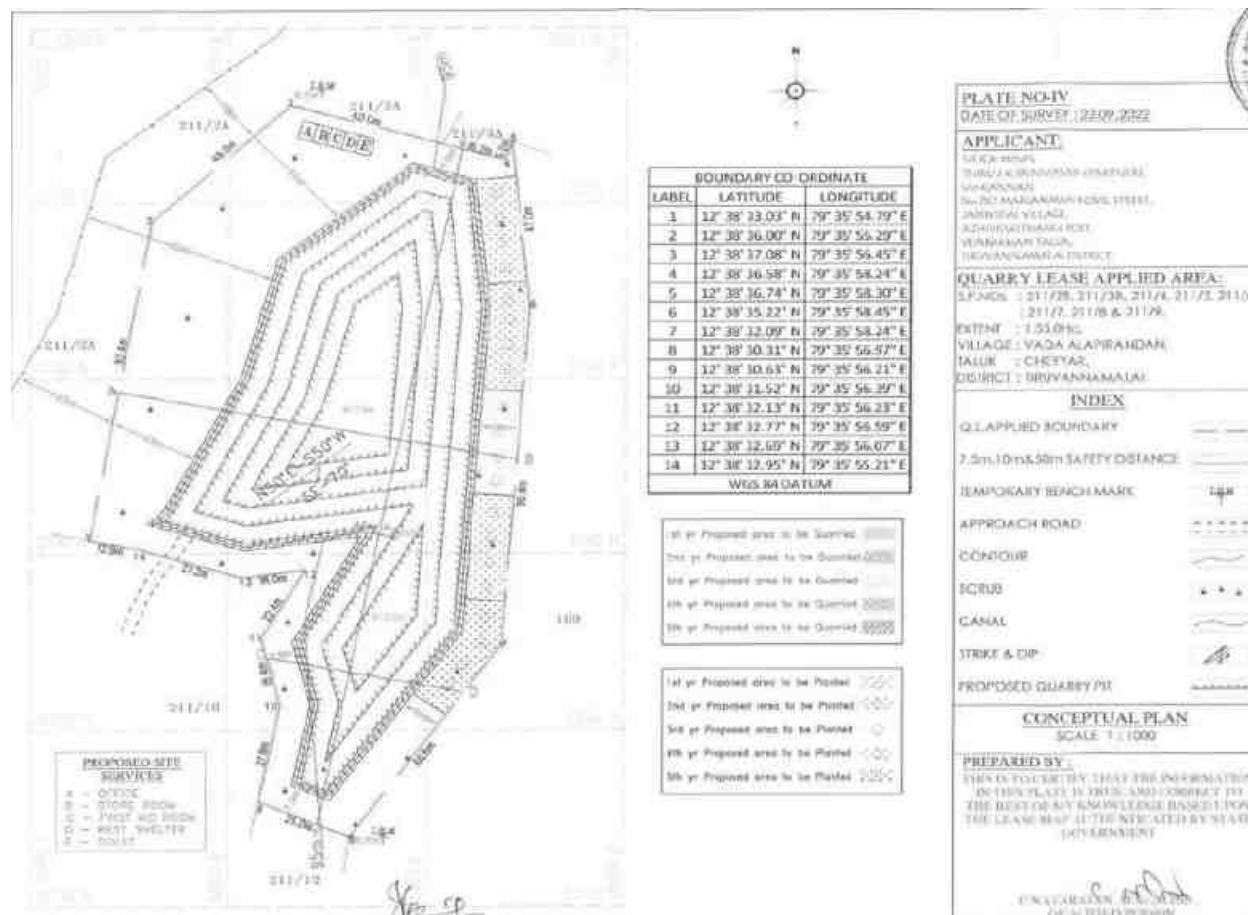
As estimated, mineable reserve in the mine lease area are 81,635m³ of Rough Stone, 8,709m³ of Weathered rock and 9,160m³ of Gravel upto a depth of 22m below ground level only. During current plan period a total of 81,635m³ of Rough Stone, 8,709m³ of Weathered Rock and 9,160m³ of gravel to be produced for the period of five years. Hence after quarry reaches conceptual stage, mined out pit will be used as rainwater harvesting and to inherent entry of the public and cattle fencing will be provided all along the boundary of the mine lease area. Ultimate extent and size of the quarry at the conceptual stage is given below as Table 2.8 and Land Use pattern is given as Table 2.9. The conceptual plan is given as Figure 2.14

TABLE 2.11: Ultimate Pit Dimension			
Pit No.	Length (max) (m)	Width (Avg) (m)	Depth (max) (m)
I	179	46	22

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	0.83
2	Green Belt	0.15
3	Remaining area	0.57
Total		1.55

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FIGURE 2.14 CONCEPTUAL PLAN



2.23 GREENBELT DEVELOPMENT

Green belt development plan is proposed for the 5 year period.

S.No.	Year	Species	No. of trees	Spacing	Survival
1	I	Pongamia pinnata,	200	3m x 3m	80%
2	II	Syzgium cumini,	200		
3	III	Albizia lebbeck,	200		
4	IV	Thespesia populnea,	200		
5	V	Bauhinia racemose,	200		
		Cassia siamea,	200		
		Azadirachta indica	200		
Total			1000		

2.24 TECHNOLOGY AND PROCESS DESCRIPTION

- It is proposed to quarry out rough stone with 5m bench height, 5m width with 80° slope using conventional opencast semi-Mechanized method.
- The quarry operation involves splitting of rock mass of considerable volume from the parent rock by jackhammer drilling and blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy customers.
- Occasionally hydraulic excavator is attached with rock breakers for fragmentation to avoid secondary blasting.

2.25 PROJECT REQUIREMENTS

TABLE 2.13 Project Requirements		
S. No.	Nature of requirement	Description
1	Water requirement	Total water requirement of 5KLD which will be procured from the outside agencies. Out of 5.0KLD, drinking water requirement is 1.0KLD, Green belt development is 1.0 KLD and for dust suppression is 3.0 KLD.
2	Power requirement	No electricity is needed for mining operations. For office demand it will be met from the state grid.
3	Manpower requirement	Permanent employee – 12, Temporary employee – 10
4	Financial requirement	The total Project Cost as per AMP will be INR 58,60,000 including Operational cost, Fixed Asset cost and EMP cost
5	Funds for Socio economic development	INR 5,00,000 is allocated. In addition any demand raised by people during public hearing will also be met.

2.26 Project Cost

The budget of the project is given below.

TABLE 2. 14 Budget of the Project		
S.No.	Details	Cost (in INR)
FIXED ASSET COST		
1	Land Cost (600000/1Ha)	9,30,000
2	First aid room and accessories	1,00,000

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3	Labour Shed	1,00,000
4	Sanitary Facility	1,00,000
TOTAL		12,30,000
OPERATIONAL COST		
1	Machineries	40,00,000
2	Fencing cost	1,50,000
TOTAL		41,50,000
EMP COST		
1	Air Quality Sampling	40,000
2	Water Quality Sampling	40,000
3	Noise Monitoring	40,000
4	Ground vibration test	40,000
5	Drinking water facility	1,00,000
6	Sanitary Arrangements	50,000
7	Safety kids	50,000
8	Water sprinkling	1,00,000
9	Afforestation	60,000
TOTAL		Rs.58,60,000/-

Total Project Cost – Rs. 58,60,000

CHAPTER 3

DESCRIPTION OF THE ENVIRONMENT

3.1. DESCRIPTION OF THE STUDY AREA

The project area is located in Vada Alapirandan village, Cheyyar Taluk, Tiruvannamalai District over an extent of 1.55.0Ha. The project area is considered as Core zone and the area in the surrounding 10km radius is considered as Buffer Zone. Baseline values for various environmental components are discussed in this Chapter.

The components included are:

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

3.2. Description of environment in the study area

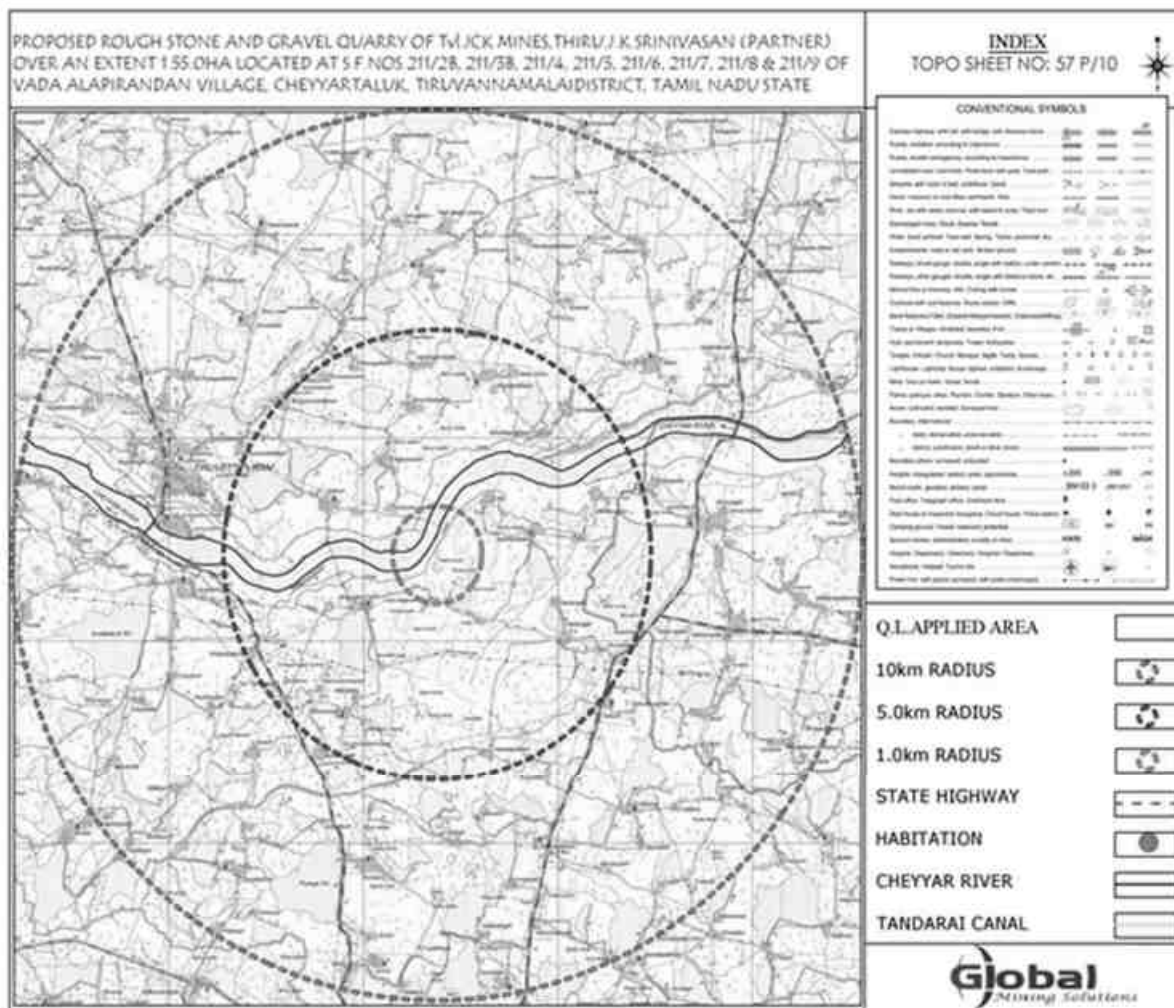
Table 3.1 Description of the lease area		
S.No.	Areas	Distance from project site
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	Nil within 15km radius
2	Areas which are important or sensitive for ecological reasons	
A	Wetlands, water courses or other water bodies,	Water bodies Tandarai Canal – 19m in NW,

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		Cheyyar river – 120m in NW,
B	Coastal zone, biospheres,	Nil within 10km radius
C	Mountains, forests	Nil within 10km radius
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	Defence installations	Nil within 15km radius
8	Densely populated or built-up area	Cheyyar – 5.5km in W
9	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	All facilities are available in Cheyyar – 5.5km in W
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.
13	The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m	Nil within 300m radius. The figure 3.2 shows the satellite image of structures within the 300m radius of the project site.

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FIG 3.1 FEATURES OF ENVIRONMENT FOR 10 RADIUS FROM THE LEASE AREA



3.3. METEOROLOGICAL ENVIRONMENT

3.3.1 Meteorological conditions prevailing in the buffer zone is given below

Climate

The climate of Tiruvannamalai District is tropical. The period from April to June is generally hot. The average maximum and minimum temperature for district varies from 22°C to 42°C and 16°C to 31°C respectively.

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. During the period from March to May 2020, the actual rainfall was 243.2mm, the normal rainfall was 83.4mm. The excess rainfall is 192% (Source: Mausam.imd.gov.in)

Rainfall received from 2013 to 2017 is given below.

Table 3.2 Rainfall data					
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

Relative Humidity

High relative humidities between 58% and 84% prevail throughout the year. Relative humidity is maximum in the morning and minimum in the evening.

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.

FIG 3.2 SEISMIC MAP OF INDIA

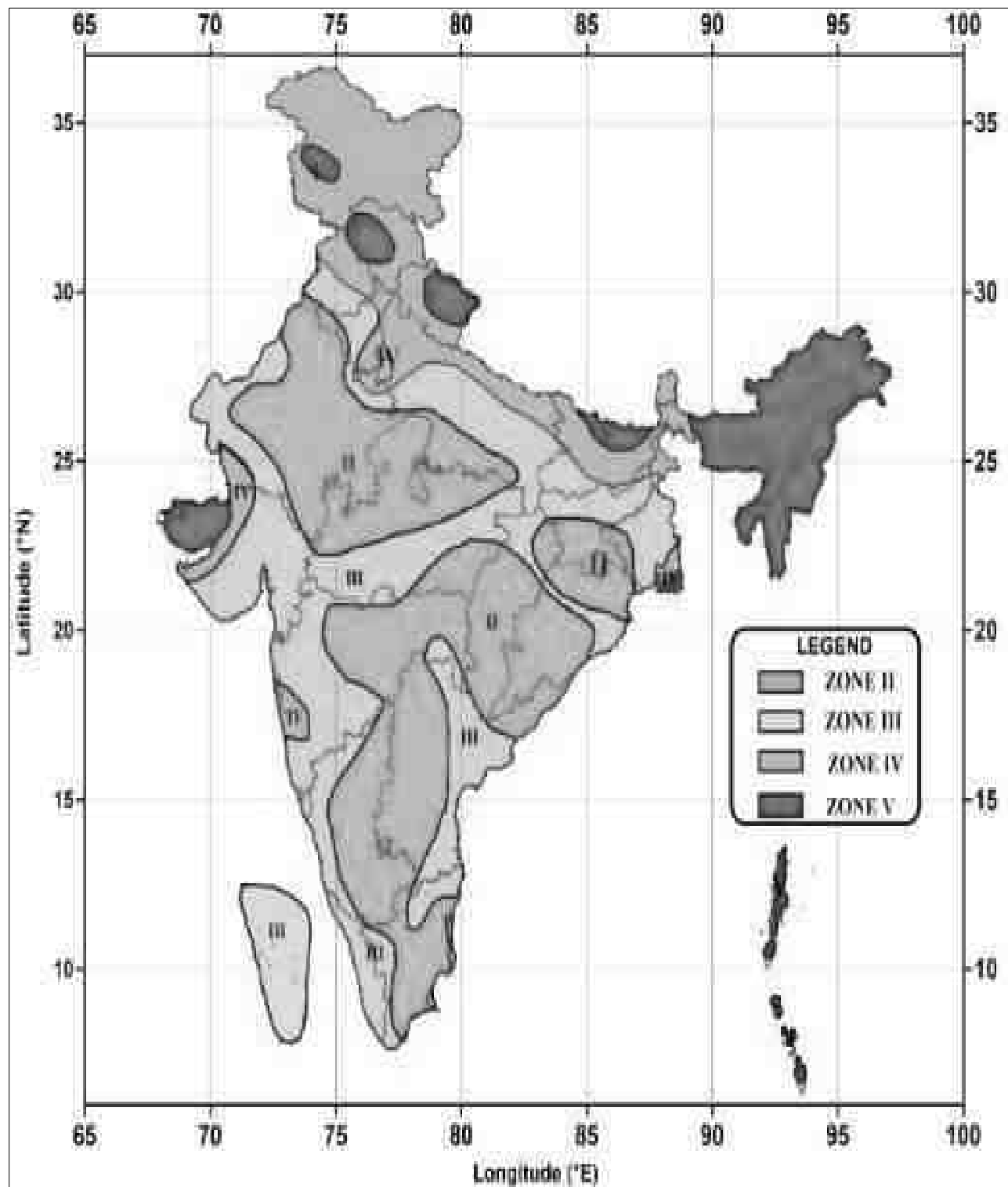
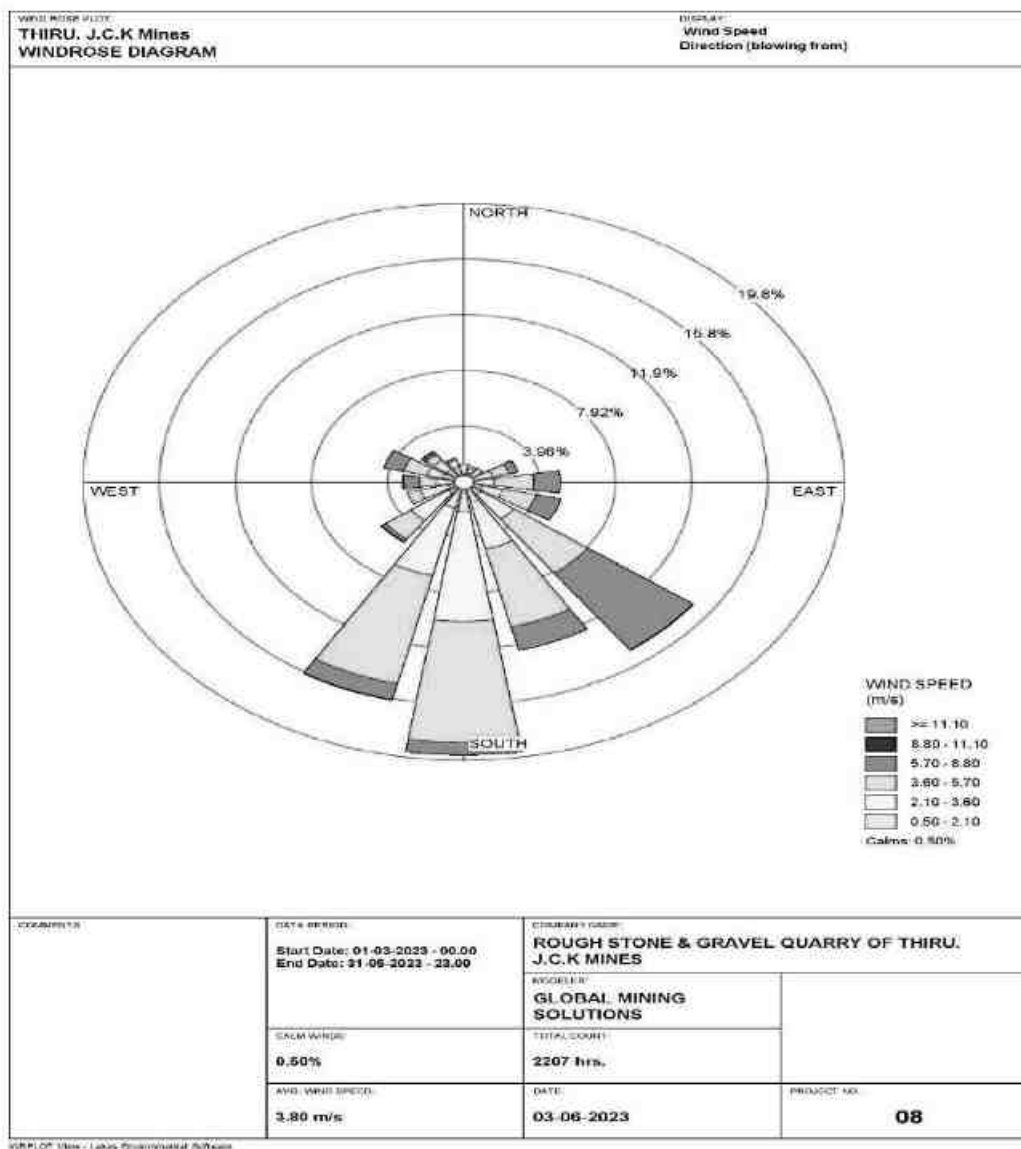


FIG 3.3 WIND ROSE PLOT DURING MARCH TO MAY 2023



3.3.2 Meteorological data of the project area

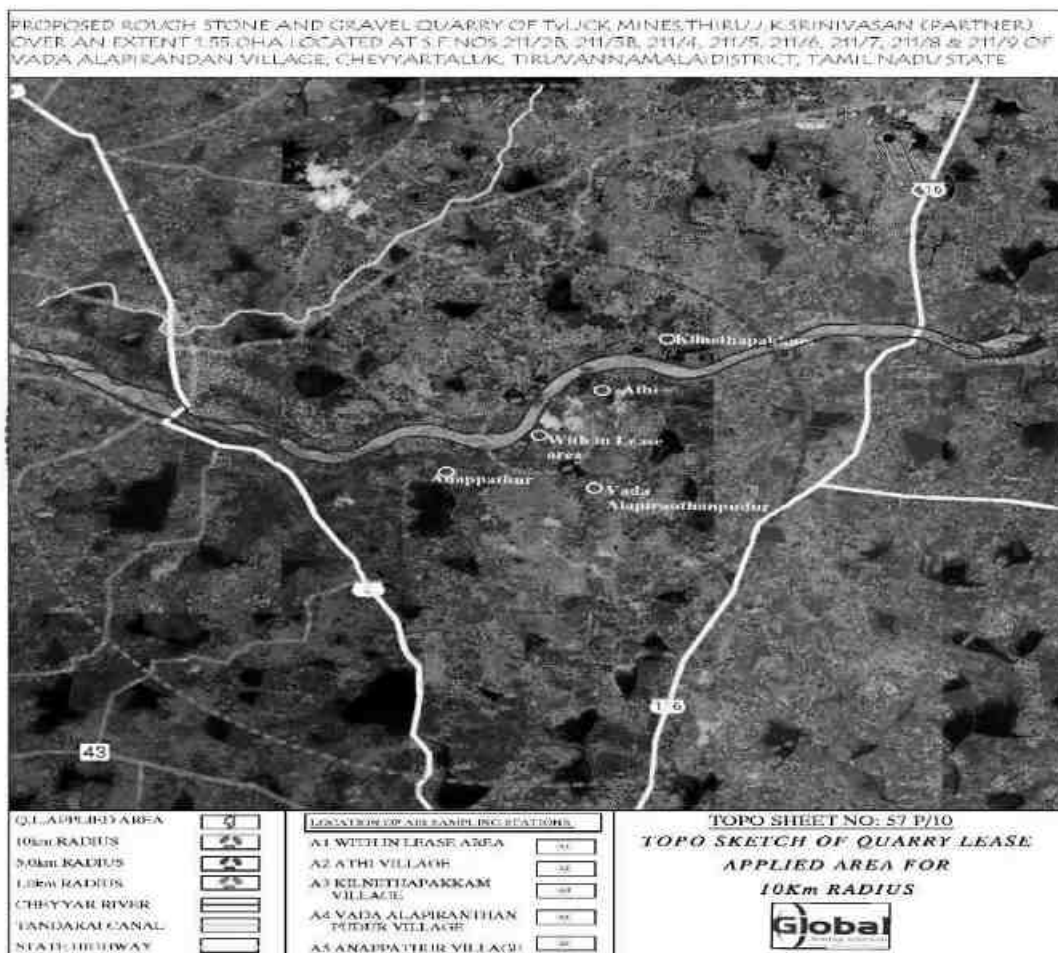
The meteorological data collected in the study area from March to May 2023 which includes Temperature, Wind speed, Wind direction and Relative humidity. The predominant wind blow from West. Temperature range was from 20°C (minimum in night) to 45°C (maximum in day).

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3.4. AMBIENT AIR MONITORING DATA

Ambient air quality monitoring has been carried out in 5 locations. One in the core zone and remaining four 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 monitoring locations for ambient air study is given in Figure 3.4 below.

FIG 3.4 AMBIENT AIR MONITORING LOCATIONS



The concentrations of various air pollutants at the 5 locations are given below. For all the components in the table, the unit are in $\mu\text{g}/\text{m}^3$

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TABLE 3.3 Ambient Air Monitoring Results for Various Pollutants												
S. No.	Param eters	A1		A2		A3		A4		A5		NAA Q limits
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	
1	PM10	42.4	54.5	45.1	56.4	43.1	57.2	45.4	60.2	47.2	61.3	100
2	PM2.5	19.3	29.3	20.4	29.3	18.7	29.1	20.6	30.2	22.2	34.3	60
3	SO ₂	3.4	5.8	3.7	6.4	4.0	6.4	3.8	8.4	4.2	7.6	80
4	NO _x	5.4	7.9	5.8	7.6	6.2	9.2	6.7	11.4	6.8	10.4	80
5	CO	BDL (DL – 1144)										2

A1 :Near Mine lease area A2 :Athi village
A3 :Kil nethapakkam village A4 :Vada Alapirandan Pudur village
A5 :Anappathur village

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

FIG 3.5 AMBIENT AIR DATA FROM A1 - MINE LEASE AREA

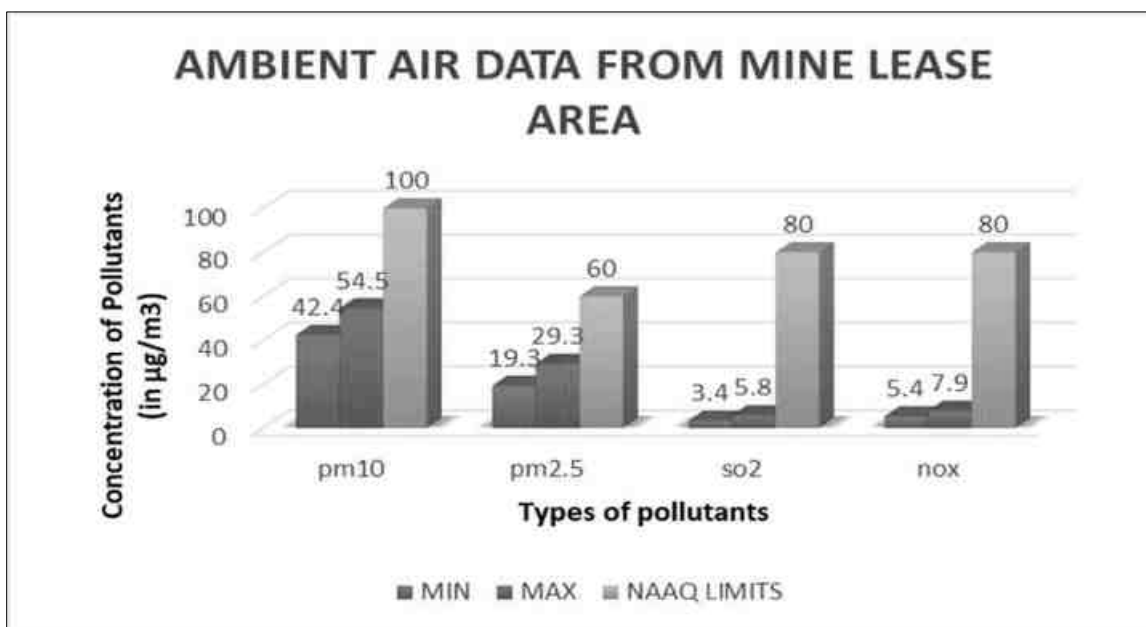


FIG 3.6 AMBIENT AIR DATA FROM A2 - ATHI VILLAGE

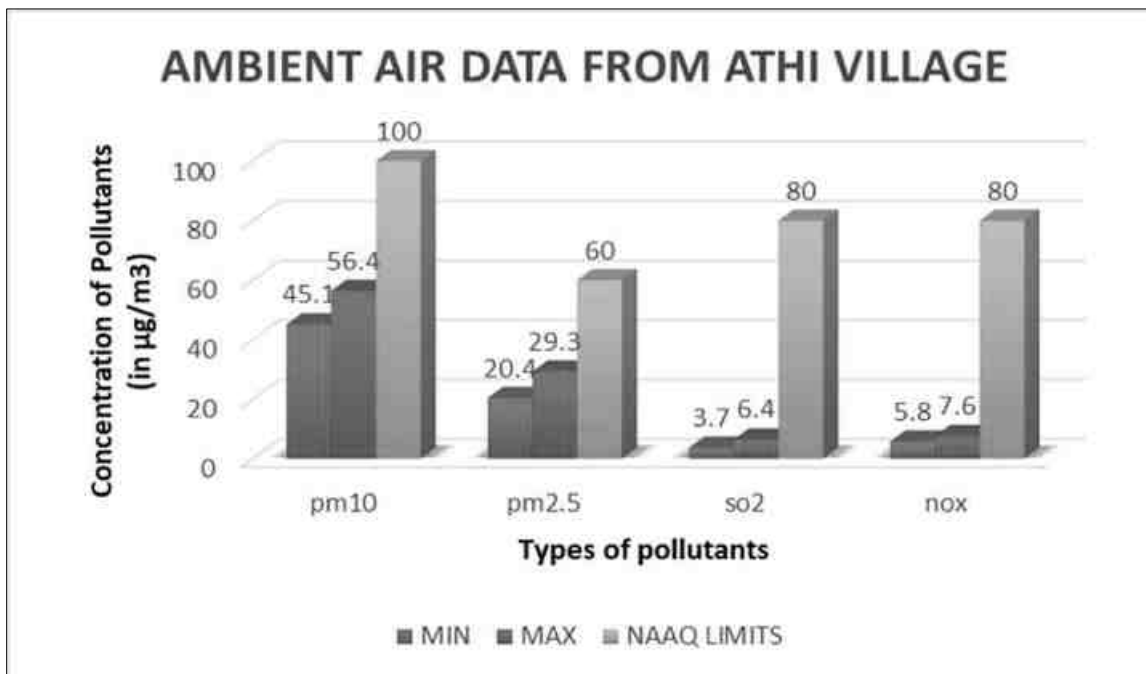


FIG 3.7 AMBIENT AIR DATA FROM A3 - KILNETHAPAKKAM VILLAGE

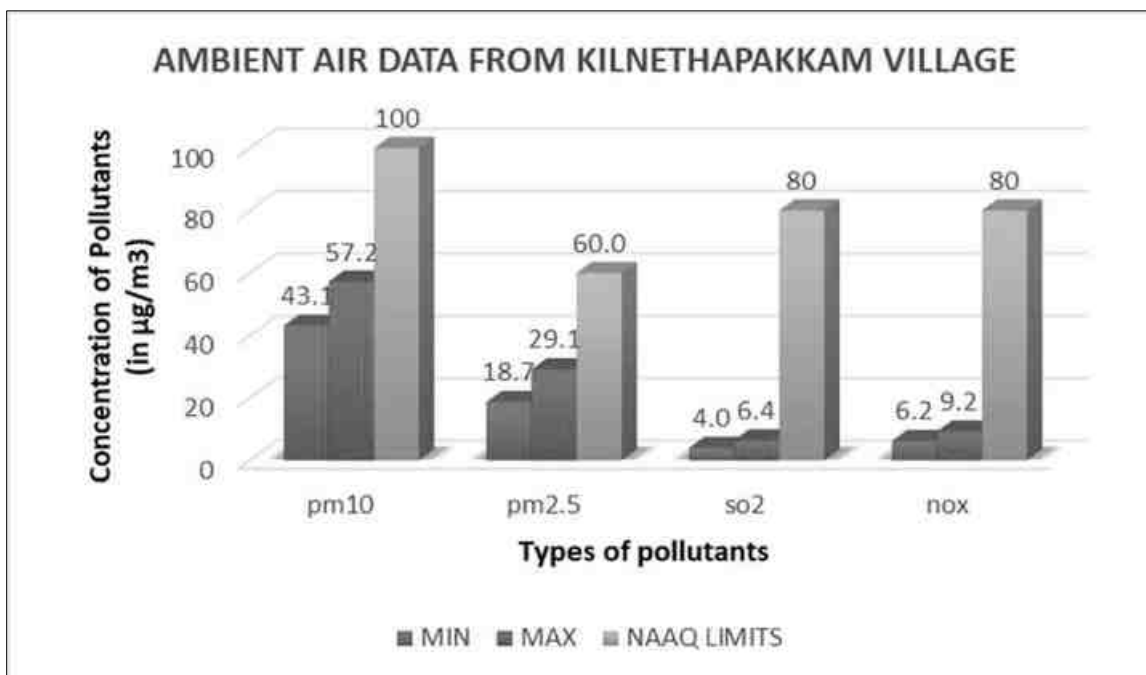


FIG 3.8 AMBIENT AIR DATA FROM A4 - VADA ALAPIRANDAN VILLAGE

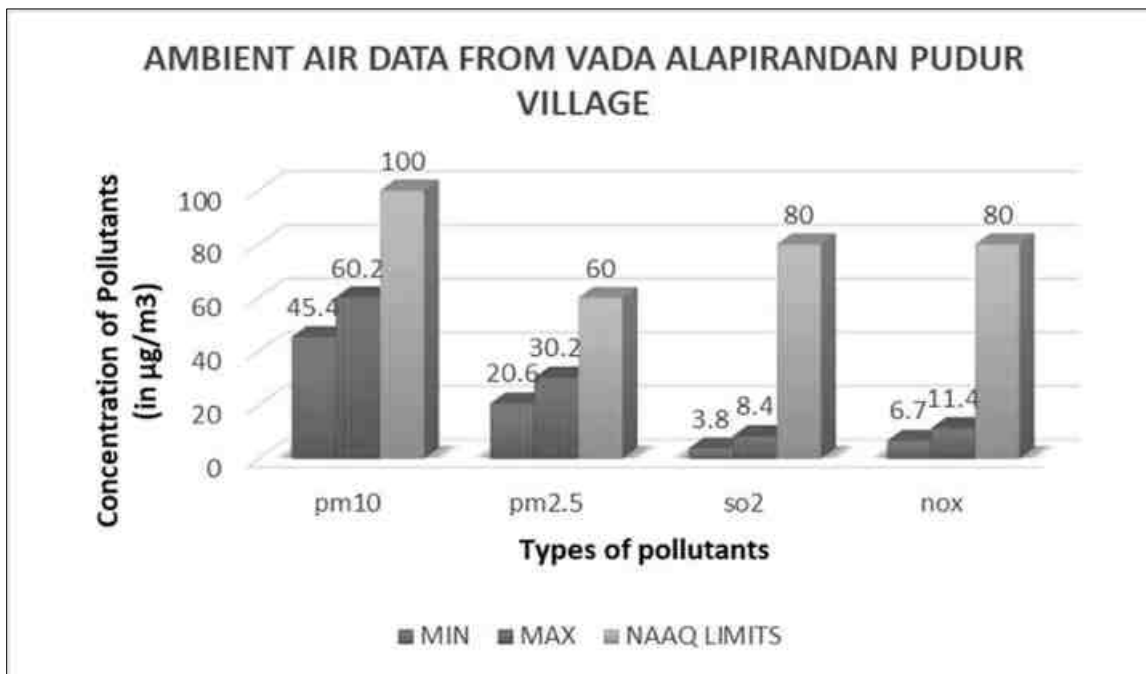
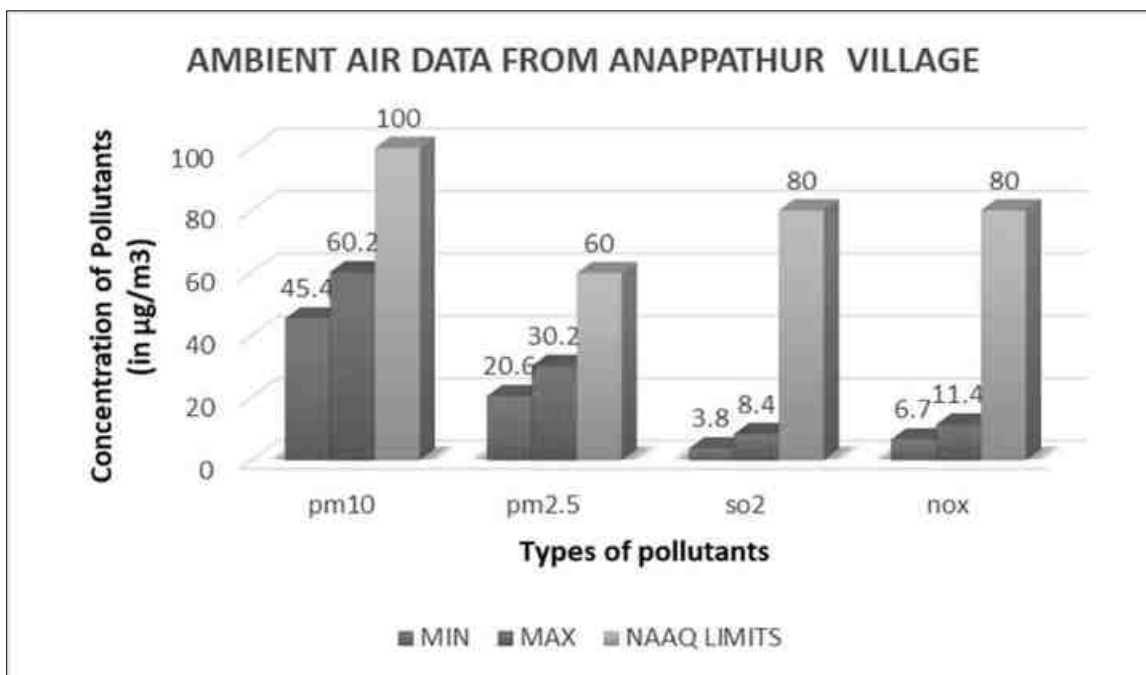


FIG 3.9 AMBIENT AIR DATA FROM A5 - ANAPPATHUR VILLAGE



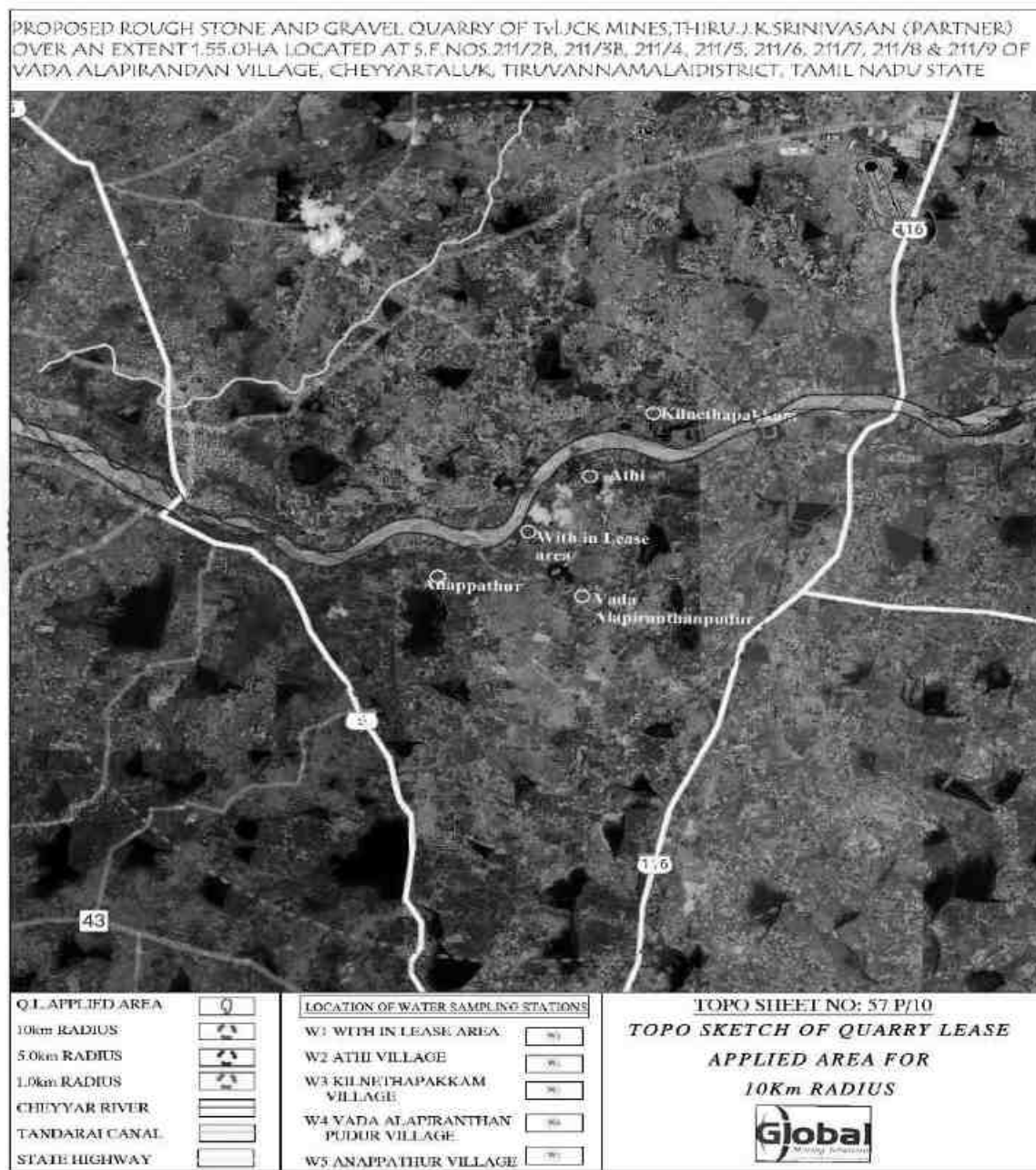
All the values were found to be within NAAQ limits.

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3.5. WATER ENVIRONMENT

Water samples (bore wells) were collected from 5 different locations and they are shown in the picture below:

FIG 3.10 WATER SAMPLING LOCATIONS



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The samples were analyzed by Swasti Enviro Solutions Pvt. Ltd and the results are summarized below.

Table 3.4 Results of Water sampling Analysis in 5 locations

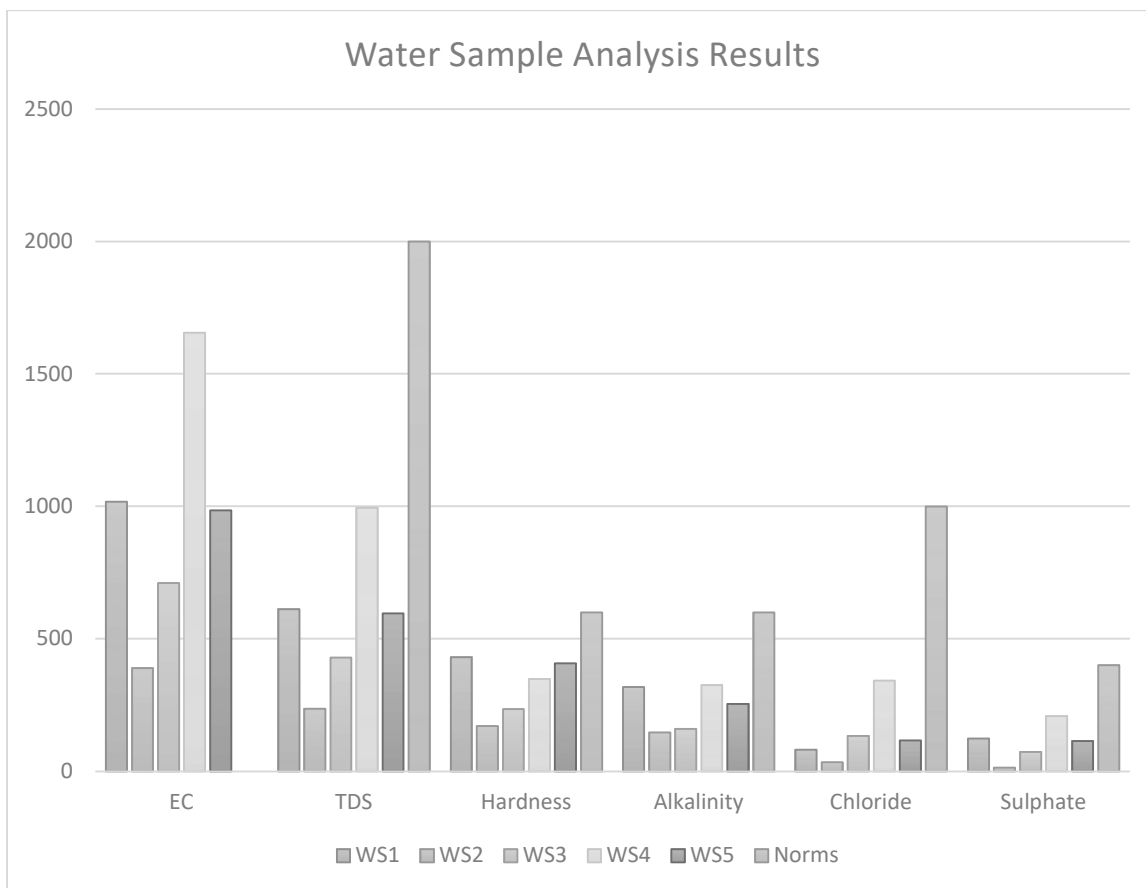
S. No.	Parameter	WS1	WS2	WS3	WS4	WS5	Limits	
		Near Mine lease area	Athi	Kilnethapakka m	Vada Alapirandan	Anappathur	Acceptable Limits	Permissible Limits
1	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
2	Turbidity	<1	<1	<1	<1.0	<1	1	5
3	pH at 25 °C	7.28	7.81	6.89	7.34	7.29	6.5- 8.5	No Relaxation
4	Electrical Conductivity	1018	389.4	710.5	1656	985.7	-	-
5	TSS	612	236	430	995	596	500	2000
6	Total hardness as CaCO ₃	431	171	235	349	408	200	600
7	Calcium as Ca	83.1	43.1	56.8	64.3	74.5	75	200
8	Magnesium as Mg	53.6	15.1	22.3	45.2	53.2	30.0	100
9	Calcium as CaCO ₃	208	108	142	161.0	186	-	-
10	Magnesium as CaCO ₃	223	62.7	93.0	188	221	-	-
11	Total alkalinity as CaCO ₃	319	147	160	326	254	200	600

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12	Chloride as Cl^-	82.2	34.2	134	342	117	250	1000
13	Free Residual chlorine as Cl^-	BDL(D.L-0.2)	BDL(D.L-0.2)	BDL (D.L - 0.2)	BDL(D.L-0.2)	BDL(D.L-0.2)	0.2	1
14	Sulphates as SO_4^{2-}	124	13.6	72.6	208	114	200	400
15	Iron as Fe	0.09	0.08	0.05	0.15	0.12	0.3	No Relaxation
16	Nitrate as NO_3	3.26	BDL(D.L-1.0)	3.5	2.08	2.93	45	No Relaxation
17	Fluoride as F	0.36	0.13	0.21	0.39	0.24	1	1.5
19	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)	0.1	0.3

Some of the common parameters including EC, TDS, Total Hardness, Total Alkalinity, Chlorides and Sulphates in the 5 locations were plotted and the graph is provided below.

FIG 3.11 VALUES OF FEW COMMON PARAMETERS IN WATER ANALYSIS



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

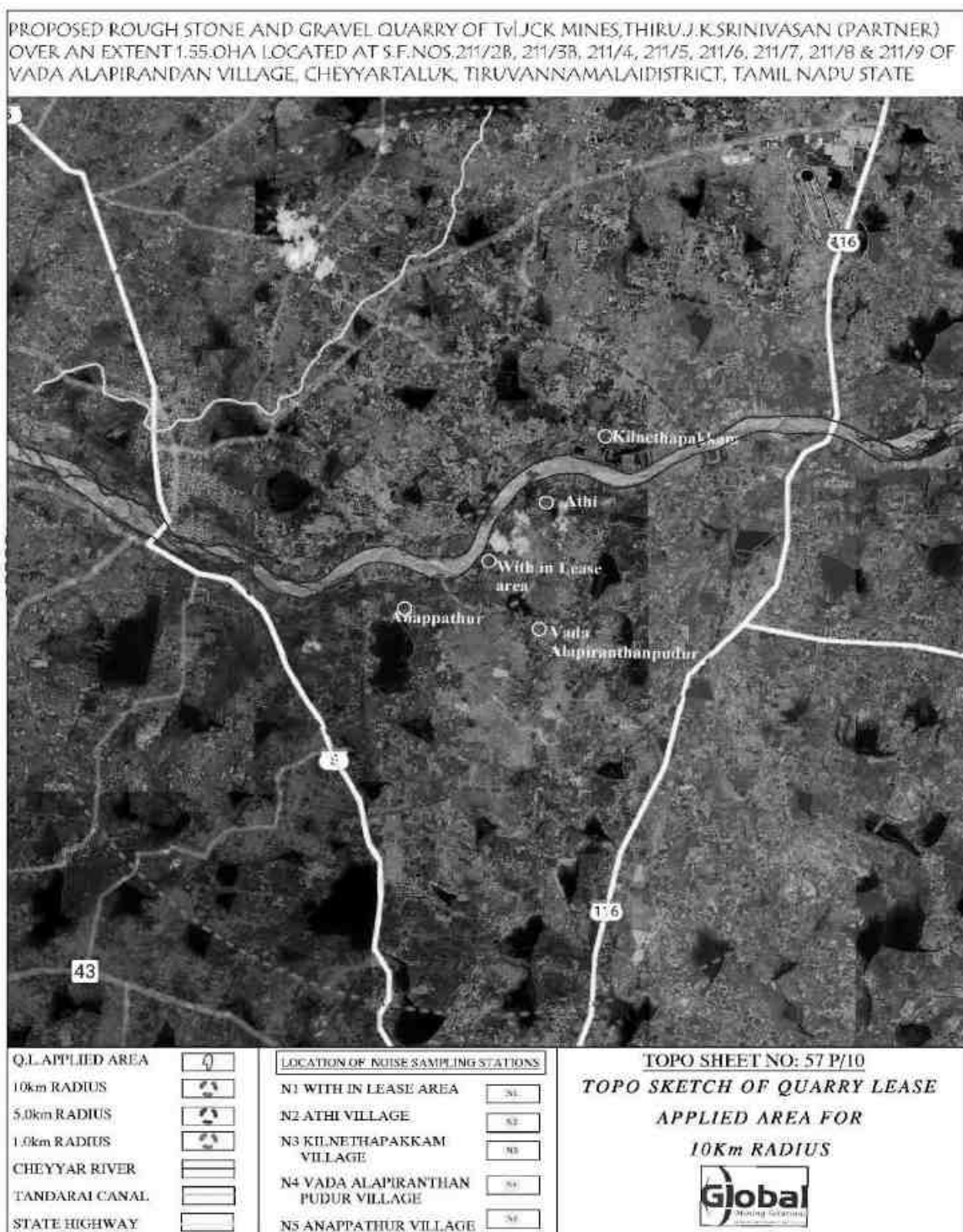
3.6. NOISE MONITORING

Noise level monitoring was calculated using a noise level meter by M/s.EAU Labs and the results are summarized below.

The noise monitoring locations are given in Fig 3.12

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

FIG 3.12 NOISE MONITORING LOCATIONS



The results are given in Table below.

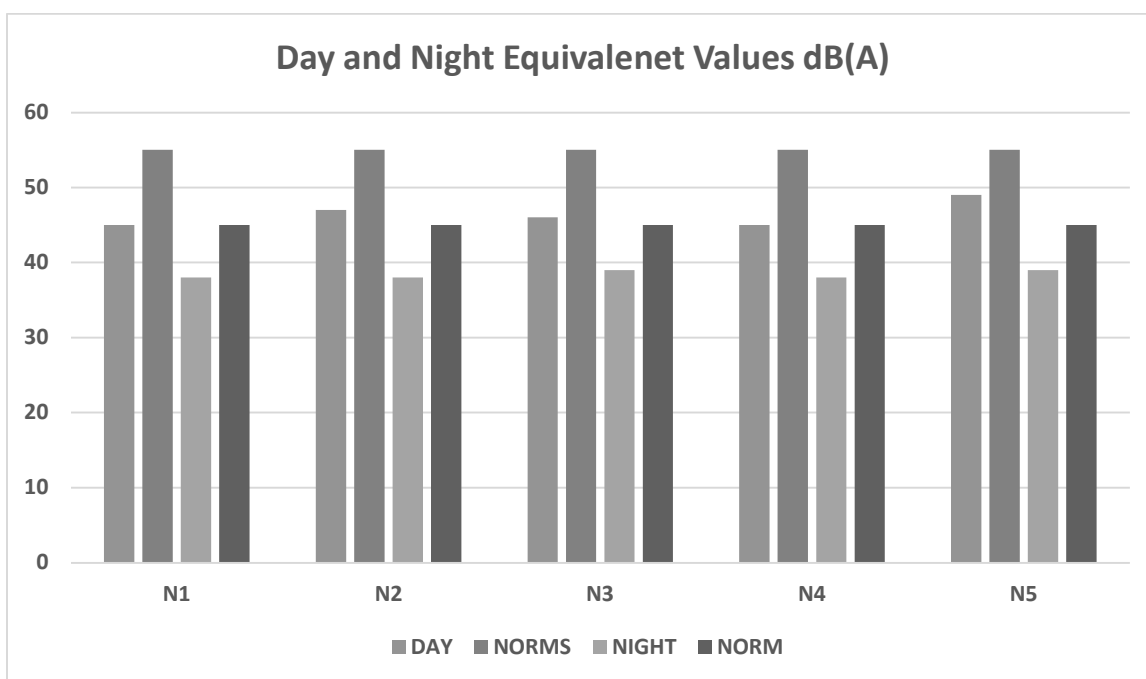
Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

Table 3.5 Noise monitoring results

S. No	Location	Day equivalent	Night equivalent	Day and Night equivalent	Day equivalent limits by CPCB	Night equivalent limits by CPCB
1	NM1 – Mine lease area	45	37.7	43.6	55	45
2	NM2 – Athi	47.3	38.1	45.8		
3	NM3 – Kilnethapakkam	46.2	39.0	44.8		
4	NM4 – Vada Alapirandan	45.2	37.5	43.8		
5	NM5 - Anappathur	48.7	38.7	47.2		

The results are plotted as below.

FIG 3.13 DAY EQUIVALENT VALUES IN 5 LOCATIONS



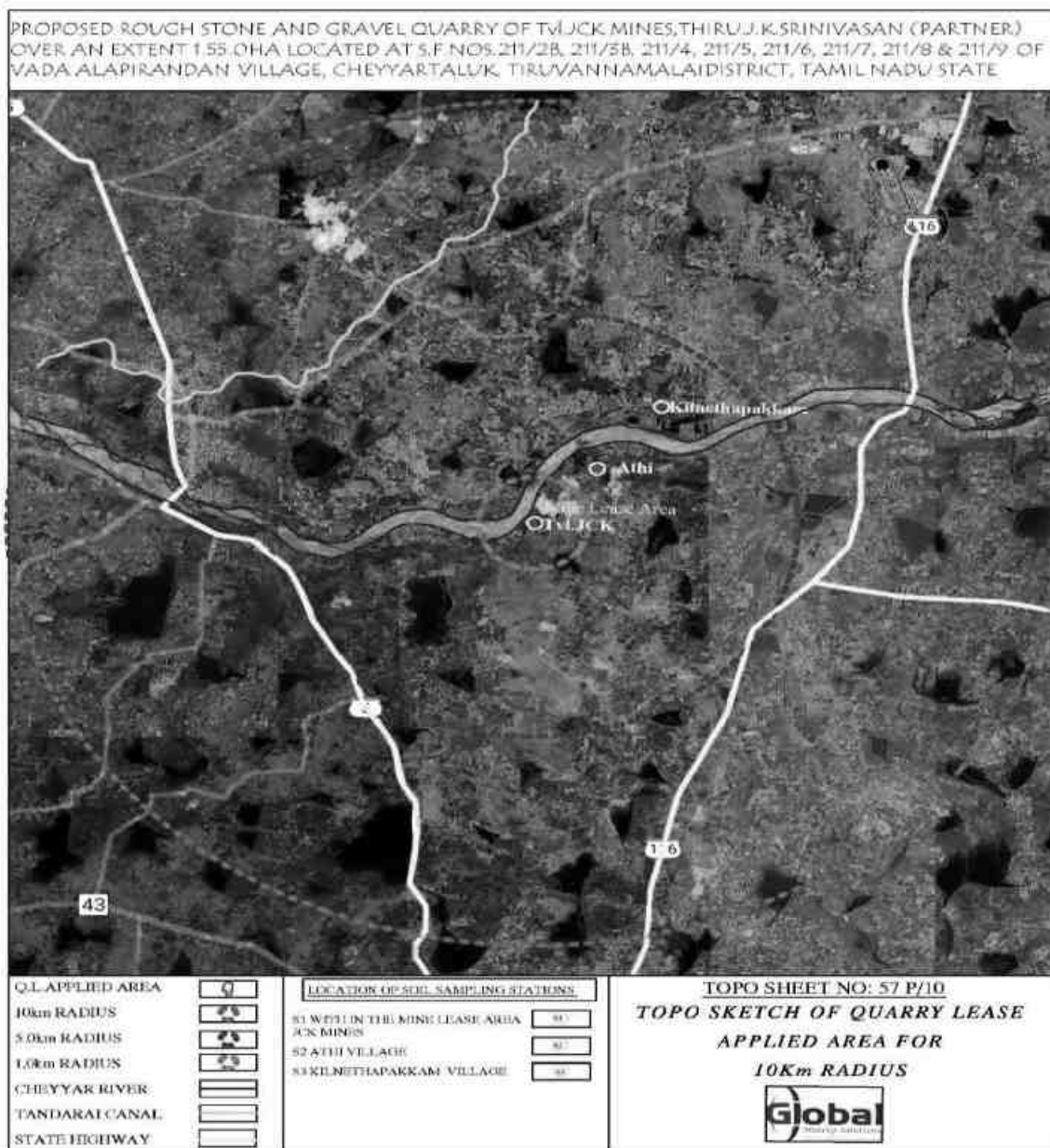
All the values are found to be within CPCB norms.

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

3.7. SOIL SAMPLING ANALYSIS

Soil samples have been collected from the mine lease area and 2 other locations from Athi village and Kilnethapakkam village. The locations are shown in figure below.

FIG 3.14 SOIL SAMPLING LOCATIONS



The results are summarized in the table below.

Table 3.6 Results of Soil Sample Analysis

S. No.	Parameter	SS1 Mine lease area	SS2 Athi	SS3 Kil Nethapakkam
1	pH	7.95	7.25	7.67
2	Electrical Conductivity	184.9	156.7	110.2
3	Dry Content	97.6	96.5	98.3
4	Water Content	2.4	3.5	1.7
5	Organic Mater	0.15	0.22	0.32
6	Sulphur	BDL(D.L.0.02)	BDL(D.L.0.02)	BDL(D.L.0.02)
7	Phosphorus	4.5	3.2	2.7
8	Texture	sandy loam	clay	silt loam
9	Sand	55.64	32.57	36.58
10	Clay	28.95	26.44	52.47
11	Loam	15.41	40.99	10.95
12	Total Nitrogen	53	68	102
13	Sodium	476	540	386
14	Potassium	720	910	562
15	Water Holding Capacity	3.3	3.7	3.5
16	Porosity	16.4	18.6	16.9

3.8. 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.

3.8.1 Flora in the study area

Field survey is done. 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. Also, data from the State forest department is used. The quadrants used for each type are given below:

Table 3.7 Type of Quadrants

S. No.	Size of Quadrant	Type of flora
1	10x10 m	Trees
2	5x5 m	Shrubs
3	1x1 m	Herbs

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. Here and there small bushes are found, which will be removed during mining. Common species found in the core zone are given below.

Table 3.8 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 3.9 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	
18	Tecoma stans	Arali	
19	Aloe vera	Kathalai	Herbs
20	Catharanthus roseus	Nithyakalyani	

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21	Acalypha indica	Kuppaimeni	
22	Coccinia grandis	Kovai	Climbers
23	Cissus quadrangularis	Pirandai	
24	Jasminum angustifolium	malli	
25	Ziziphus oenoplia	Ilandai	
26	Cymbopogon	Kanam	
27	Cyperus rotundus	Kora grass	Grasses
28	Cynodon dactylon	Arugu	

3.8.2 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.

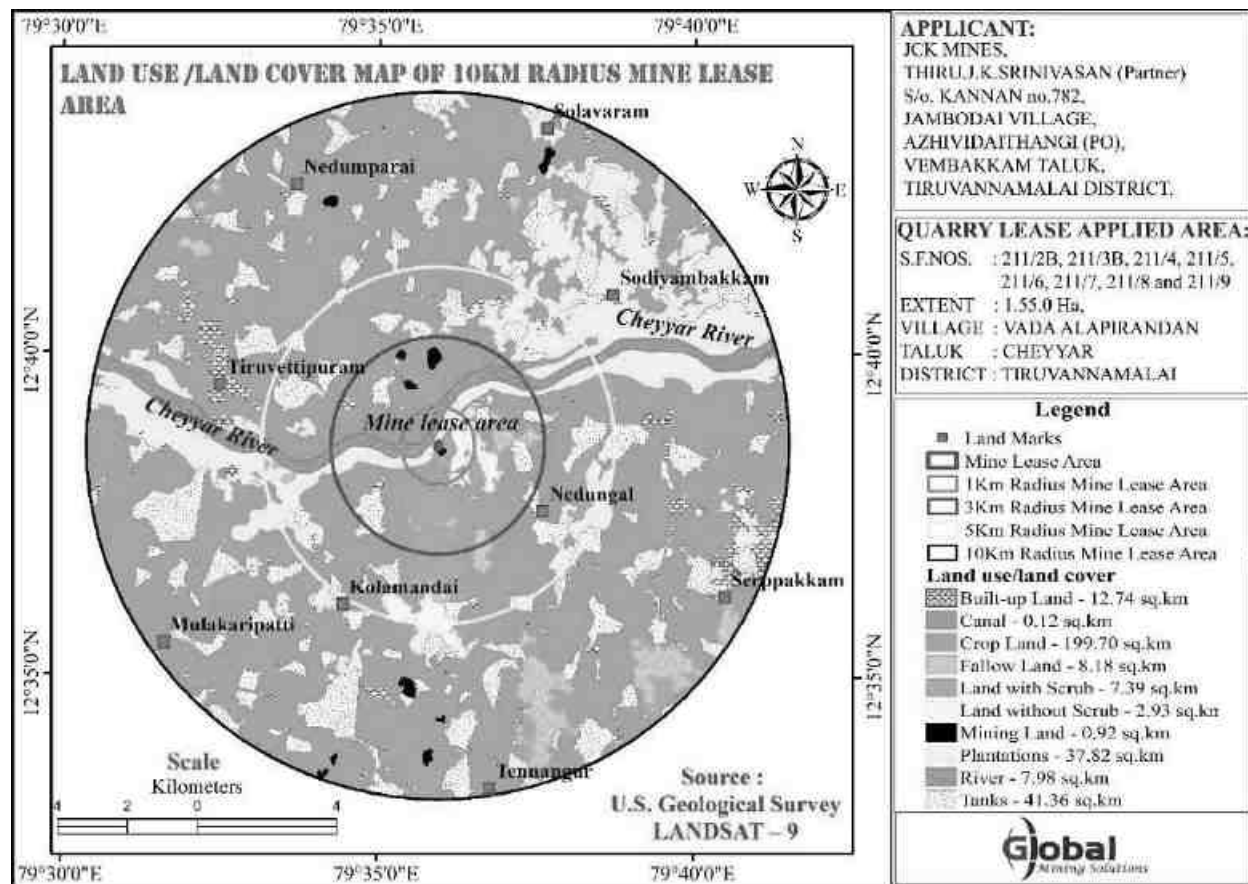
Table 3.10 Fauna in buffer zone				
S.No.	Scientific name	Common name	Type of fauna	Schedule to which the species belong
1	Canis familiaris	Common dog	Mammals	IV
2	Felis catus domesticus	Domestic cat		IV
3	Golunda ellioti	Indian bush rat		IV
4	Funambulus palmarum	Squirrel		IV
5	Lepus nigricollis	Indian 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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3.9. LAND USE

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

FIG 3.15 LAND USE/LAND COVER MAP OF THE STUDY AREA



The 1km, 3km, 5km and 10km radius is shown above. The details are given below.

Table 3.11 Land use data		
S.No	Type of land	Area in sq.km
1	Built-up land	13.13
2	Canal	0.12
3	Crop land	201.15
4	Fallow land	8.34
5	Hill and forest	0.01

6	Land with scrub	7.55
7	Land without scrub	2.93
8	Mining land	2.93
9	Plantations	37.53
10	River	7.96
11	Tanks	41.54
	Total	323.19

3.10. 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:

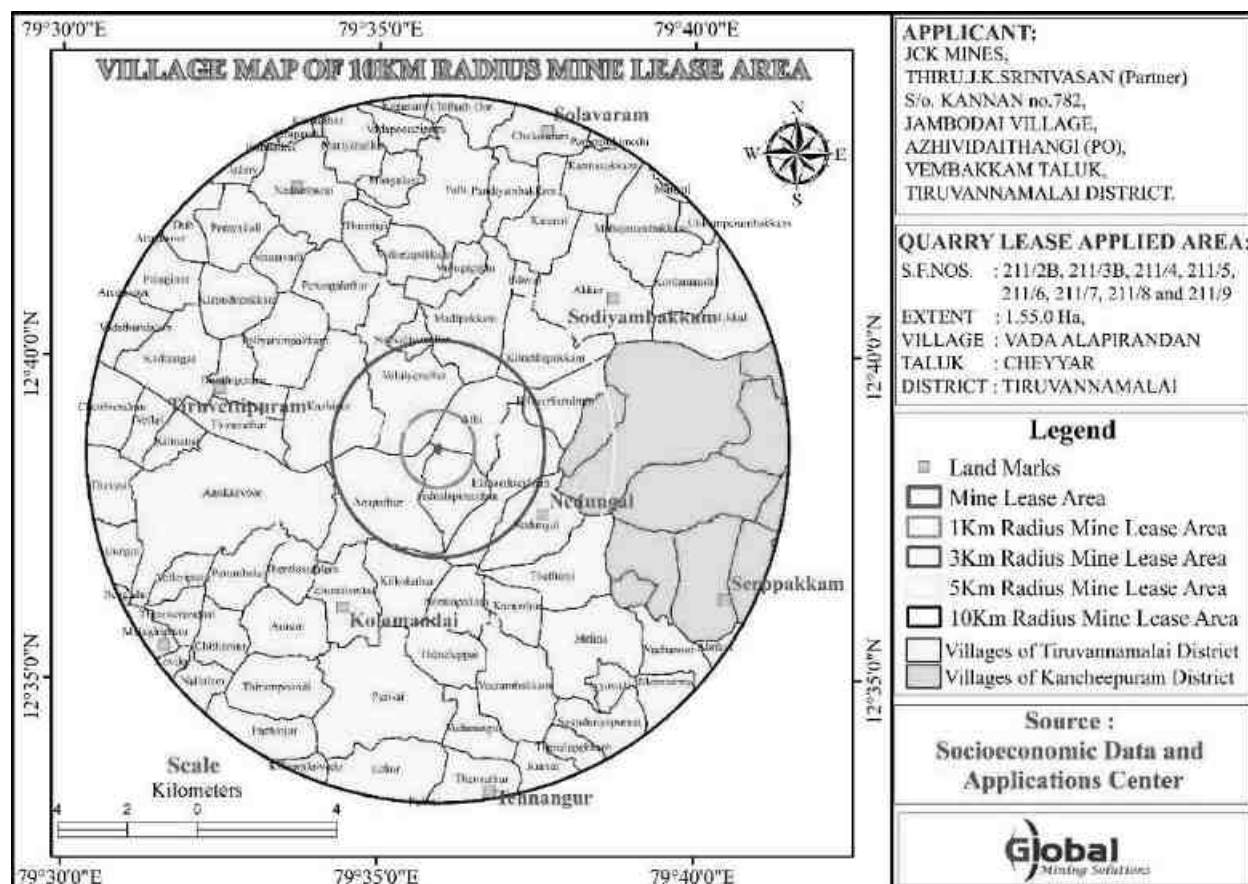
- Demographic pattern.
- Health pattern
- Occupational structure.
- Amenities available.

3.10.1 DETAILS OF VILLAGES

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

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

FIG 3.16 VILLAGE MAP OF THE STUDY AREA



DETAILS OF VILLAGES

The project is located in Cheyyar Taluk, Tiruvannamalai District. The total population is 24,64,875 which comprise of 12,35,889 males and 12,28,986 females. There are 20 rural villages and one urban area in the study area. List of villages are given below:

Table 3.12 Village details in study area				
S.No.	Village/Town Name	Radius	Taluk Name	District Name
1	Athi	0-5km	Cheyyar	Tiruvannamalai
2	Kazhiyur			
3	Madipakkam			
4	Erumaivetti			
5	Palli	5-10km		
6	Nedumpirai			
7	Vinnavadi			

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8	Akkur			
9	Anakkavoor			
10	Thethurai			
11	Melma			
12	Veerampakkam			
13	Purisai			
14	Thirumpoondi			
15	Echur			
16	Tiruvethipuram (M)			
17	Thennangur		Vandavasi	Tiruvannamalai
18	Perunagar		Uthiramerur	Kancheepuram
19	Manampathy			
20	Thiruvadur		Cheyyur	Kancheepuram

Table 3.13 Population profile of the study area		
Particulars	No of Population	Percentage (%)
A. Population break-up by Gender		
Male Population	41559	49.95
Female Population	41650	50.05
Total	83209	100
B. Population break-up by Caste		
Scheduled Caste	16931	20.35
Scheduled Tribes	1337	1.60
Others	64941	78.05
Total	83209	100
C. Literacy Level		
Total Literate Population	59509	71.52
Others	23700	28.48
Total	83209	100
D. Occupational structure		
Main workers	30625	36.80
Marginal workers	7999	9.61
Total Workers	38624	46.41
Total Non-workers	44585	53.59
Total	83209	100

The above table shows that the male and female population ratio are almost equal. Among the total population 1.60% belong to Scheduled Tribes, 20.35 % are Scheduled Caste and the balance 78.05 % people belong to other castes. Among the total population, 71.52% of the people are literate. Among the total population, 54.56% are literate males and 45.44% are literate females. This shows that the male literates are higher than the female literates. The results are plotted in figures below.

FIG 3.14 GENDER-WISE POPULATION DISTRIBUTION

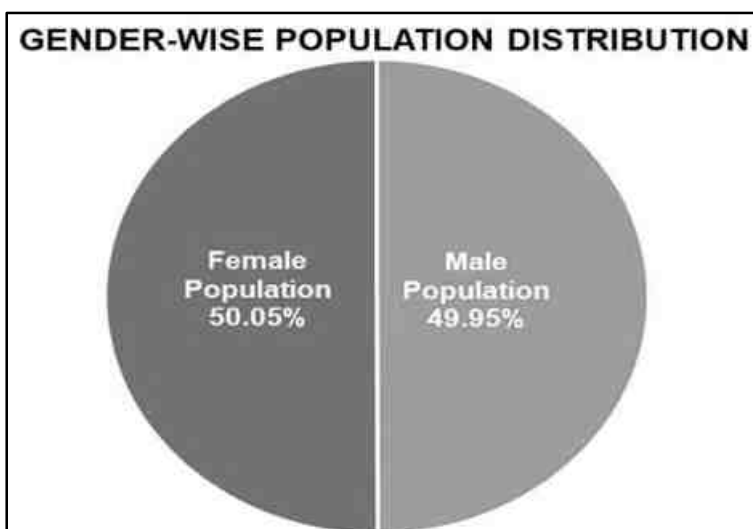


FIG 3.18 GENDER WISE LITERACY DISTRIBUTION

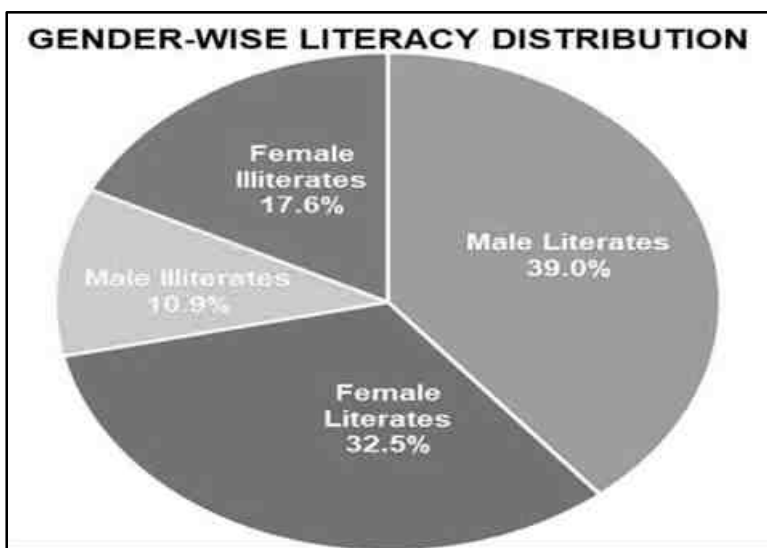
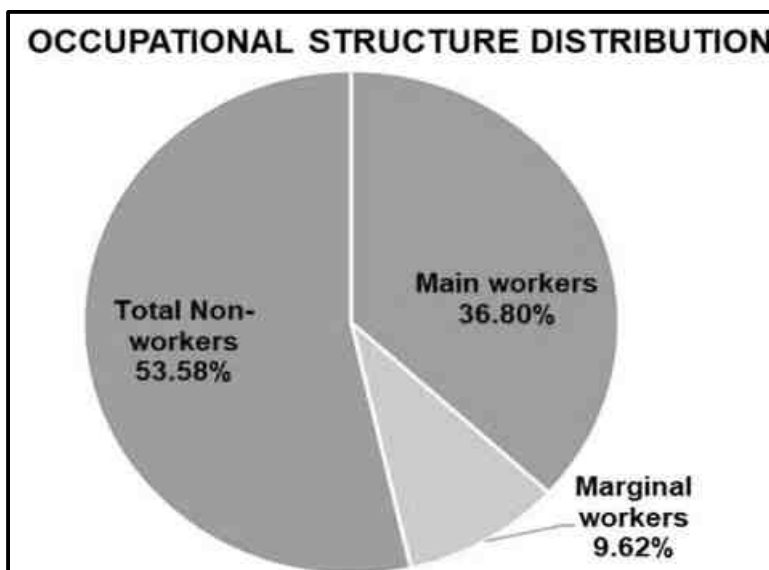


FIG 3.19 OCCUPATIONAL STRUCTURE WITHIN BUFFER ZONE



Infrastructure facilities in the study area.

Education.

Table 3.14 Educational infrastructure		
S. No.	Particulars	Available in village (Nos)
1	Govt. Primary School	38
2	Govt. Middle School	16
3	Govt. Secondary School	10
4	Govt. Senior Secondary School	6
5	Govt. Arts and Science Degree College	37
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 38 Primary Schools functioning in these 19 rural villages. Among them 9 villages have 1 primary school, 5 villages have 2 primary schools & 2 villages have more than 2 primary school.

Healthcare

In the study area, the following facilities are available.

Table 3.15 Medical Infrastructure		
S. No.	Particulars	Available in village (Nos)
1	Community Health Centre	2
2	Primary Health Centre	4
3	Primary Health Sub Centre	15
4	Maternity And Child Welfare Centre	11
5	TB Clinic	4
6	Hospital Allopathic	0

Other Infrastructure

The other infrastructure facilities available are given below.

Table 3.16 Other Infrastructure		
S. No.	Particulars	Available in village
1	Tap Water-Treated	19
2	Covered Well	7
3	Hand Pump	5
4	Tube Wells/Borehole	11
5	Post office	4
6	Public bus services	18
7	Commercial Bank	2
8	Cooperative bank	7

Sample Survey

The expert visited 3 villages in the study area namely Athi, Vada Alapirandan Pudur and Kilnethapakkam 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 centres and Balwadis/Anganwadis. 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 Cheyyar which is about 5.5km from the lease area. Major schools with higher secondary and senior secondary schools are located in

Cheyyar. The major Panchayat Union located in the area is Cheyyar. Facilities like petrol pump stations, ATM facility are available in Cheyyar.

3.11. HYDROGEOLOGY OF THE STUDY AREA

Since there is a canal located at about 19m in the NW, and Cheyyar river is located at 120m in the NW, the hydrological and hydrogeological pattern of the study area is studied in detail using satellite imagery.

3.11.1 HYDROGEOLOGICAL STUDY

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

3.11.2 PHYSIOGRAPHY AND DRAINAGE

Physiography: The area applied for quarry lease is exhibits almost plain topography covered by Gravel formation. The massive Charnockite formation is noticed below 1m (Avg) Gravel and 1m weathered rock formation and sloping towards Southeastern side of the area, the altitude of the area is above 95m (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 passing northwestern side of the area and is 120m away from the area, there is a tandarai canal passing on western side of the area and is 19m away from the area.

3.11.3 GEOLOGY, GEOMORPHOLOGY AND SOIL

Geology: The Core and 10 Km buffered zone Geology map (Figure 3.21) shows that the Charnockite, Migmatite gneiss and sandstone. Major portion was covered in

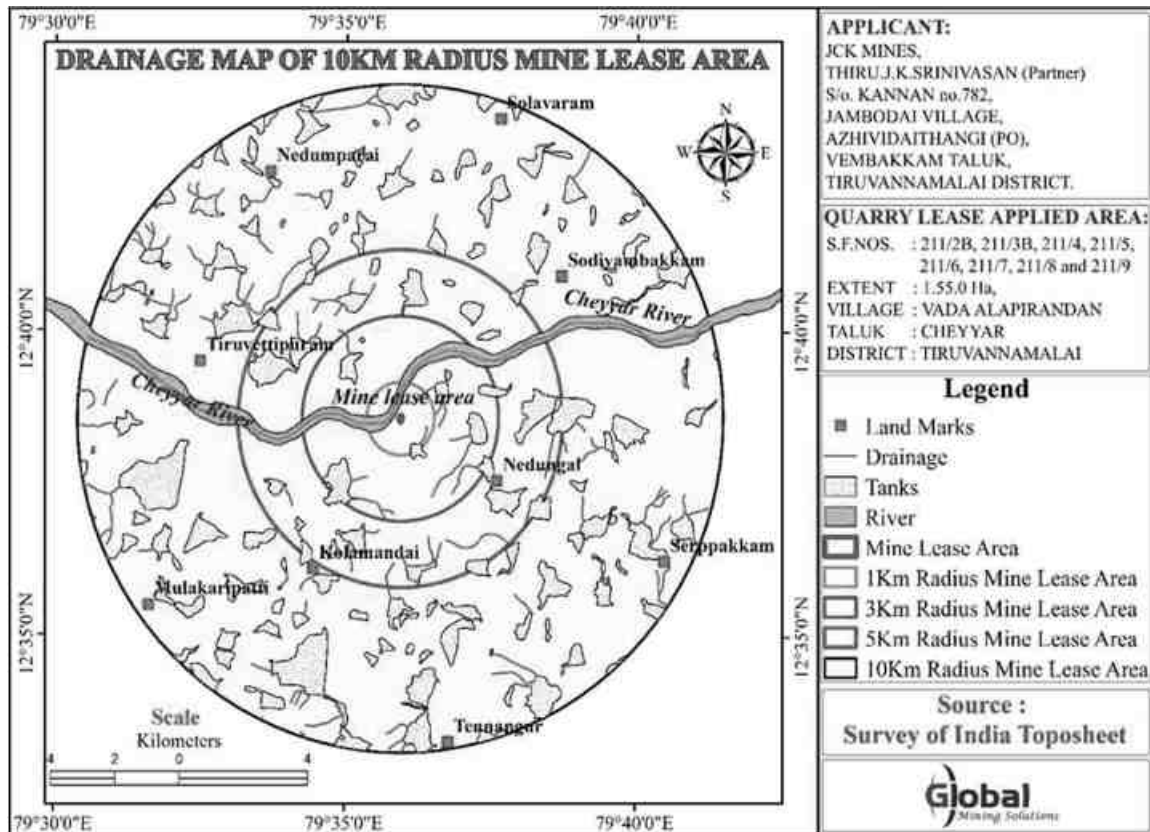
Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

Charnockite rock followed by Migmatite gneiss. A small portion were occurred in Sandstone rock; it is located in North-Western corner of the study area.

Geomorphology: The 10 Km radius of the area geomorphological features (Figure 3.22) shows that the followed by shallow burier pediplain covered an area is 175.58 sq.km. This feature mainly supports intensive agriculture activities in the study area. Moderate burier pediplain covered an area is 110.26 sq.km and Shallow flood plain covered an area is 23.97 sq.km and Pediment covered an area is 11.36 sq.km.

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. 20 10 KILOMETER RADIUS OF THE DRAINAGE MAP



Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

FIGURE 3. 21 10 KILOMETER RADIUS OF THE GEOLOGY MAP

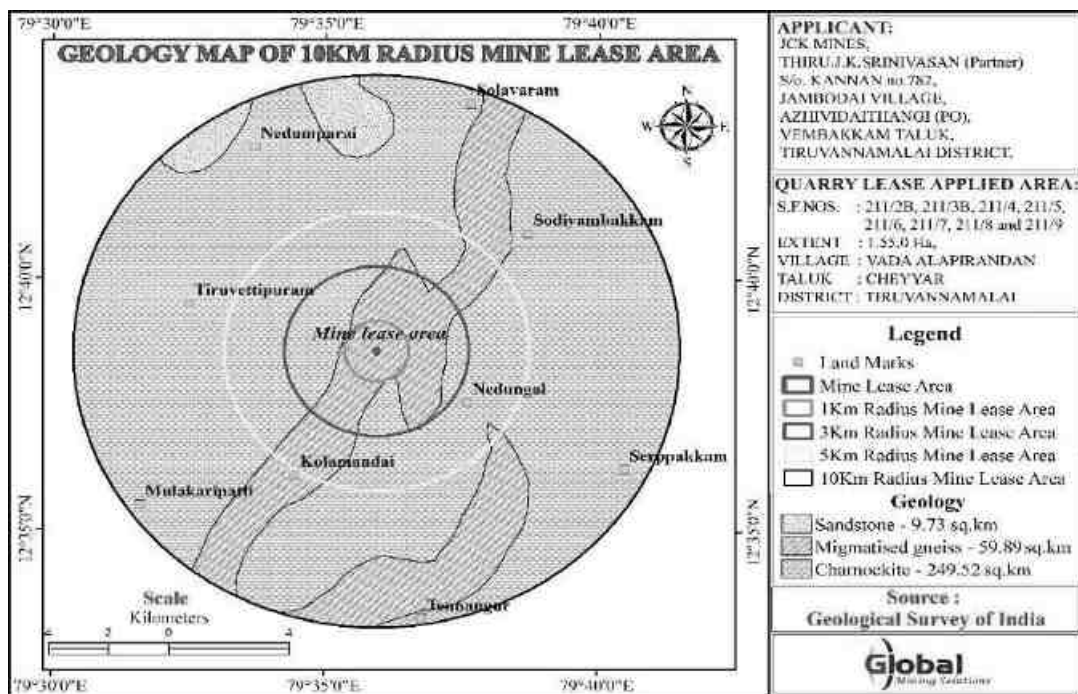
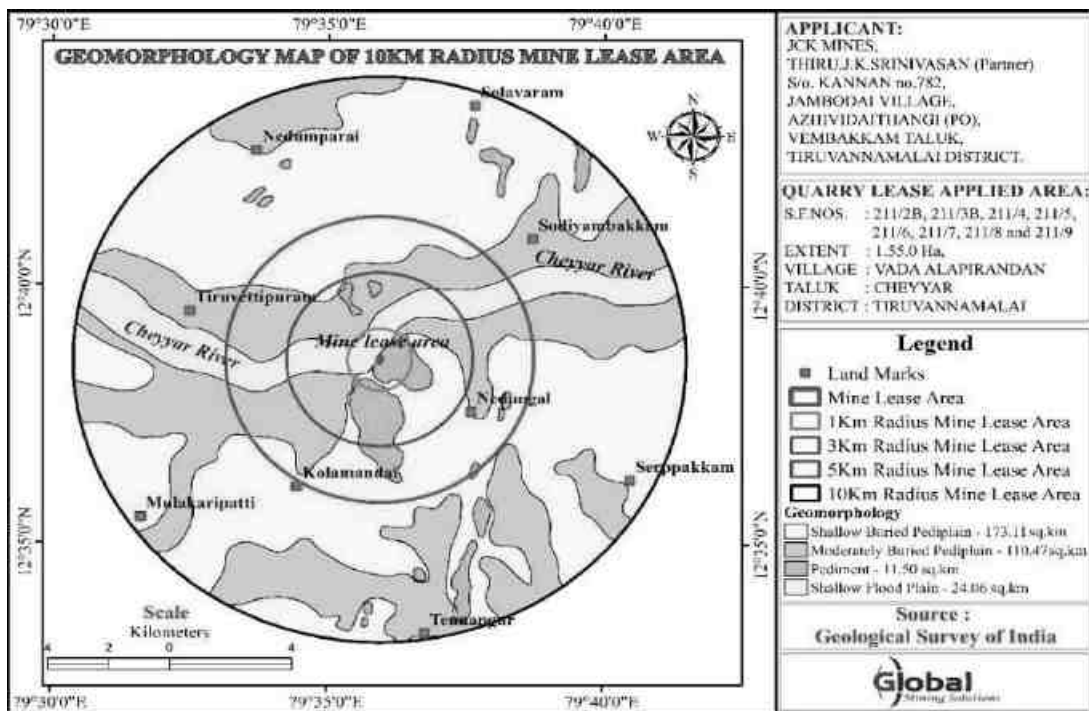
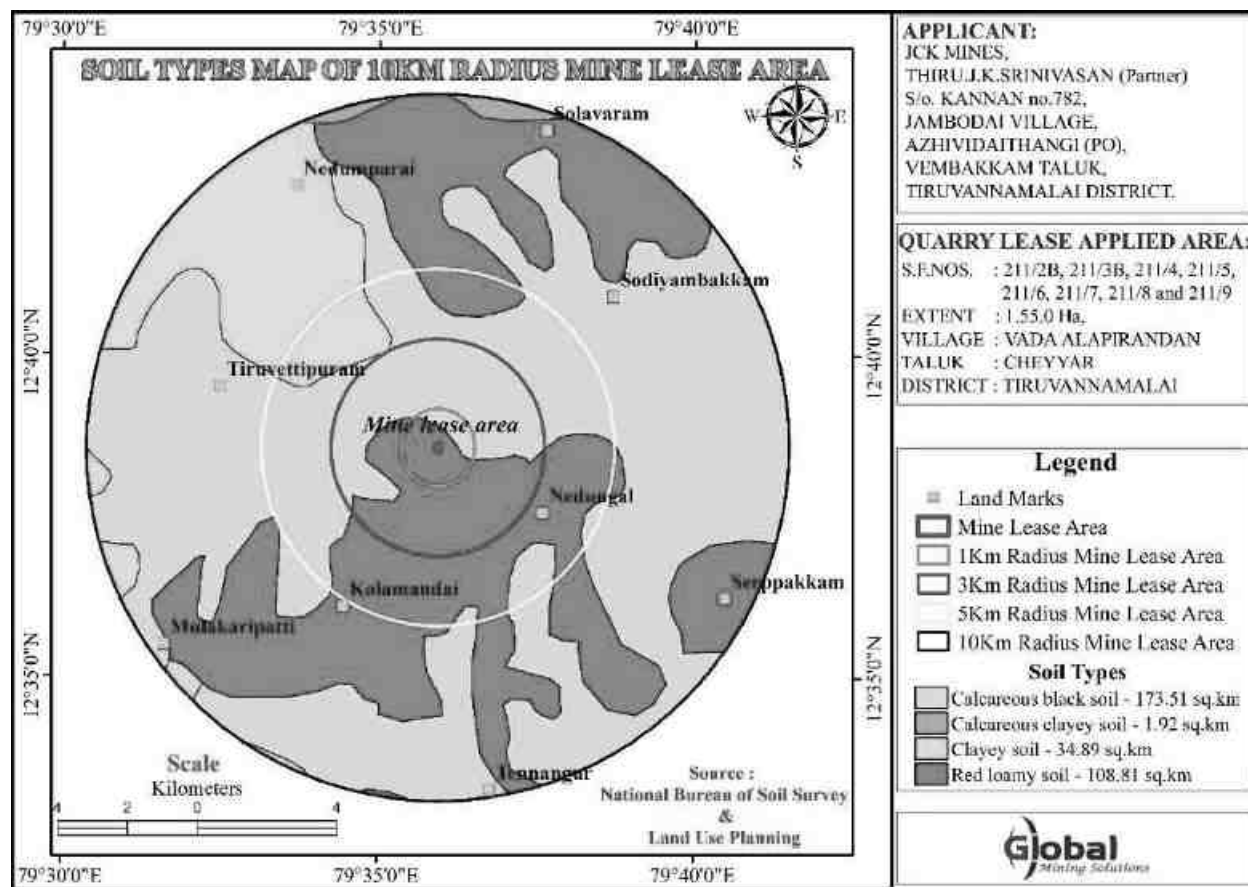


FIGURE 3. 22 10 KM RADIUS OF THE STUDY AREA GEOMORPHOLOGY MAP



Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

FIGURE 3.23 10 KM RADIUS OF THE STUDY AREA SOIL TYPE MAP



3.11.4 BELOW GROUND LEVEL (BGL)

Figure 3.24 & 3.25 shows the Non-Monsoon and Monsoon water level map of the study area.

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

FIGURE 3.24 NON-MONSOON WATER LEVEL MAP OF THE STUDY AREA

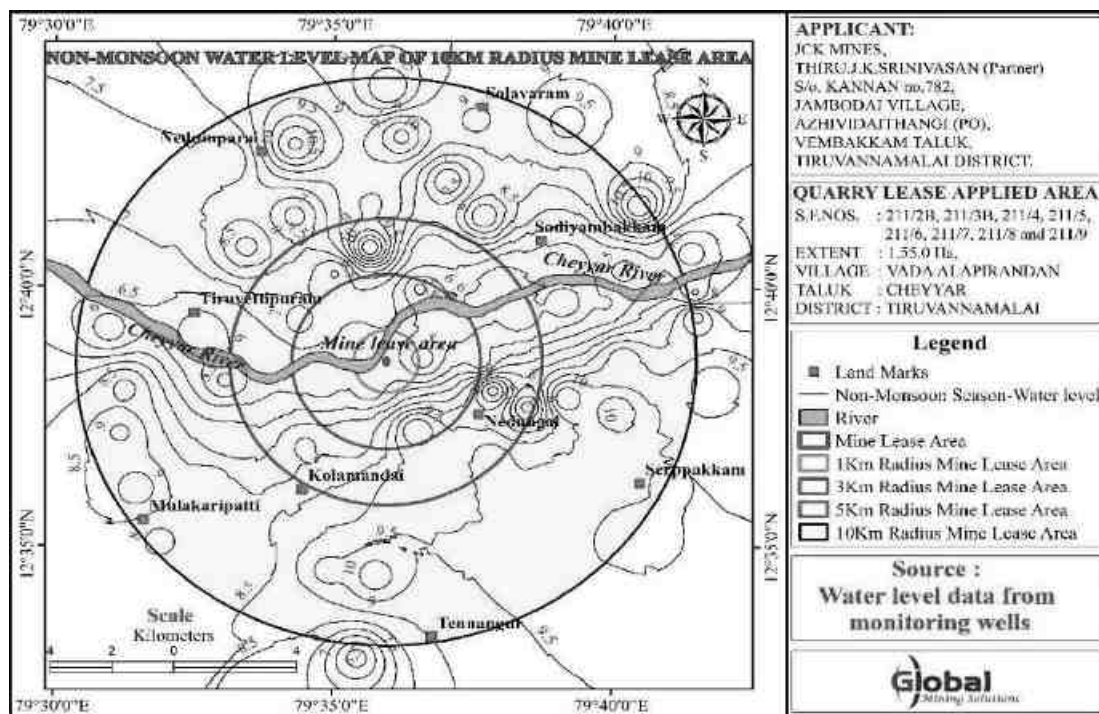
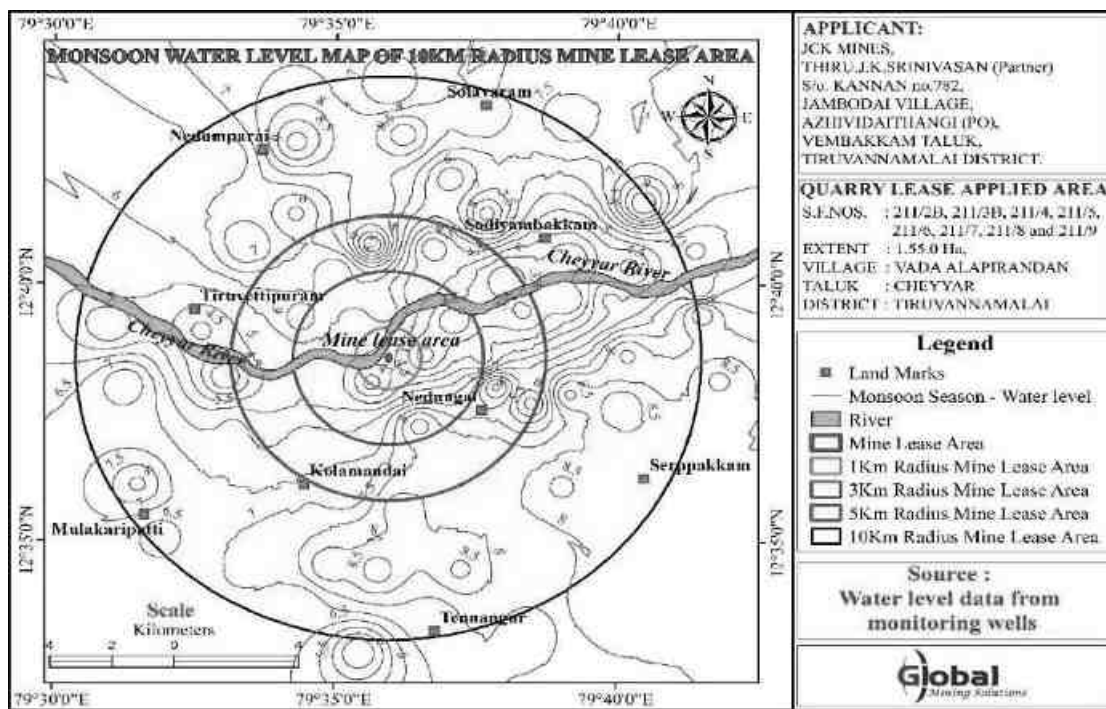


FIGURE 3.25 MONSOON WATER LEVEL MAP OF THE STUDY AREA



Annual average Pre-monsoon season water level varies from 47m to 48m. The Post-monsoon season water level varies from 44m to 45m.

3.11.5 FIELD INVESTIGATION

The temporary seasonal streams water flow from center to outer most area. There is Cheyyar River passing northwestern side of the area and is 120m away from the area, there is a tandarai canal passing on western side of the area and is 19m nearer to the project 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 is 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 are 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**

4.1. 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 Semi 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.

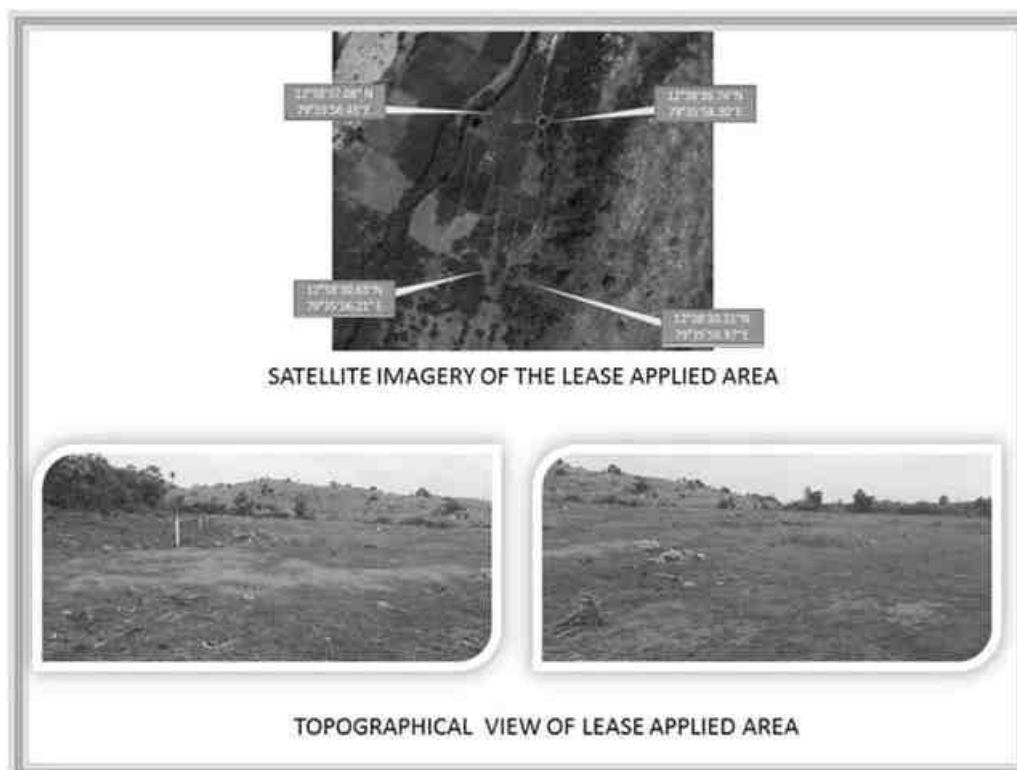
In order to maintain the existing environmental scenario of the proposed mine lease area it is mandatorily required to assess the present ecology and environment of the proposed mine lease area and buffer area of the project before starting mining operations. The various environmental impacts which are 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

4.2. LAND ENVIRONMENT

This is a proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines, Thiru.J.K.Srinivasan (Partner) at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 and 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu. The method of mining is Opencast Semi mechanized with a bench width and height of 5m. It is proposed to excavate to 81,635 m³ of Rough Stone, 8709 m³ of Weathered rock and 9160 m³ of gravel upto a depth of 22m BGL for the period of five years. Tandarai canal is located at a distance of 19m Western side from the project site. The present proposed mine lease area is given below Figure 4.1.

FIG 4.1 PROPOSED MINE LEASE AREA



4.3. ANTICIPATED IMPACTS AND MITIGATION MEASURES

Aspect	Impact	Mitigation measures										
Topography	The area is exhibits hilly terrain covered by rough stone 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 ₂ , NO _x , PM ₁₀ , PM _{2.5} , etc., The existing land use pattern is given as under.	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 only up to 22m BGL. At the end of mining period, the quarried pit will act as a water reservoir to store the rain water. Land Use at the end of mine will be as follows.										
		<table><tr><th>Land Use</th><th>Area in use during the quarrying period (Hect)</th></tr><tr><td>Area left for water body</td><td>0.83</td></tr><tr><td>Green Belt</td><td>0.15</td></tr><tr><td>Remaining area</td><td>0.57</td></tr><tr><td>Total</td><td>1.55</td></tr></table>	Land Use	Area in use during the quarrying period (Hect)	Area left for water body	0.83	Green Belt	0.15	Remaining area	0.57	Total	1.55
	Land Use	Area in use during the quarrying period (Hect)										
	Area left for water body	0.83										
	Green Belt	0.15										
	Remaining area	0.57										
	Total	1.55										

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	Ultimate Pit dimension at the end of Mining plan Period				Total	1000		
	Pit No.	Length (max) (m)	Width (Avg) (m)	Depth (max) (m)				
	I	179	46	22m BGL				
	If mining is not done systematically it will leads to the dumping failure in the mining area.				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. 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. The rough stone is proposed to quarry 5m bench height and 5m width with 80° slope and with conventional opencast semi-Mechanized method. As per the approved mining plan a safety distance of 7.5m shall be provided. There is no overburden anticipated during the entire Rough Stone quarrying operation. The excavated rough stone will be directly loaded into tipper to the needy crusher/other buyers.			
Drainage	Mine drainage is surface water or groundwater that drains from an active or abandoned mine. One of the adverse impact of mine drainage is it will contaminate the ground water.				As per the approved mining plan the ultimate pit limit is 22m BGL. The ground water table is reported as 48m BGL. In the proposed mining plan only 22m (below ground level) depth has been envisaged as workable depth for safe & economic quarrying for the entire lease period. Hence the quarrying operation may not affect the ground water.			
Soil Quality and Agriculture	In monsoon seasons due to the excavation of minerals soil erosion and sediment deposition will occur in the nearby water bodies.				It is proposed to quarry upto a depth of 22m BGL and the nearby water table is 48m BGL. 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.			

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Visual impact on surrounding environment	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.	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 22m BGL. In the post mining stage the quarried out pit will be used for rainwater harvesting.

4.4. SOLID WASTE GENERATION AND MANAGEMENT

The waste generation in the form of Solid waste (Municipal Waste) is very negligible. A detailed solid waste management system for the project area is given below and the same will be executed by proper awareness and sign boards. The sign boards will be in two language i.e., Vernacular language (Tamil) and common language (English). 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

4.5. WATER ENVIRONMENT

4.5.1. Impact on Surface Water Resources

There is no seasonal or perennial Odai within the M.L area. The drainage pattern of the region is plane to sub-dendritic. 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.

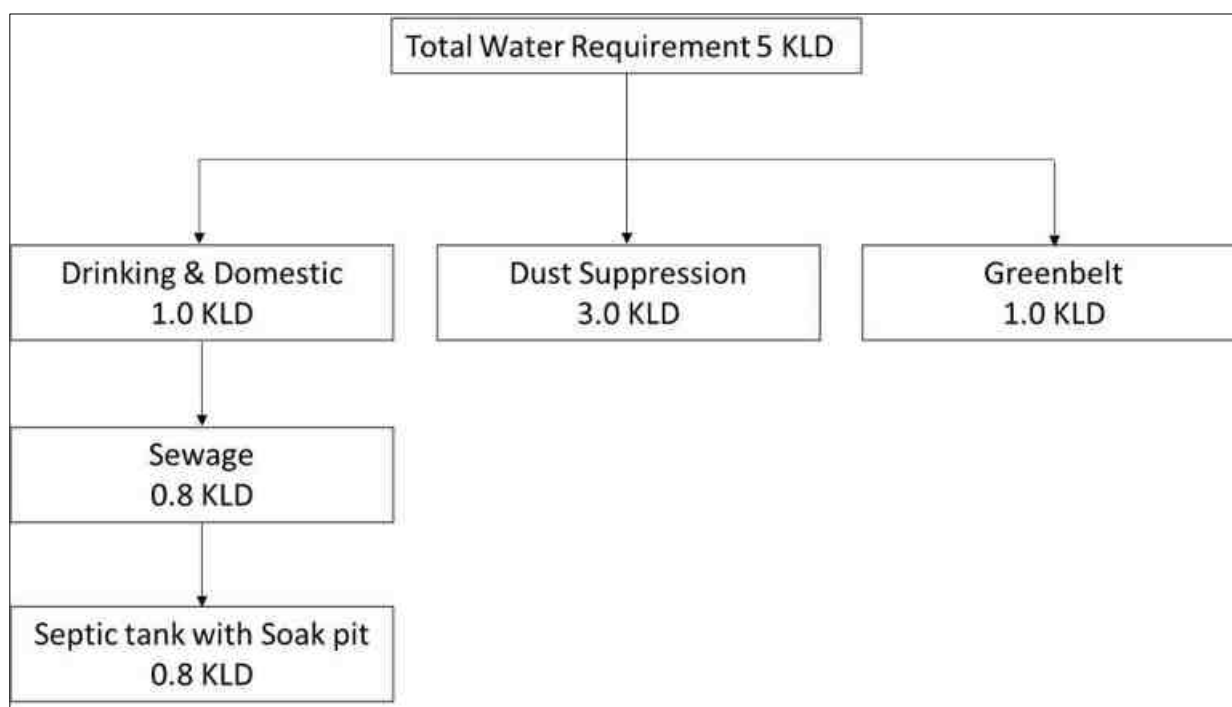
The nearest river is Cheyyar River flows from northwestern to northeastern at a distance of 120 m from the proposed ML area. There are other water bodies near to the proposed as such a Tandarai canal western side at distance of 19 m from the project site. Water table is found at a depth of 48m in summer and 45m in rainy seasons.

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 near the canal or any area outside the mining lease.

4.5.2.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 5.0 KLD which will be sourced from outside agencies. Negligible sewage of 0.8 KLD will be generated, for which a septic tank with soak pit will be set up. The water balance diagram is given below.

FIG 4.2 WATER BALANCE DIAGRAM



4.5.3. Impact on Ground Water

The mining activity is not likely to intersect ground water as the ground water table occurs at 48 BGL in summer season and in Rainy season at 45 BGL. The mining will go up to the maximum depth of 22 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.

4.5.4. 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).

4.5.5. Ground water environment in buffer zone

The scenario of ground water in Tiruvannamalai District, Cheyyar Taluk is given below.

TABLE 4.1 Ground Water Level Status in Cheyyar Firka							
S. No.	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	Cheyyar	1522.95	1526.85	120.80	1647.65	108	Over Exploited

Source: nwm.gov.in

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

4.6. VEGETATION

4.6.1. 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 0.15.0 Ha. Trees like Pongamia pinnata, Syzigium cumini, Albizia lebbeck, Thespesia populnea, Bauhinia racemose, Cassia siamea, Azadirachta indica will be planted around the mine lease area. A total of 1000 trees are planned to be planted. Spacing will be 3m x 3m.

4.6.2. 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.

Table 4.2 Impacts and mitigation measures for Fauna		
S. No.	Impact	Mitigation measure
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.

4.7. AIR ENVIRONMENT

4.7.1. 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.

4.7.2. 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 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.

4.7.3. 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.

4.7.4. 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 81,635 m³ of rough stone, 8,709 m³ of weathered rock, and 9,160 m³ of gravel for a period of five years by the open-cast semi-mechanised 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.

4.7.5. Sources of Dust Emission

The proposed mining is carried out by semi mechanized opencast method. The air borne particulate matter generated by ore handling operations, transportation and screening of ore is the main air pollutant. The emissions of sulphur dioxide (SO₂), Oxides of Nitrogen (NO_x) 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.

4.7.6.Emission Details

All the emissions discussed above are quantified for proposed maximum production of 81,635 m³ of rough stone, 8,709 m³ of weathered rock, and 9,160 m³ of gravel for a period of five years by the open-cast semi-mechanised mining method. The existing air quality levels are covered in the baseline scenario.

Excavation, loading and transportation through tippers are the major sources, which are of significance. Therefore, the emissions considered for modeling are from drilling blasting, excavation & transportation rough stone 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.

4.7.7.Meteorological Data

The meteorological data recorded continuously during the month of March 2023 - May 2023 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.

4.7.8.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 0.654 $\mu\text{g}/\text{m}^3$ of PM 2.5 & 3.00 $\mu\text{g}/\text{m}^3$ of PM 10 within the mine area, where mining operations are being carried out. The impact of mining operations would be negligible beyond 0.4 km.

Figure – 4.1 represents the spatial distribution of the predicted ground level concentrations of PM₁₀ due to emissions from mine.

4.7.9.Emission sources & Quantification

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

JCK MINES – EMISSION DETAILS

(I) POINT SOURCE EMISSION

Drill dust emission = 0.022 gm/sec

(I) Area Emissions – Total Material handling (Gravel)

Quantity, TPA	7930
Operational Hours Per Year	2400
Activity Rate, t/hr.	3.304166667
Emission of dust, g/t.	0.14
Emission of dust, g /hr.	0.462583333
Area of influence, m ²	625
Uncontrolled emission rate g/s/m ²	0.0000002056
Controlled emission rate g/s/m, PM10	0.0000000206
SControlled emission rate g/s/m, PM2.5	0.000000009

(II) Area Emissions – Total Material handling (Rough Stone)

Quantity, TPA	50460
Operational Hours Per Year	2400
Activity Rate, t/hr.	21.025
Emission of dust, g/t.	0.14
Emission of dust, g /hr.	2.9435
Area of influence, m ²	625
Uncontrolled emission rate g/s/m ²	0.0000013082
Controlled emission rate g/s/m, PM10	0.0000001308
Controlled emission rate g/s/m, PM2.5	0.000000055

(IV) Line Source – Transport of Rough Stone from Pit to Boundary

Quantity, TPA	9097.5
Operational Hours Per Year	2400
Capacity of each Dumper (T)	10
Total No. of Tippers/ year	909.75
Lead length/trip, Km	1.4
Total VKT/Year	1273.65
Emission Kg/VKT	0.26
Total emission Kg/Year	331.149
Uncontrolled emission rate g/s/m	0.054753472
Controlled emission rate g/s/m, PM10	0.005475347
Controlled emission rate g/s/m, PM2.5	0.002299646

(V) Line Source – Transport of waste from Pit to Dump

Quantity, TPA	41362.5
Operational Hours Per Year	2400
Capacity of each Dumper (T)	10
Total No. of Tippers/ year	4136.25
Lead length/trip, Km	0.6

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Total VKT/Year	2481.75
Emission Kg/VKT	0.26
Total emission Kg/Year	645.255
Uncontrolled emission rate g/s/m	0.248940972
Controlled emission rate g/s/m, PM10	0.024894097
Controlled emission rate g/s/m, PM2.5	0.010455521

(IV) Line Source – Transport of Gravel from Pit to Boundary

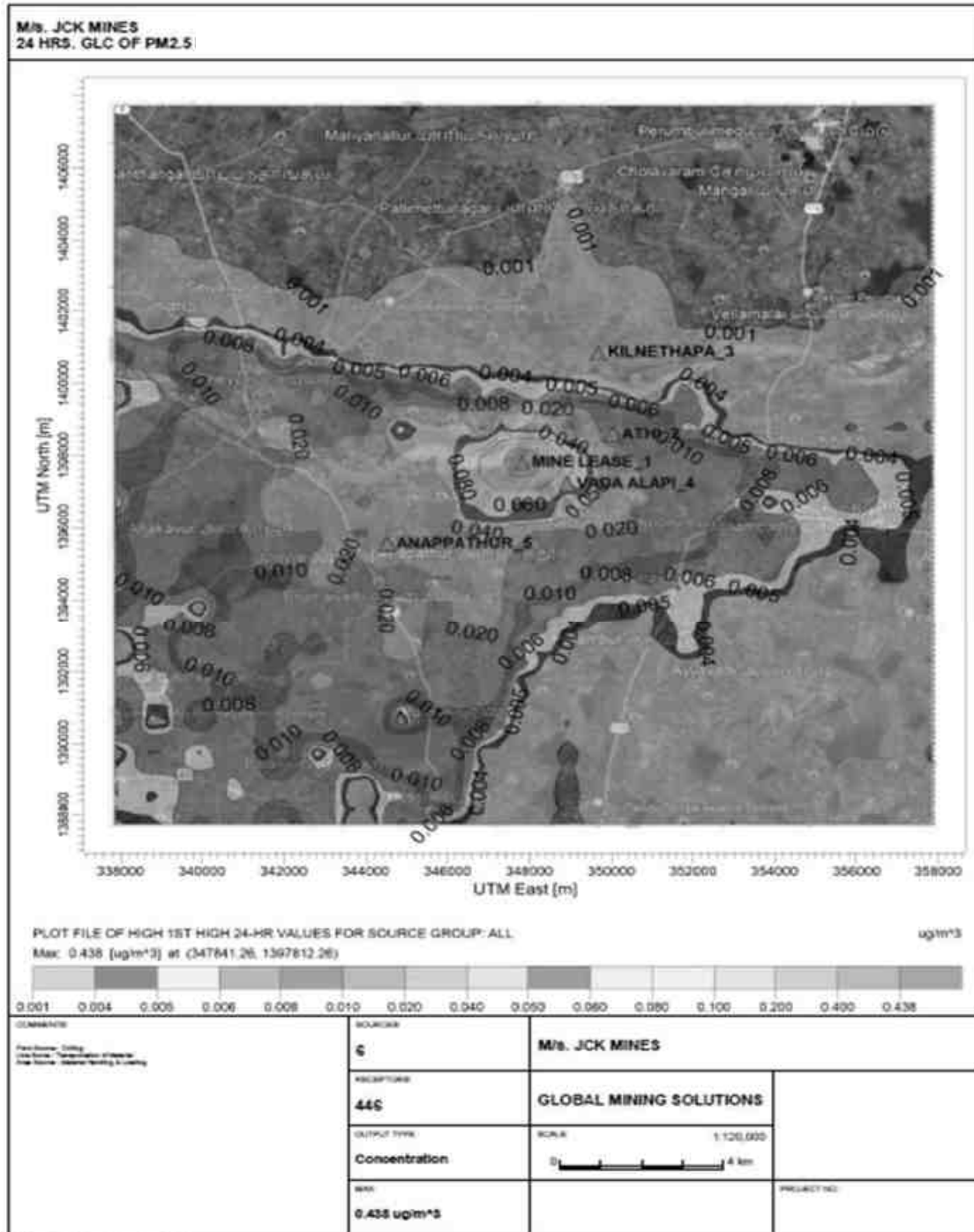
Quantity, TPA	7930
Operational Hours Per Year	2400
Capacity of each Dumper (T)	10
Total No. of Tippers/ year	793
Lead length/trip, Km	0.6
Total VKT/Year	475.8
Emission Kg/VKT	0.26
Total emission Kg/Year	123.708
Uncontrolled emission rate g/s/m	0.047726852
Controlled emission rate g/s/m, PM10	0.004772685
Controlled emission rate g/s/m, PM2.5	0.002004528

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 %

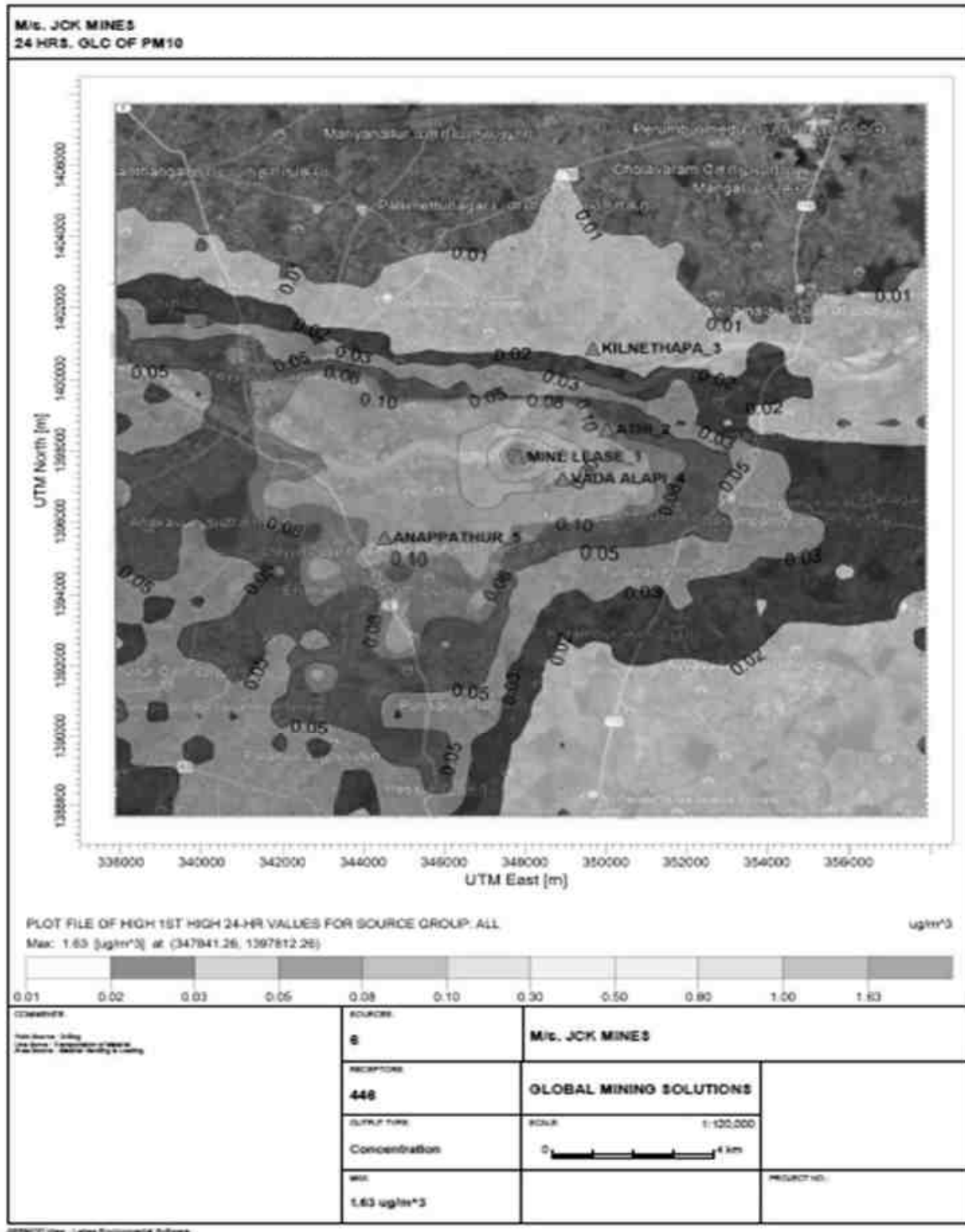
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FIG 4.3 Isopleth of GLC Prediction for PM_{2.5}



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FIG 4.3 Isopleth of GLC Prediction for PM₁₀



4.7.10. 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.

4.7.11. Mitigation measures for 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.

4.8. 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 fly rocks.
- ✚ 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.

4.9. SOCIO ECONOMIC IMPACT

The lease area is a private patta land jointly registered in the name of partners of JCK Mines (Thiru.Srinivasan, Thiru.Boopalan, Thiru.Gopalan, Thiru.Vettrivelan and Thiru.Sudhakaran vide patta no.765. The Patta copy enclosed as Annexure

(Attachment 7). No rehabilitation is needed. Hence, there is no negative impact. The proponent has planned to spend INR 5,00,000 for CER activities.

4.10. OCCUPATIONAL HEALTH

4.10.1. 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 4.3 Impacts on humans due to various mining activities		
S. No.	Type of activity	Impact
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

4.10.2. Mitigation measures

- The mines worker will be provided with dust mask to minimize the inhalation of the dust.

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- 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.

CHAPTER 5

ANALYSIS OF ALTERNATIVES

5.1 ALTERNATE TECHNOLOGY

The mining technology is semi 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.

5.2 ALTERNATE SITE

The proposed project is a mining project and will be operated within the lease grant area. So, no alternate sites have been assessed. Since the resource (Rough Stone and Gravel) is site-specific, the chosen location is the only site to carry out Rough Stone & Gravel quarry.

CHAPTER 6

ENVIRONMENTAL MONITORING PROGRAMME

6.1 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.

6.2 OBJECTIVES OF ENVIRONMENTAL MONITORING

The objectives of Environmental Monitoring is 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.

6.3 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.

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

6.4 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.

6.5 MEASUREMENT METHODOLOGY

(a) Ambient Air Quality

Ambient air quality will be monitored for SO₂, NO_x, PM₁₀ and PM_{2.5}. The instruments like high volume air samplers and Respirable dust samplers would be used for this purpose. These parameters will be monitored as mentioned in the monitoring schedule previously.

(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

Gravity modeling (traffic density) studies will be done with the objective to know about the interaction of nearby situated towns. Central Place Hierarchization studies (studies related to change in amenities/services etc.) would be conducted to know about the socio-economic status of the villages along with the above-mentioned studies at every five-year interval.

6.6 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.

6.7 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.

6.8 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.

Table 6.2 Important Records to be maintained by PP	
S. No.	Particulars
1	Monitoring results for Air, Water & Soil.
2	Records of slope failure, land erosion & drainage.
3	Plantation Records
4	Environmental and related standards/ norms
5	Records pertaining to statutory consents, approvals.
6	Periodic Medical examination (PME) records.
7	Complain register (Environmental pollution)
8	Records on water and electricity consumption
9	Periodic progress records.
10	Environmental Expenses Records

6.9 DETAILED BUDGET AND PROCUREMENT SCHEDULES

The budget planned for environmental monitoring is given below.

Table 6.3 Environmental Management Plan Budget		
S. No.	Budget planned for	Amount (INR)

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

1	Air sampling	40,000
2	Water sampling	40,000
3	Noise monitoring	20,000
4	Ground vibration test	20,000
5	Drinking water facility	1,00,000
6	Sanitary arrangement	50,000
7	Safety kits	50,000
8	Water sprinkling	1,00,000
9	Afforestation	60,000
Total		4,80,000

A total amount of INR 4,80,000 is allotted in the budget for EMP.

CHAPTER 7

ADDITIONAL STUDIES

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

1. Public consultation
2. Risk Assessment
3. Social Impact Assessment, R&R Action Plans
4. Combined Environmental Impact Assessment Study
5. A detailed Hydrogeological Study
6. 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:

- ✚ 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.

Table 7.1 Hazards and Precautionary measures		
S. No.	Hazard	Precautionary measures
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

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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.

7.3 REHABILITATION AND RESETTLEMENT (R & R) PLAN

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

7.4 COMBINED ENVIRONMENTAL IMPACT ASSESSMENT STUDY

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

Table 7.2 Details of quarries within 500m radius (as per 500m certificate)					
S. No.	Name and address of the Lessee	Village and S.F No	Extent in Hectare	Lease period	Remarks
i) Existing Quarries					
Nil					
ii) Abandoned quarries					
1	Tmt.Poongodhai W/O.Sundaramoorthy No.96, Road street Manamadhi Unthiramerur taluk Kancheepuram district	Athi 301 (part)	1.00.0	21.08.2008 to 20.08.2018	Quarry expired
iii) Present proposed quarries					
1	Tvl.JCK Mines Rep by its partner Thiru.J.K.Srinivasan, No.782 Mariamman Koil street Jambodai village, Azhivedanthangi post,	Vadaalapirandan village 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 and 211/9	1.55.0	-	-

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	Vembakkam taluk, Tiruvannamalai District				
iv) Future proposed quarries					
1	Thiru.R.Ganesan Director of SRC project Pvt Ltd No 47, Brindavan Porlands, Salem	Athi 301 (part 2)	4.50.0	-	-
2	Thiru.M.Ramachandran S/O.Mogili Naidu No 15B, Medutheru Old Perukozhathoor, Tambaram, Chennai	Athi 301 (part 3)	2.00.0	-	-
3	Thiru.Sudhakaran S/O.Kannan No.782, Mariamman koil street, Jambodai village Vembakkam taluk Tiruvannamalai District	Vada alampirandan 7, 8/1, 8/2, 8/3, 8/4, 8/5 and 214/5	2.57.0	-	-

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

7.5 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 2023. The following sources are considered.

Emission sources & Quantification of the cluster area.

JCK MINES

(I) POINT SOURCE EMISSION	
Drill dust emission = 0.022 gm/sec	
(I) Area Emissions – Total Material handling (Gravel)	
Quantity, TPA	7930
Operational Hours Per Year	2400
Activity Rate, t/hr.	3.304166667
Emission of dust, g/t.	0.14
Emission of dust, g /hr.	0.462583333
Area of influence, m ²	625
Uncontrolled emission rate g/s/m ²	0.0000002056
Controlled emission rate g/s/m, PM10	0.0000000206
Controlled emission rate g/s/m, PM2.5	0.000000009

(II) Area Emissions – Total Material handling (Rough Stone)	
Quantity, TPA	50460
Operational Hours Per Year	2400
Activity Rate, t/hr.	21.025
Emission of dust, g/t.	0.14
Emission of dust, g /hr.	2.9435
Area of influence, m ²	625
Uncontrolled emission rate g/s/m ²	0.0000013082
Controlled emission rate g/s/m, PM10	0.0000001308
Controlled emission rate g/s/m, PM2.5	0.000000055

(IV) Line Source – Transport of Rough Stone from Pit to Boundary	
Quantity, TPA	9097.5
Operational Hours Per Year	2400
Capacity of each Dumper (T)	10
Total No. of Tippers/ year	909.75
Lead length/trip, Km	1.4
Total VKT/Year	1273.65

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Emission Kg/VKT	0.26
Total emission Kg/Year	331.149
Uncontrolled emission rate g/s/m	0.054753472
Controlled emission rate g/s/m, PM10	0.005475347
Controlled emission rate g/s/m, PM2.5	0.002299646

(V) Line Source - Transport of waste from Pit to Dump

Quantity, TPA	41362.5
Operational Hours Per Year	2400
Capacity of each Dumper (T)	10
Total No. of Tippers/ year	4136.25
Lead length/trip, Km	0.6
Total VKT/Year	2481.75
Emission Kg/VKT	0.26
Total emission Kg/Year	645.255
Uncontrolled emission rate g/s/m	0.248940972
Controlled emission rate g/s/m, PM10	0.024894097
Controlled emission rate g/s/m, PM2.5	0.010455521

(IV) Line Source - Transport of Gravel from Pit to Boundary

Quantity, TPA	7930
Operational Hours Per Year	2400
Capacity of each Dumper (T)	10
Total No. of Tippers/ year	793
Lead length/trip, Km	0.6
Total VKT/Year	475.8
Emission Kg/VKT	0.26
Total emission Kg/Year	123.708
Uncontrolled emission rate g/s/m	0.047726852
Controlled emission rate g/s/m, PM10	0.004772685
Controlled emission rate g/s/m, PM2.5	0.002004528

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

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

+ Emission factor computed based on silt content of 10 % and moisture content of 10 %

SUDHAKARAN MINES	
(I) POINT SOURCE EMISSION	
Drill dust emission = 0.022 gm/sec	
(I) Area Emissions - Total Material handling (Gravel)	
Quantity, TPA	22080
Operational Hours Per Year	2400
Activity Rate, t/hr.	9.2
Emission of dust, g/t.	0.14
Emission of dust, g /hr.	1.288
Area of influence, m ²	625
Uncontrolled emission rate g/s/m ²	0.0000005724
Controlled emission rate g/s/m, PM10	0.0000000572
Controlled emission rate g/s/m, PM2.5	0.000000026

(II) Area Emissions - Total Material handling (Rough Stone)	
Quantity, TPA	150540
Operational Hours Per Year	2400
Activity Rate, t/hr.	62.725
Emission of dust, g/t.	0.14
Emission of dust, g /hr.	8.7815
Area of influence, m ²	625
Uncontrolled emission rate g/s/m ²	0.0000039029
Controlled emission rate g/s/m, PM10	0.0000003903
Controlled emission rate g/s/m, PM2.5	0.000000176

(IV) Line Source - Transport of Rough Stone from Pit to Boundary	
Quantity, TPA	123787.5
Operational Hours Per Year	2400

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Capacity of each Dumper (T)	10
Total No. of Tippers/ year	12378.75
Lead length/trip, Km	0.7
Total VKT/Year	8665.125
Emission Kg/VKT	0.26
Total emission Kg/Year	2252.9325
Uncontrolled emission rate g/s/m	0.745017361
Controlled emission rate g/s/m, PM10	0.074501736
Controlled emission rate g/s/m, PM2.5	0.033525781

(V) Line Source - Transport of waste from Pit to Dump	
Quantity, TPA	26752.5
Operational Hours Per Year	2400
Capacity of each Dumper (T)	10
Total No. of Tippers/ year	2675.25
Lead length/trip, Km	0.25
Total VKT/Year	668.8125
Emission Kg/VKT	0.26
Total emission Kg/Year	173.89125
Uncontrolled emission rate g/s/m	0.161010417
Controlled emission rate g/s/m, PM10	0.016101042
Controlled emission rate g/s/m, PM2.5	0.007245469

(IV) Line Source - Transport of Gravel from Pit to Boundary	
Quantity, TPA	22080
Operational Hours Per Year	2400
Capacity of each Dumper (T)	10
Total No. of Tippers/ year	2208
Lead length/trip, Km	0.25
Total VKT/Year	552
Emission Kg/VKT	0.26
Total emission Kg/Year	143.52
Uncontrolled emission rate g/s/m	0.132888889
Controlled emission rate g/s/m, PM10	0.013288889

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Controlled emission rate g/s/m, PM2.5	0.005980000
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 %	

RAMACHANDRAN MINE

(I) POINT SOURCE EMISSION
Drill dust emission = 0.022 gm/sec

(I) Area Emissions – Total Material handling (Top Soil)	
Quantity, TPA	26442
Operational Hours Per Year	2400
Activity Rate, t/hr.	11.0175
Emission of dust, g/t.	0.14
Emission of dust, g /hr.	1.54245
Area of influence, m ²	625
Uncontrolled emission rate g/s/m ²	0.0000006855
Controlled emission rate g/s/m, PM10	0.0000000686
Controlled emission rate g/s/m, PM2.5	0.000000029

(II) Area Emissions – Total Material handling (Rough Stone)	
Quantity, TPA	141250
Operational Hours Per Year	2400
Activity Rate, t/hr.	58.8542
Emission of dust, g/t.	0.14
Emission of dust, g /hr.	8.239583333
Area of influence, m ²	625
Uncontrolled emission rate g/s/m ²	0.0000036620
Controlled emission rate g/s/m, PM10	0.0000003662
Controlled emission rate g/s/m, PM2.5	0.000000154

(IV) Line Source – Transport of Rough Stone from Pit to Boundary

Quantity, TPA	141250
Operational Hours Per Year	2400
Capacity of each Dumper (T)	10
Total No. of Tippers/ year	14125
Lead length/trip, Km	1.4
Total VKT/Year	19775
Emission Kg/VKT	0.26
Total emission Kg/Year	5141.5
Uncontrolled emission rate g/s/m	0.850115741
Controlled emission rate g/s/m, PM10	0.085011574
Controlled emission rate g/s/m, PM2.5	0.035704861

(V) Line Source – Transport of waste from Pit to Dump

Quantity, TPA	26442
Operational Hours Per Year	2400
Capacity of each Dumper (T)	10
Total No. of Tippers/ year	2644.2
Lead length/trip, Km	0.6
Total VKT/Year	1586.52
Emission Kg/VKT	0.26
Total emission Kg/Year	412.4952
Uncontrolled emission rate g/s/m	0.159141667
Controlled emission rate g/s/m, PM10	0.015914167
Controlled emission rate g/s/m, PM2.5	0.006683950
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 %	

GANESAN MINE

(I) POINT SOURCE EMISSION

Drill dust emission = 0.022 gm/sec

(I) Area Emissions – Total Material handling (Top Soil)	
Quantity, TPA	66420
Operational Hours Per Year	2400
Activity Rate, t/hr.	27.675
Emission of dust, g/t.	0.14
Emission of dust, g /hr.	3.8745
Area of influence, m ²	625
Uncontrolled emission rate g/s/m ²	0.0000017220
Controlled emission rate g/s/m, PM10	0.0000001722
Controlled emission rate g/s/m, PM2.5	0.00000007

(II) Area Emissions – Total Material handling (Rough Stone)	
Quantity, TPA	589125
Operational Hours Per Year	2400
Activity Rate, t/hr.	245.46875
Emission of dust, g/t.	0.14
Emission of dust, g /hr.	34.365625
Area of influence, m ²	625
Uncontrolled emission rate g/s/m ²	0.0000152736
Controlled emission rate g/s/m, PM10	0.0000015274
Controlled emission rate g/s/m, PM2.5	0.000000687

(IV) Line Source – Transport of Rough Stone from Pit to Boundary	
Quantity, TPA	589125
Operational Hours Per Year	2400
Capacity of each Dumper (T)	10
Total No. of Tippers/ year	58912.5
Lead length/trip, Km	1.4
Total VKT/Year	82477.5

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Emission Kg/VKT	0.26
Total emission Kg/Year	21444.15
Uncontrolled emission rate g/s/m	3.545659722
Controlled emission rate g/s/m, PM10	0.354565972
Controlled emission rate g/s/m, PM2.5	0.159554688

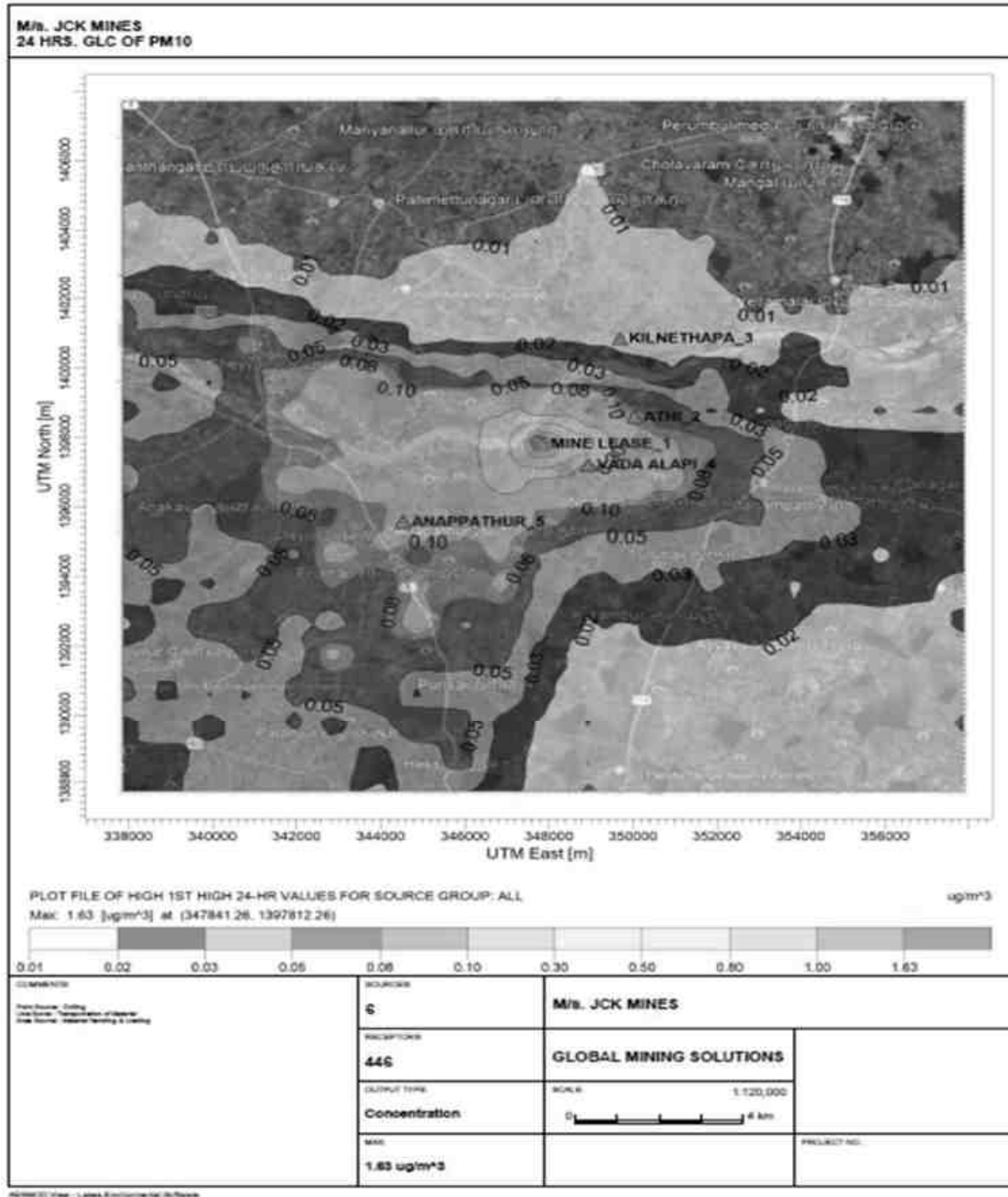
(V) Line Source – Transport of waste from Pit to Dump	
Quantity, TPA	66420
Operational Hours Per Year	2400
Capacity of each Dumper (T)	10
Total No. of Tippers/ year	6642
Lead length/trip, Km	0.6
Total VKT/Year	3985.2
Emission Kg/VKT	0.26
Total emission Kg/Year	1036.152
Uncontrolled emission rate g/s/m	0.39975
Controlled emission rate g/s/m, PM10	0.039975
Controlled emission rate g/s/m, PM2.5	0.017988750
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 %	

Predicted emissions of the cluster:

Predicted maximum ground level concentrations considering micro meteorological data of March 2023 to May 2023 are superimposed on the maximum baseline concentrations obtained during the study period to estimate the post project scenario, which would prevail at the post operational phase. The overall scenario with predicted concentrations over the maximum baseline concentrations is shown in the following table along with isopleths Figures 7.1 & 7.2. Various predicted emission levels in the villages surrounding site are presented in Table 7.3 below.

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FIG 7.1 Isopleth of GLC Prediction for PM₁₀



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FIG 7.2 Isopleth of GLC Prediction for PM_{2.5}

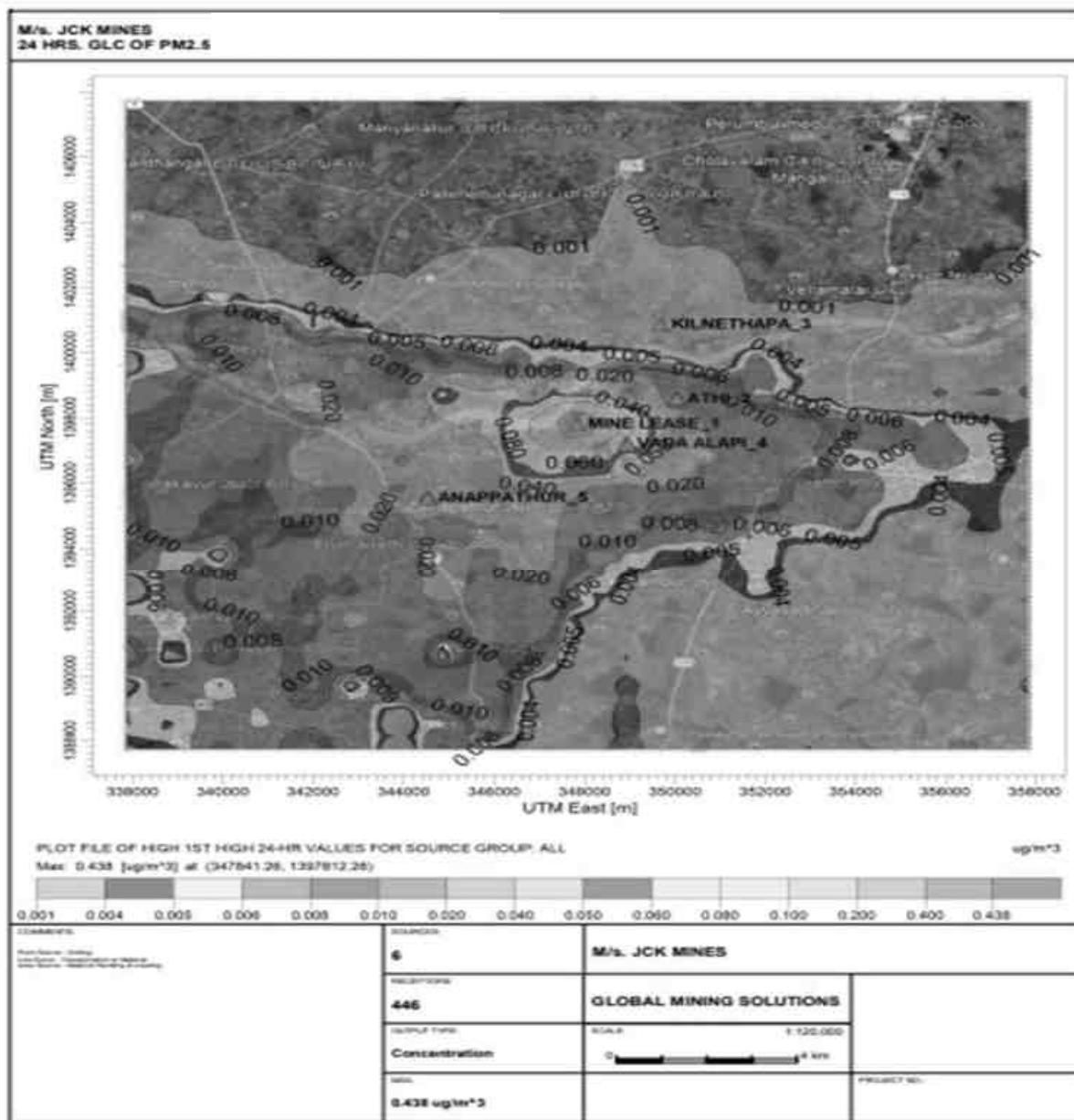


Table 7.3 Concentrations of PM_{2.5} after Project Implementation					
SL. No	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in µg/m³
1	Near Mine lease area	29.3	1.5	30.8	60
2	Athi village	29.3	<1.0	30.3	
2	Kil nethapakkam village	29.1	<1.0	30.1	
3	Vada Alapirandan Pudur village	30.2	<1.0	30.2	
4	Anappathur village	34.3	<1.0	35.3	

Table 7.4 Concentrations of PM₁₀ after Project Implementation					
SL. No	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in µg/m³
1	Near Mine lease area	54.5	7.00	61.50	100
2	Athi village	56.4	<1.0	57.40	
2	Kil nethapakkam village	57.2	<1.0	58.20	
3	Vada Alapirandan Pudur village	60.2	<1.20	61.40	
4	Anappathur village	61.3	<1.36	62.66	

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 PM₁₀ are in the range of 57.40 µg/m³ to 62.66 µg/m³ and for PM_{2.5} are in the range of 30.1 µg/m³ to 35.3 µg/m³ 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.

7.6 HYDROGEOLOGICAL STUDY

Tandarai canal is located at 19m in the Western side of the lease area. Cheyyar River is located at 120m in the Northwestern part of the 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 10m is left on North, East side and a safety distance of 50m left for Northwestern side, 7.5m safety distance is left for adjacent Patta lands.

7.7 SLOPE STABILITY STUDY

The proposed quarry is a very small quarry and the production is also less. Opencast Semi-mechanized mining with a bench height of 5m and bench width of 5m and 80° Slope is proposed. The depth of mining is proposed as 22m 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

7.8 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.

7.9 MINE CLOSURE PLAN

The quarrying operation is proposed up to a depth of 22m only, which will be achieved in 5 years. The ultimate pit dimension will be 179m x 46m x 22m. 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.

CHAPTER 8

PROJECT BENEFITS

The project area is located on barren private 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.

The mining activity at proposed Rough Stone & Gravel of Tvl.JCK Mines, Thiru.J.K.Srinivasan (Partner) cluster will create direct employment opportunity for 22 local people. The PP has proposed CER amount of Rs. 5,00,000 for project surrounding schools development.

CHAPTER 9

ENVIRONMENTAL COST BENEFIT ANALYSIS

Environmental Cost Benefit Analysis is recommended during the scoping stage, if needed. In the TOR granted by SEIAA, Tamil Nadu it is not recommended. Hence not applicable.

CHAPTER 10

ENVIRONMENTAL MANAGEMENT PLAN

10.1 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.

10.2 BASIS 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

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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.
	3.0KLD 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	Tandarai canal is located at a distance of 19m in W of lease area. Cheyyar river is located at a distance of 120m in the NW of lease area. Adequate safety distance is left. No dumping of material or discharge will be done in or near the canal 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.

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Ground Water	The quarrying operation is proposed upto a depth of 22 m maximum below ground level, Water table is found at a depth of 48m in summer and 45m in rainy seasons, 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 0.8 KLD will be treated in septic tank with soak pit.
	Conduct ground water and surface water monitoring for parameters specified by CPCB
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 and 10m) 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.

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	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	The overburden is in the form of top soil with gravel formation, it has been removed while Quarrying operation, the top soil preserved all along the boundary barrier for green belt development.
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 II will be monitored.

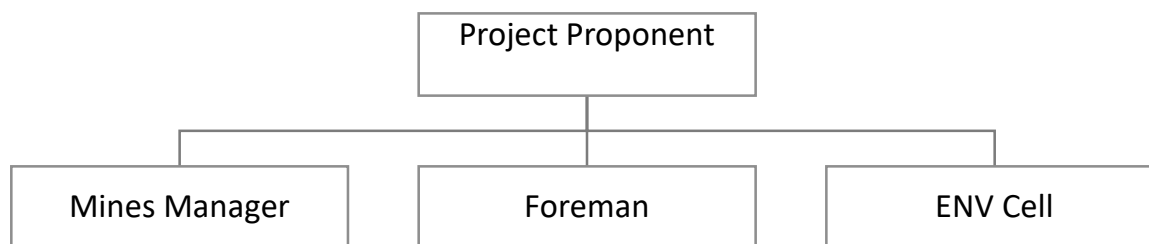
10.3 ADMINISTRATION AND TECHNICAL SETUP

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.

Fig. 10.1 Organization Chart



10.4 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. K. Sudhakaran" 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.

10.5 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.

10.6 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		
S.No.	Budget planned for	Amount (INR)
1	Air sampling	40,000
2	Water sampling	40,000
3	Noise monitoring	20,000
4	Ground vibration test	20,000
5	Drinking water facility	1,00,000
6	Sanitary arrangement	50,000
7	Safety kits	50,000
8	Water sprinkling	1,00,000
9	Afforestation	60,000
Total		4,80,000

10.7 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 4,80,000 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.

CHAPTER 11

SUMMARY & CONCLUSION

11.1 INTRODUCTION

Tvl.JCK Mines, Thiru.J.K.Srinivasan (Partner) has obtained Precise Area Communication Letter from the Deputy Director, Department of Geology and Mining, Tiruvannamalai District to quarry out 81,635m³ of Rough Stone, 8,709m³ of Weathered rock and 9,160m³ of Gravel from an extent of 1.55.0Ha located in S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 and 211/9 at Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

As per EIA notification, 2006 and its subsequent amendments the proposed "Rough Stone & Gravel Quarry of Tvl.JCK Mines" 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 letter No.SEIAA-TN/F.No.9621/SEAC/ToR-1337/2023 Dated 10.02.2023. This report has been prepared in line with the approved TOR for production of maximum excavation of 81,635 Cu.m of Rough Stone, 8,709 Cu.m of Weathered Rock and 9,160 Cu.m of Gravel.

S.No.	Description	Status/Remarks
1.	Sector	Non-coal mining
2.	Category of the project	B1 (Cluster)
3.	Proposed mineral	Rough Stone and Gravel
4.	Type of Lease	Fresh Lease
5.	Extent of the lease	1.55.0 Ha
6.	Proposed depth of Mining	22 m BGL
7.	Method of mining	Opencast Semi-mechanized
8.	Proposed lease period	5 Years
9.	Proposed Environmental Clearance	5 Years

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10.	Proposed production quantity for five years	Rough stone - 81,635 m ³ , weathered rock - 8,709 m ³ and gravel - 9,160 m ³

The Lessee Tvl.JCK Mines, Thiru.J.K.Srinivasan (Partner) is a Partnership firm with sound experience in the identification, quarrying and marketing of Rough Stone & Gravel. The proposed land is a patta land jointly registered in the name of partners of JCK Mines (Thiru.Srinivasan, Thiru.Boopalan, Thiru.Gopalan, Thiru.Vettrivelan and Thiru.Sudhakaran vide patta no.765 and the documents has been attached as Annexure 08.

11.2 LOCATION

This project site is located in Vala Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District with Latitude 12°38'30.31"N to 12°38'37.08"N & Longitude 79°35'54.79"E to 79°35'58.45"E with Survey of India Topo Sheet No. 57P/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 (Summer season i.e. March 2023 to May 2023)

11.3 GEOLOGY

The rock type noticed in the lease area 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 N50°E – S50°W with dipping towards SE70°.

11.4 PROJECT DESCRIPTION

This is a proposed Rough Stone and Gravel quarry by Opencast Semi-mechanized mining method with drilling and blasting. The quarrying is restricted up to a depth of 22m below ground level only. The geological reserves is estimated to be 15,491m³ of Gravel, 15,491m³ of Weathered rock and 3,09,820m³ of Rough stone. The mineable reserve calculated by deducting 7.5m and 10m safety distance and bench loss. The

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mineable reserves is 81,635m³ of Rough Stone 8,709m³ of Weathered rock and 9,160m³ of Gravel which will be recovered at the rate of 100% recovery upto a depth of 22m below ground level for the period of five years.

- It is proposed to quarry out rough stone with 5m bench height, 5m width with 80° slope using conventional opencast semi-Mechanized method. The quarry operation involves shallow jack hammer drilling, slurry blasting, excavation, Loading and transportation of Rough Stone and Gravel.
- The overburden in the form of Gravel and Weathered rock mass after the excavation of Weathered rock mass will preserved all along the boundary barrier if market is rise the same will be loaded into tipper for needy customers.

S.No.	Type of Detail	Description
1	Sector	1(a) Non coal mining
2	Fresh/Existing project	Fresh project
3	Category	B1, because of cluster condition
4	Nature of mineral	Minor mineral, Rough stone, weathered rock and gravel
5	Production	9160 m ³ of Gravel, 8709 m ³ of Weathered rock and 81635m ³ of Rough Stone
6	Life	5 years
7	Waste generation and management	Everything mined out, including gravel in the form of overburden will be sold to needy customers. Hence, no waste generation.
8	Bench height and width	Height and Width – 5m
9	Ultimate pit depth	22m (from 95mRL to 73m RL)
10	End use	Rough Stone and Weathered rock will be loaded in to tippers to needy buyers for producing aggregates, M-sand. Gravel will be supplied to needy customers.

11.5 PROJECT REQUIREMENTS

The requirements of the project is given below.

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S.No.	Nature of requirement	Description
1	Water requirement	Requirement is 5KLD, which will be procured from outside agencies. Out of 5.0KLD, drinking water requirement is 1.0KLD, Green belt requirement is 1.0 KLD and for dust suppression, 3.0 KLD is required. Rain water harvested from mine pit will be used.
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 – 12, temporary employees – 10
4	Financial requirement	The total project cost as per AMP will be INR 58,60,000, including operational cost, fixed asset and EMP cost
5	Funds for Socio economic development	INR 5,00,000 is allocated. In addition, any demand raised by people during public hearing will also be met.

11.6 DESCRIPTION OF LEASE AREA

The features in the study area is given below.

S. No.	Areas	Distance from proposed project
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,	Nearest water body: Tandarai Canal – 19m in W, Cheyyar River – 120m in NW
B	Coastal zone, biospheres,	None in 10km radius

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C	Mountains, forests	None in 10km radius
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	Defence installations	Nil within 15km radius
8	Densely populated or built-up area	Cheyyar – 5.5km in W
9	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	All facilities are available in Cheyyar – 5.5km in W
10	Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	The area contains rock in many places in the surrounding area
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 baseline data collection for meteorology, air, water, noise and soil environments have been carried out during March to May 2023.

Air, water, noise and soil samples are collected and analyzed by M/S.EAU Chemical Mfg Pvt Ltd.

11.7 AIR ENVIRONMENT

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The air monitoring have been carried out in 5 locations and the results are given below.

S. No.	Parameter	A1- Near Mine lease area		A2 – Athi village		A3 – Kil nethapakka m village		A4 – Vada Alapirandan Pudur village		A5 – Anappathur village		NA AQ limits
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	
1	PM ₁₀	42.4	54.5	45.1	56.4	43.1	57.2	45.4	60.2	47.2	61.3	100
2	PM _{2.5}	19.3	29.3	20.4	29.3	18.7	29.1	20.6	30.2	22.2	34.3	60
3	SO ₂	3.4	5.8	3.7	6.4	4.0	6.4	3.8	8.4	4.2	7.6	80
4	NO _x	5.4	7.9	5.8	7.6	6.2	9.2	6.7	11.4	6.8	10.4	80
5	CO	BDL (DL – 1144)										2

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

11.8 WATER ENVIRONMENT

S. No.	Parameters	WS1	WS2	WS3	WS4	WS5	Limits	
		Near Mine lease area	Athi	Kilnet hapak kam	Vada Alapir andan	Anappat hur	Acceptabl e Limits	Permis sible Limits
1	Odour	Agree able	Agree able	Agreea ble	Agreea ble	Agreeabl e	Agreeabl e	Agreea ble
2	Turbidity	<1	<1	<1	<1.0	<1	1	5
3	pH at 25 °C	7.28	7.81	6.89	7.34	7.29	6.5- 8.5	No Relaxat ion
4	Electrical Conductiv ity	1018	389.4	710.5	1656	985.7	-	-

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5	Total Dissolved Solids	612	236	430	995	596	500	2000
6	Total hardness as CaCO ₃	431	171	235	349	408	200	600
7	Calcium as Ca	83.1	43.1	56.8	64.3	74.5	75	200
8	Magnesium as Mg	53.6	15.1	22.3	45.2	53.2	30.0	100
9	Calcium as CaCO ₃	208	108	142	161.0	186	-	-
10	Magnesium as CaCO ₃	223	62.7	93.0	188	221	-	-
11	Total alkalinity as CaCO ₃	319	147	160	326	254	200	600
12	Chloride as Cl ⁻	82.2	34.2	134	342	117	250	1000
13	Free Residual chlorine as Cl ⁻	BDL(D .L- 0.2)	BDL(D .L- 0.2)	BDL (D.L - 0.2)	BDL(D. L-0.2)	BDL(D.L- 0.2)	0.2	1
14	Sulphates as SO ₄ ²⁻	124	13.6	72.6	208	114	200	400
15	Iron as Fe	0.09	0.08	0.05	0.15	0.12	0.3	No Relaxation
16	Nitrate as NO ₃	3.26	BDL(D .L- 1.0)	3.5	2.08	2.93	45	No Relaxation

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17	Fluoride as F	0.36	0.13	0.21	0.39	0.24	1	1.5
19	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)	0.1	0.3

All the values were found to be within permissible limits

11.9 NOISE ENVIRONMENT

Noise levels were measured in 5 locations and the results are given below.

S. No.	Location	Day equivalent	Night equivalent	Day and Night equivalent	Day equivalent limits by CPCB	Night equivalent limits by CPCB
1	NM1 – Mine lease area	45	37.7	43.6	55	45
2	NM2 – Athi	47.3	38.1	45.8		
3	NM3 – Kilnethapakkam	46.2	39.0	44.8		
4	NM4 – Vada Alapirandan	45.2	37.5	43.8		
5	NM5 – Anappathur	48.7	38.7	47.2		

11.10 SOIL ENVIRONMENT

Soil samples are collected from 3 locations and the results are given below.

S.No.	Parameter	SS1 – Mine lease area	SS2 – Athi	SS3 – Kil Nethapakkam
1	pH	7.95	7.25	7.67
2	Electrical Conductivity	184.9	156.7	110.2

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3	Dry Content	97.6	96.5	98.3
4	Water Content	2.4	3.5	1.7
5	Organic Matter	0.15	0.22	0.32
6	Sulphur	BDL(D.L.0.02)	BDL(D.L.0.02)	BDL(D.L.0.02)
7	Phosphorus	4.5	3.2	2.7
8	Texture	sandy loam	clay	silt loam
9	Sand	55.64	32.57	36.58
10	Clay	28.95	26.44	52.47
11	Loam	15.41	40.99	10.95
12	Total Nitrogen	53	68	102
13	Sodium	476	540	386
14	Potassium	720	910	562
15	Water Holding Capacity	3.3	3.7	3.5
16	Porosity	16.4	18.6	16.9

11.11 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.

11.12 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:

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

S. No.	Type of land	Area in sq.km
1	Built-up land	13.13
2	Canal	0.12
3	Crop land	201.15
4	Fallow land	8.34
5	Hill and forest	0.01
6	Land with scrub	7.55
7	Land without scrub	2.93
8	Mining land	2.93
9	Plantations	37.53
10	River	7.96
11	Tanks	41.54
	Total	323.19

11.13 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 3 villages in the study area namely Athi, Vada Alapirandan Pudur and Kilnethapakkam 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 centres and Balwadis/Anganwadis.

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 Cheyyar which is about 5.5km from the lease area.
- Major schools with higher secondary and senior secondary schools are located in Cheyyar.
- The major Panchayat Union located in the area is Cheyyar
- Facilities like petrol pump stations, ATM facility are available in Cheyyar.

11.14 HYDROGEOLOGY OF THE LEASE AREA

Since there is a tandarai canal located at about 19m in the Western side and Cheyyar River is located at 120m in the NW, the hydrological and hydrogeological pattern of the study area is studied in detail using satellite imagery.

Cheyyar River is the major river in the 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.

11.15 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.

The ground water level around the lease area is in between 48m and 45m during a year.

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 only 27m. Hence, there will not be any major impact due to mining on water levels or ground water levels in the area.

Environmental impacts on the following environments are identified

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

11.16 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 only up to 22m 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, 0.83 Ha of lease area will be left as rain water harvesting pond. 0.15 Ha will be developed with green belt. For this, plants like Pongamia pinnata, Syzigium cumini, Albizia lebbeck, Thespesia populnea, Bauhinia racemose, Cassia siamea, Azadirachta indica are selected. A total of 1000 trees are planned to be planted. Spacing will be 3m x 3m.

11.17 WATER ENVIRONMENT: IMPACT AND MITIGATION MEASURES

There is no water body present inside the lease area. The entire water requirement for the project is 5.0KLD which will be sourced from outside agencies. Negligible sewage of 0.8 KLD 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 to only up to a depth of 22m BGL, there will not be any seepage. However, the rain water percolation and collection of water from seepage shall be less than 300lpm 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.

- Tandarai Canal – 19m – W
- Cheyyar River – 120m – 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

11.18 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.

11.19 AIR ENVIRONMENT: IMPACT AND MITIGATION MEASURES

The major air pollutants due to mining operations are fugitive emissions like PM₁₀, PM_{2.5}. Other than these pollutants, gaseous emissions of sulfur dioxide (SO₂) and oxides of nitrogen (NO_x) due to excavation/loading equipment and vehicles plying on haul roads are the cause of air pollution in the project area.

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 unfavourable 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 10m and 7.5m barriers in the lease area.

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

11.20 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 90 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.

11.21 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

11.22 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 5,00,000 for CER activities. This amount will be subjected to change after public hearing.

11.23 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, Rheumatic 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.

11.24 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 4,80,000 is allocated.

11.25 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 22 people directly. Local people will be hired for unskilled labour.
- Through CSR, nearby schools, hospitals will be benefitted.
- For CSR, INR 5,00,000 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 INR 4,80,000 has been allocated for the same. The EMP is dynamic, flexible and subjected to periodic review. For project where the major environmental impacts are associated, EMP will be under regular review. 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, Tamilnadu-636455.

Declaration by Experts contributing to the proposed Rough Stone & Gravel Quarry over an extent of 1.55.0 Ha, while total cluster area of 10.62 Ha at Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu.

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 2023 to May 2023.

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 report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

S. No.	Functional areas	Name of the expert/s	Involvement (period and task**)	Signature and Date
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 2023 to May 2023.</u>	R. Dhanu
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 2023 to May 2023.</u>	K. Abirami
3	SHW	Ramadoss N	Assessment of waste generated from the project, suggested waste management practices. <u>Period: March 2023 to May 2023.</u>	C. Ramadoss
4	SE	Sarasvathy K	Baseline SE study. Data compilation and assessment. Impact of the project on SE status of the area. Formulation of CER plan. <u>Period: March 2023 to May 2023.</u>	K. Sarasvathy
5	EB	Saravanan S	Baseline data collection of related to ecology of the area. <u>Period: March 2023 to May 2023.</u>	S. Saravanan

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

6	HG	Ravinthiran N	<i>Hydrogeological feature of the area. Ground water depth and impact of project on ground water of the area.</i> <u>Period: March 2023 to May 2023.</u>	
7	AQ	Srilatha Thiruveedhula	<i>Air quality modeling utilizing the area source model. Predication of the ground level concentration of the dust. Suggesting suitable mitigation measures.</i> <u>Period: March 2023 to May 2023.</u>	
8	NV	Dhanalakshmi Ramanathan	<i>Ambient noise study of the area. Incremental noise generation due to quarry operation and impact of the noise due to the project.</i> <u>Period: March 2023 to May 2023.</u>	
9	LU	Dhanalakshmi Ramanathan	<i>Preparation of land use map based on satellite imagery. Land use classification and analysis. Impact prediction of the project on the surrounding land environment.</i> <u>Period: March 2023 to May 2023.</u>	

Draft EIA/EMP report of Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

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 2023 to May 2023.</u>	<i>S.V. Prashant</i>
11	SC	Shisupal Sing	Soil monitoring, secondary data collection on soil type, soil management practices, utilization of topsoil. <u>Period: March 2023 to May 2023.</u>	<i>Shisupal Sing</i>
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 2023 to May 2023.</u>	<i>Valliappan Meyyappan</i>

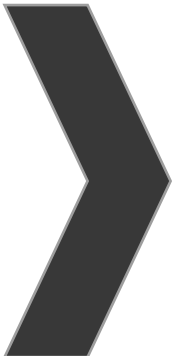
TM-FAE:

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	March to May 2023	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	March to May 2023	Associated with the expert in baseline data collection related to ecology of the study area	
		SC	Shishupal Singh		Associated with the expert in Soil monitoring, secondary data collection on soil type, soil management practices, utilization of top soil	

TM-FAA:

S.No	Name of TM (FAE)	Functional Area	Approved FAE (to work under)	Period of involvement	Type of work	Signature
1	Suresh	WP	Abirami Kaliaperumal	March to May 2023	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	
		AP	Dhanalakshmi		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	March to May 2023	Associated with the expert in Soil monitoring, secondary data collection on soil type, soil management practices, utilization of top soil	
		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	



ANNEXURE-1



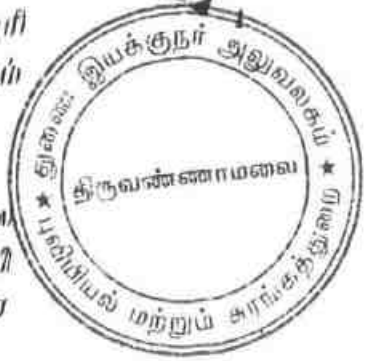
பொருள்: அறிவிக்கை
கனிமங்களும் குவாரிகளும் - திருவண்ணாமலை மாவட்டம் - செய்யார் வட்டம், வடஆளப்பிறந்தான் கிராம புல எண்கள் 211/2A (0.58.0) மற்றும் பலவற்றின் மொத்தப்பரப்பு 1.65.5 ஹெக்டேர் பரப்பில் சாதாரணகல் மற்றும் கிராவல் வெட்டியெடுக்க Tvl.JCK Mines, பங்குதாரர் திரு.J.K.சீனிவாசன் த.பெ. கண்ணன் என்ற நிறுவனத்தினர் விண்ணப்பம் செய்தது - பரிந்துரை அறிக்கை வரப்பெற்றது - சுரங்கத் திட்டம் (Mining Plan) தயார் செய்து சமர்ப்பிக்க கோருவது - தொடர்பாக.

- பார்வை:
1. Tvl.JCK Mines, பங்குதாரர் திரு.J.K.சீனிவாசன் த.பெ. கண்ணன், நெ.782 மாரியம்மன் கோவில் தெரு. ஜம்போடை கிராமம், அழிவிடைதாங்கி அஞ்சல், வெம்பாக்கம் வட்டம், திருவண்ணாமலை என்பவரின் விண்ணப்பம் நாள் 14.07.2022.
 2. இவ்வலுவலக கடிதம் ந.க.எண்.159/கனிமம்/2022, நாள் 14.07.2022.
 3. வருவாய்க்கோட்ட அலுவலர், செய்யார் அவர்களின் கடிதம் ந.க.அ5/3627/2022, நாள் 12.09.2022.
 4. Tvl.JCK Mines, பங்குதாரர் திரு.J.K.சீனிவாசன் த.பெ. கண்ணன் என்ற நிறுவனத்தின் கடிதம் நாள் 19.09.2022.
 5. உதவி புலியியலாளர் மற்றும் தனி வருவாய் ஆய்வாளர், புலியியல் மற்றும் சுரங்கத்துறை திருவண்ணாமலை அவர்களின் புலத்தணிக்கை அறிக்கை நாள் 20.09.2022.
 6. அரசாணை (MS)எண் 169 தொழில் துறை (எம்.எம்.சி1) துறை நாள் 04.08.2020.
 7. தொடர்புடைய ஆவணங்கள்.

திருவண்ணாமலை மாவட்டம், செய்யார் வட்டம், வடஆளப்பிறந்தான் கிராம புல எண்கள் 211/2A (0.58.0), 211/3B (0.10.0), 211/4 (0.08.5), 211/5 (0.05.5), 211/6 (0.08.0), 211/7 (0.13.0), 211/8 (0.32.5) & 211/9 (0.30.0) ஆகியவற்றின் மொத்தப்பரப்பு 1.65.5 ஹெக்டேர் பரப்பில் சாதாரணகல் மற்றும் கிராவல் வெட்டியெடுக்க 10 ஆண்டுகளுக்கு குவாரிக்குத்தகை உரிமம் வழங்கக்கோரி Tvl.JCK Mines, பங்குதாரர் திரு.J.K.சீனிவாசன் த.பெ. கண்ணன் என்ற நிறுவனத்தினர் அளித்த பார்வை 1-ல் கண்ட விண்ணப்பத்தின் மீது பார்வை 3-ல் கண்ட வருவாய்க்கோட்ட அலுவலர், செய்யார் அவர்களின் பரிந்துரை அறிக்கை வரப்பெற்றது.

(Handwritten signature)

2. இந்நிலையில் பார்வை 4-ல் காணும் விவரங்களைப்பற்றிய கடிதத்தில் சாதாரணமாக மற்றும் கிராமல் செட்டி யெடுக்க 10 ஆண்டுகளுக்கு கல்சாரி குத்தகை உரிமம் வழங்க கோரியதை 5 ஆண்டுகளுக்கு மட்டும் குத்தகை உரிமம் வழங்குமாறு கோரியுள்ளார்.



3. அதனைத்தொடர்ந்து பார்வை 5-ல் காணும் திருவண்ணாமலை மாவட்ட புதியில் மற்றும் சுரங்கத்துறை துணை இயக்குநர் அலுவலக மதனி புதியிலாளர் மற்றும் தனி வருவாய் ஆய்வாளர் ஆகியோர் அளித்த பரிந்துரை அறிக்கைகள் பரிசீலிக்கப்பட்டது.

4. Tvl.JCK Mines, பங்குதாரர் திரு.பி.கே.சீனிகாசன் த.பெ. கண்ணன் என்ற நிறுவனத்தினர் சாதாரணக் கற்கள் மற்றும் கிராமல் செட்டி யெடுக்க 5 ஆண்டுகளுக்கு குவாரிக்குத்தகை உரிமம் வழங்குகோரிய திருவண்ணாமலை மாவட்டம், செய்யார் வட்டம், நெடுநா ஆளப்பிறந்தான கிராமம் புன்செய் சர்வே எண்கள் 211/2B (0.48.30) 211/3B (0.09.20), 211/4 (0.08.5) 211/5 (0.05.5) 211/6 (0.08.0) 211/7 (0.13.0) 211/8 (0.32.5) 211/9 (0.30.0) ஆகியவற்றின் மொத்தப்பரப்பு 1.55.0 ஹெக்டேர் நிலப்பரப்பில் எவ்வித தடையும் இன்றி குவாரிப்பணி செய்ய வாய்ப்பு உள்ளதால், மேற்படி, விவரணப்பதாரர் Tvl.JCK Mines, பங்குதாரர் திரு.பி.கே.சீனிகாசன் த.பெ. கண்ணன் என்ற நிறுவனத்தினருக்கு சாதாரண கற்கள் மற்றும் கிராமல் மண் செட்டி யெடுக்க குவாரி குத்தகை உரிமம் வழங்க பரிந்துரை செய்யப்பட்ட 1.55.0 ஹெக்டேர் பரப்பினை கற்குவாரி செய்ய உகந்த புலம் (Precious Area) என தீர்மானித்து கீழ்கண்ட நிபந்தனைகளுக்கு உட்பட்டு அறிவிப்பு செய்யப்படுகிறது.

நிபந்தனைகள்

- 1) விண்ணப்ப புலத்திற்கு வடக்கு மற்றும் கிழக்கில் புல எண் 189-ல் அமைந்துள்ள அத்தி மலைப்புறம்போக்கிற்கு 10மீ பாதுகாப்பு இடைவெளி விடவேண்டும் மற்றும் அரசு புறம்போக்கு புலத்தில் குவாரி கழிவுகள் கொட்டி ஆக்கிரமிப்பு செய்யக்கூடாது.
- 2) பிரஸ்தாப புலத்திற்கு வடமேற்கில் செல்லும் கால்வாய்க்கு 50மீ பாதுகாப்பு இடைவெளி விட வேண்டும்.
- 3) அருகில் உள்ள பட்டா நிலங்களுக்கு 75மீ பாதுகாப்பு இடைவெளி விடவேண்டும்.
- 4) பொதுமக்களுக்கும் அருகிலுள்ள நிலங்களுக்கும் எவ்வித பாதிப்பும் ஏற்படுத்தக்கூடாது.
- 5) குவாரிப்பணி தொடங்குவதற்கு முன்பாக குவாரியை சுற்றி முன் கம்பிவேலி அமைத்து குவாரிப்பணி தொடங்க வேண்டும்.
- 6) முறைப்படியும், விஞ்ஞானபூர்வமாகவும் குவாரிப்பணி செய்யவேண்டும்.
- 7) சான்றிதழ் பெறப்பட்ட போர்மேன், வெடிப்பாளர் மற்றும் சுரங்க மேலாளர் மூலம் முறையே குவாரிப்பணி செய்யப்பட வேண்டும்.
- 8) குவாரிப்பணி தொடங்குவதற்கு முன் சுரங்க பாதுகாப்பு இயக்குநர், சென்னை அவர்களுக்கு தகவல் தெரிவிக்கப்பட வேண்டும்.
- 9) பாறைகளைத் தகர்க்க கைத்துளைப்பான்களை கொண்டு பாறைகளை துளையிட்டு குறைவான வெடிபொருட்கள் பயன்படுத்த வேண்டும்.

(Handwritten signature)

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

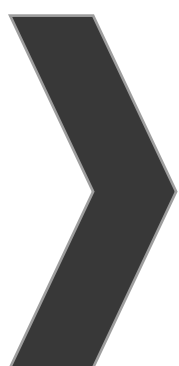
6. எனவே, Tvl.JCK Mines, பங்குதாரர் திரு.J.K.சீனிவாசன் கண்ணன் என்ற நிறுவனத்தினர் ஒப்புதல் பெறப்பட்ட சுரங்கத்திட்ட அறிக்கை மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மைச் சான்றினை பெற்று சமர்ப்பிக்கும் பட்சத்தில் திருவண்ணாமலை மாவட்டம், செய்யார் வட்டம், நெ153 வட ஆளப்பிறந்தான கிராமம் புன்செய் சர்வே எண்கள்.211/2B (0.48.30) 211/3B (0.09.20), 211/4 (0.08.5) 211/5 (0.05.5) 211/6 (0.08.0) 211/7 (0.13.0) 211/8 (0.32.5) 211/9 (0.30.0) ஆகியவற்றின் மொத்தப்பரப்பு 1.55.0 ஹெக்டேர் பரப்பில் கற்குவாரி செய்ய தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி எண்19(1) மற்றும் 20-ன்கீழ் 5 ஆண்டுகளுக்கு குத்தகை உரிமம் வழங்க உரிய நடவடிக்கை மேற்கொள்ளப்படும் என்ற விவரம் தெரிவிக்கப்படுகிறது.

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

துணை இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
திருவண்ணாமலை.

பெறுநர்:

Tvl.JCK Mines,
பங்குதாரர் திரு.J.K.சீனிவாசன்
த.பெ. கண்ணன்,
நெ782 மாரியம்மன் கோவில் தெரு,
ஜம்போடை கிராமம்,
அழிவிடைதாங்கி அஞ்சல்,
வெம்பாக்கம் வட்டம்,
திருவண்ணாமலை.



ANNEXURE-2

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

To
Tvl.JCK Mines,
Rep. by its partner of
Thiru.J.K.Srinivasan,
No.782, Mariamman Kovil Street,
Jambodai Village, Azhivedaithangi Post,
Vembakkam Taluk,
Tiruvannamalai District.

Rc.No. 159/Kanimam/2022, dated:03.10.2022

Sir,

Sub: Quarries and Minerals - Minor Mineral Rough Stone and Gravel - Tiruvannamalai District - Cheyyar Taluk - Vadalapiranthan village - Patta SF.Nos. 211/2B, etc., over an extent 1.55.0 hecsts., - Application preferred by **Tvl.JCK Mines Rep. by its partner Thiru.J.K.Srinivasan** - Precise area communicated - Submission of Mining Plan for approval - Approved - Regarding.

- Ref: 1. Application from Tvl.JCK Mines rep. by its parther Thiru.J.K.Srinivasan,Jambodai Village, Azhivedaithangi Post Vembakkam Taluk dated.14.07.2022.
2. Precise Area Communication Notice Rc.No.159/Kanimam/2022, dated.21.09.2022.
3. Mining Plan submitted by Tvl.JCK Mines rep. by its parther Thiru.J.K.Srinivasan, Vembakkam Taluk dated.03.10.2022.

In the reference 2nd cited, the Deputy Director, Geology and Mining Tiruvannamalai has communicated the SF.Nos.211/2B (0.48.30) 211/3B (0.09.20), 211/4 (0.08.5) 211/5 (0.05.5) 211/6 (0.08.0) 211/7 (0.13.0) 211/8 (0.32.5) & 211/9 (0.30.0) over an extent 1.55.0 hecsts., of Vadalapiranthan village, Cheyyar Taluk, as precise area to the applicant **Tvl.JCK Mines represented by its partner Thiru.J.K.Srinivasan**, 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 21.09.2022.

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 3rd 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 Rc.No.159/Kanimam/2022 dated:21.09.2022 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
22m below ground level (1m Weathered Rock + 1m Gravel + 20m Rough Stone)	Rough Stone : 3,09,820 Weathered Rock : 15,491 Gravel : 15,491	Rough Stone : 81,635 Weathered Rock : 8,709 Gravel : 9,160

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 Tvl.JCK Mines represented by its partner Thiru.J.K.Srinivasan, is approved subject to the following conditions.

- i) The mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such Laws are made by the Central Government, State Government or any other authority.
- ii) 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.
- iii) The mining Plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.

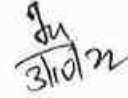
iv) Quarrying operations and production shall be carried out as per the approved Mining Plan and the applicant shall be liable to pay the cost of mineral if there is any deviation in the quantum indicated in the approved year wise quantum of production and any such cases as on date are to be dealt with as per Court direction.

Encl: 2 Copies of Approved Mining Plan.


Deputy Director,
Geology and Mining,
Tiruvannamalai.

Copy submitted to:

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


31/01/22

MINING PLAN FOR VADA ALAPIRANDAN ROUGH STONE & GRAVEL QUARRY

(Prepared under rule 19(1), 41 & 42 of Tamil Nadu

Minor Mineral Concession Rules, 1959)

LOCATION OF THE QUARRY LEASE APPLIED AREA

STATE : TAMIL NADU
DISTRICT : TIRUVANNAMALAI
TALUK : CHEYYAR
VILLAGE : VADA ALAPIRANDAN
S.F.NOS : 211/2B, 211/3B, 211/4, 211/5,
211/6, 211/7, 211/8 and 211/9
EXTENT : 1.55.0Ha

FOR APPLICANT

Tvl.JCK Mines,
Thiru.J.K.Srinivasan (Partner),
No.782, Mariamman kovil street,
Jambodai village,
Azhividaithangi post,
Vembakkam Taluk,
Tiruvannamalai District

ECO-FRIENDLY



SUSTAINABILITY



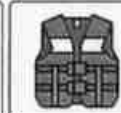
SAFETY



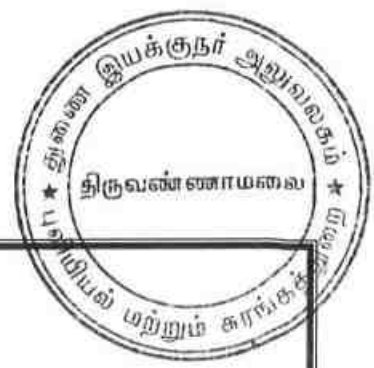
PREPARED BY

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

No.93/36E2, Subramanியar Kovil Street,
Omalur Taluk, Salem District, Tamil Nadu,
Pin code-636 455.
Mobile: 97502 23535 & 94446 54520.



(PPE)



Tvl.JCK Mines,
J.K.Srinivasan (Partner)
S/o.Kannan
No.782, Mariamman kovil street,
Jambodai village,
Azhividaithangi post,
Vembakkam Taluk,
Tiruvannamalai District.

CONSENT LETTER FROM THE APPLICANT

The Mining Plan in respect of **Rough Stone and Gravel** quarry over an extent of 1.55.0hectares of Patta lands in S.F.Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 and 211/9 of Vada Alapirandan Village, Cheyyar 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,Subramanியar 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 binding on me in all respects.

Signature of the Applicant

For Tvl.JCK Mines


J.K.Srinivasan (Partner)

Place: Tiruvannamalai

Date: 23.09.2022



Tvl.JCK Mines,
J.K.Srinivasan (Partner)
S/o.Kannan
No.782, Mariamman kovil street,
Jambodai village,
Azhividaithangi post,
Vembakkam Taluk,
Tiruvannamalai District.

DECLARATION

The Mining Plan in respect of **Rough Stone and Gravel** quarry over an extent of 1.55.0hectares of Patta lands in S.F.Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 and 211/9 of Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State has been prepared with my consultation and I have understood the contents and agree to implement the same in accordance with the Mining Laws.

Signature of the Applicant

For Tvl.JCK Mines


J.K.Srinivasan (Partner)

Place: Tiruvannamalai

Date: 23.09.2022



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 1.55.0hectares of Patta lands in S.F.Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 and 211/9 of Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State applied by Tvl.JCK Mines, Thiru.J.K.Srinivasan (Partner)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: 24.09.2022



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 1.55.0hectares of Patta lands in S.F.Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 and 211/9 of Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State for Tvl.JCK Mines, Thiru.J.K.Srinivasan (Partner), 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: 24.09.2022



CERTIFICATE

Certified that I, C.Natarajan, residing at No.93/36 E2, Subramaniam 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 1.55.0Ha of (Patta lands) in S.F.Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 and 211/9 of Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District by Tvl.JCK Mines, Thiru.J.K.Srinivasan (Partner), 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: 24.09.2022



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MINING PLAN FOR MINOR MINERALS

ROUGH STONE AND GRAVEL

Over an extent of 1.55.0hectares of Patta land in S.F.Nos.211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 and 211/9 of Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

(PREPARED UNDER RULE 19(1), 41 and 42 OF TNMMCR 1959)

1.0 Introduction and Executive Summary;

1. The present Mining Plan is prepared for Tvl.JCK Mines, Thiru.J.K.Srinivasan (Partner) S/o.Kannan no.782, Mariamman kovil street, Jambodai village, Azhividaithangi post, Vembakkam Taluk, Tiruvannamalai District.
2. The application was processed by the Deputy Director, Department of Geology and Mining, Tiruvannamalai, and passed an order vide Rc.No.159/Kanimam/2022 dated 21.09.2022 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 1.55.0 hectares of Patta lands in S.F.Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 and 211/9 of Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District of Tamil Nadu State for a period of five years.
3. Accordingly, Mining Plan is prepared under the provisions of rule 19(1), 41 and 42 as per the amendments under Tamil Nadu Minor Mineral Concession Rules, 1959 by incorporating following the conditions imposed in the precise area communication letter.
 - a) A safety distance 10m provided to Government (S.F.No.169 Athi Malai Poramboke) land situated on north and eastern side and applicant should not dump any quarry waste in adjacent Government land.



- b) A safety distance 50m provided to Canal passing on northwestern side of the quarry lease applied area.
 - c) A safety distance of 7.5m should be provided to the adjoining patta 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.
 - i) Applicant should use jackhammer and mild explosive during blasting in quarry.
4. Geological Resources is estimated at 3,09,820m³ of Rough stone, 15,491m³ of Weathered Rock and 15,491m³ of gravel formation and Mineable Reserves is estimated at 81,635m³ of Rough Stone, 8,709m³ of Weathered Rock and 9,160m³ 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 81,635m³ of Rough Stone, 8,709m³ of Weathered Rock and 9,160m³ of gravel formation for the period of five years.
 6. 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 10Kms 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) under B2 Category.

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	:	Vada Alapirandan	
b.	Name of the Panchayat Union	:	Anakavoor	
c.	The proposed total Movable Reserves	:	81,635m ³ of Rough Stone, 8,709m ³ of Weathered Rock 9,160m ³ of gravel formation	
d.	The proposed quantity of reserves (level of production) for Five years to be mined is (Recoverable reserves)	:	81,635m ³ of Rough Stone, 8,709m ³ of Weathered Rock 9,160m ³ of gravel formation	
e.	Total extent of the area	:	1.55.0Ha	
f.	Proposed Period of mining	:	Five Years	
g.	Existing depth	:	It is fresh quarry lease applied area	
h.	Proposed Depth of mining	:	22m (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. 12,30,000/- Rs. 41,50,000/- Rs. 4,80,000/- Total Project cost(A+B+C)= Rs. 58,60,000/-	
l.	The area applied for lease is bounded by twenty two corners and the coordinates are clearly marked in plate no II.			
	Corners	Co- ordinates	Distance between the corners	
		Latitude	Longitude	
	1	12° 38' 33.03" N	79° 35' 54.79" E	1-2 = 92.4m
	2	12° 38' 36.00" N	79° 35' 55.29" E	2-3 = 48.0m
	3	12° 38' 37.08" N	79° 35' 56.45" E	3-4 = 56.2m
	4	12° 38' 36.58" N	79° 35' 58.24" E	4-5 = 5.2m
	5	12° 38' 36.74" N	79° 35' 58.30" E	5-6 = 47.0m
	6	12° 38' 35.22" N	79° 35' 58.45" E	6-7 = 96.4m
	7	12° 38' 32.09" N	79° 35' 58.24" E	7-8 = 66.6m
	8	12° 38' 30.31" N	79° 35' 56.97" E	8-9 = 25.0m
	9	12° 38' 30.63" N	79° 35' 56.21" E	9-10 = 27.8m
	10	12° 38' 31.52" N	79° 35' 56.39" E	10-11 = 19.4m
	11	12° 38' 32.13" N	79° 35' 56.23" E	11-12 = 22.4m
	12	12° 38' 32.77" N	79° 35' 56.59" E	12-13 = 16.0m
	13	12° 38' 32.69" N	79° 35' 56.07" E	13-14 = 27.2m
	14	12° 38' 32.95" N	79° 35' 55.21" E	14-1 = 12.8m

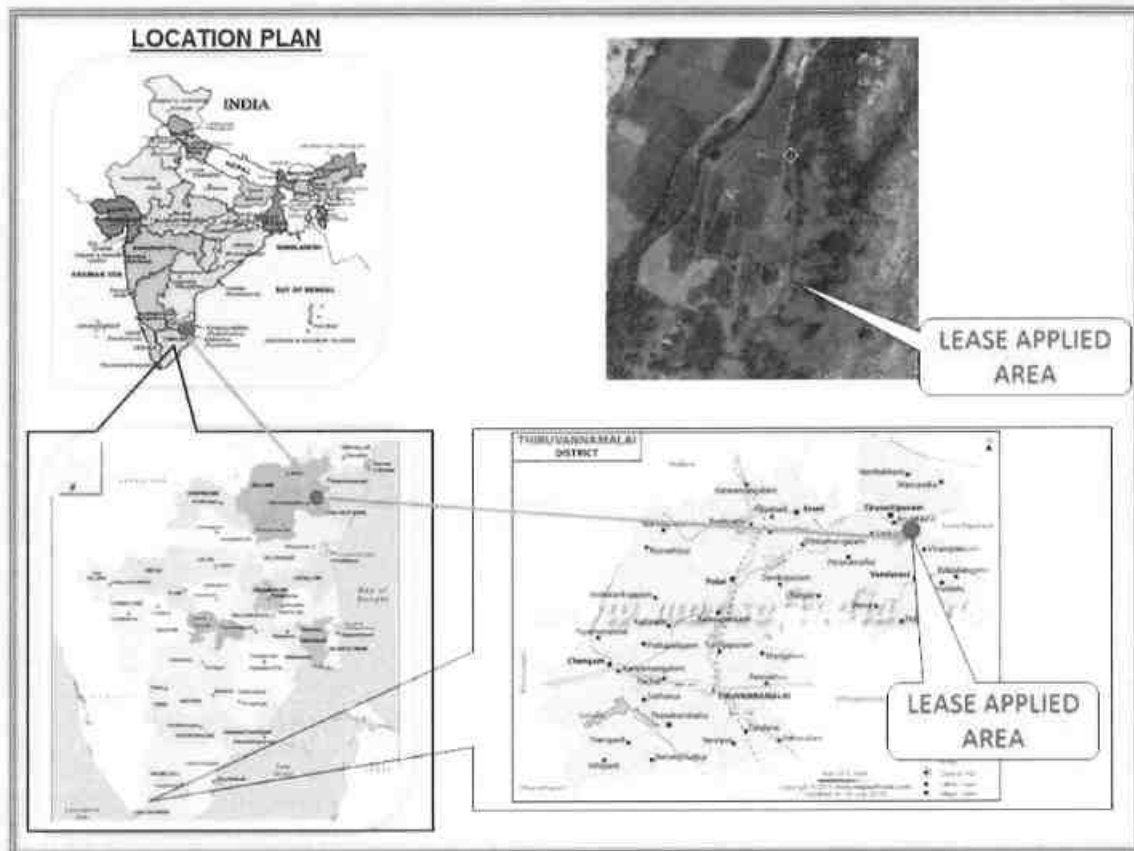


2.0 General Information:			
2.1	a.	Name of the Applicant	: Tvl.JCK Mines,
	b.	Address of the Applicant with phone No and e-mail id if any	: Thiru.J.K.Srinivasan (Partner) S/o.Kannan No.782, Mariamman kovil street, Jambodai village, Azhividaithangi post, Vembakkam Taluk, Tiruvannamalai District. Pincode:604402 Cell No.: 9786228697.
	c.	Status of the Applicant	: Partnership firm
2.2	a.	Mineral Which the applicant intends to mine	: Rough Stone and Gravel.
	b.	Precise area communication letter No.	: Precise area communication letter received from the Deputy Director, Department of Geology and Mining, Tiruvannamalai, Rc.No.159/Kanimam/2022 dated 21.09.2022
	c.	Period of permission / lease granted	: The Deputy Director, Department of Geology and Mining, Tiruvannamalai, has grant of lease period for five years .
	d.	Name and Address of the QP preparing Mining Plan	: C.Natarajan, M.Sc.,M.Phil., Qualified Person No.93/36E2, Subramaniyar Kovil Street, Omalur Taluk, Salem District, Tamil Nadu, Pin-636 455. Mobile: 97502 23535 & 94446 54520.



3.0 Location:

S.No	Details of the Area:	
1	Corner Coordinates	Latitude :12°38'30.31"N to 12°38'37.08"N Longitude :79°35'54.79"E to 79°35'58.45"E
2	Toposheet Number	57 P/10
3	The altitude of the area	95m (MSL)
4	Extent	1.55.0Ha
5	Survey Nos	211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 and 211/9
6	Village	Vada Alapirandan
7	Taluk	Cheygar
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 partners of JCK Mines (Thiru.Srinivasan, Thiru.Boopalan, Thiru.Gopalan, Thiru.Vettrivelan and Thiru.Sudhakaran vide patta no.765. Please refer Annexure No: IV.
c.	Toposheet No. with Latitude and Longitude	:	Topo Sheet No: 57 P/10 Latitude :12°38'30.31"N to12°38'37.08"N Longitude :79°35'54.79"E to79°35'58.45"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 Nedungal - Anappathur village road on southern side of the area. The Nearest Railway line is Kanchipuram – Chengalpattu line which is about 24.5Km on the Northeastern side of the area.

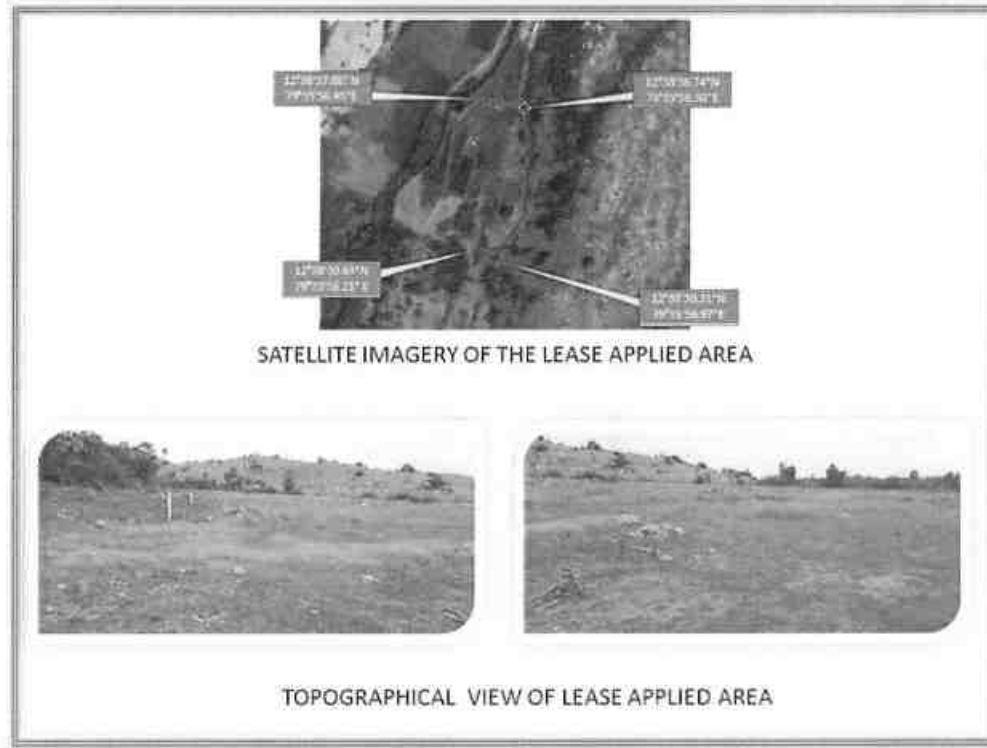


Fig. Location of the lease Applied Area



PART - A

4.0 Geology and Mineral Reserves:

4.1	a. Topography	: ➤ The area applied for quarry lease is exhibits almost plain topography covered by Gravel formation. The massive Charnockite formation is noticed below 1m (Avg) Gravel and 1m weathered rock formation and sloping towards Southeastern side of the area, the altitude of the area is above 95m (maximum) from MSL. ➤ No major river is found nearby the lease applied area. ➤ Water table is found at a depth of 48m in summer and 45m in rainy seasons. ➤ Temperature of the area is reported to be 18°C to a maximum of 42°C during summer. ➤ Rainfall of this area is about 800mm to 900 mm during the both NE & SW monsoons.
	b. General Geology of the Area	: The area is underlain by the wide range of metamorphic rocks of peninsular gneissic complex. These rocks are extensively weathered and overlain by the recent valley fills and alluvium at places. The geological formations found in the district are Archaean rocks like Gneisses, Granites, Charnockites basic granulites and calc-gneisses. The younger formations are Quartz veins and pegmatite. The rock type noticed in the area for lease is Charnockite which contains mostly Quartz and Feldspar with some ferromagnesian minerals. The Charnockite is part of peninsular Gneisses, a high grade metamorphic rock. The strike of the Charnockite formation is N50°E – S50°W with dipping towards SE70°.



			The general geological succession of the area is given as under. <table><thead><tr><th><u>AGE</u></th><th></th><th><u>ROCK TYPE</u></th></tr></thead><tbody><tr><td>Recent</td><td>-</td><td>Reddish and gravelly soil</td></tr><tr><td></td><td>Unconformity</td><td></td></tr><tr><td>Archaean</td><td>-</td><td>Dolerite dyke Charnockite, Peninsular Gneissic complex and Calc Gneiss</td></tr></tbody></table>	<u>AGE</u>		<u>ROCK TYPE</u>	Recent	-	Reddish and gravelly soil		Unconformity		Archaean	-	Dolerite dyke Charnockite, Peninsular Gneissic complex and Calc Gneiss
<u>AGE</u>		<u>ROCK TYPE</u>													
Recent	-	Reddish and 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 outcrops surrounding the lease applied area.												
4.3	a.	Estimation of Reserves	The Geological and Recoverable reserves are estimated by cross sectional method. Totally three sections have been drawn, one section drawn length wise as (X-Y) and another two section drawn width wise as (A-B) and (C-D) to cover maximum area considered for lease. The Plans and Sections have been drawn with a scale of 1:1000 and 1:500 respectively. Please refer plate No.III.												

a. Geological Resources

The quarrying is restricted up to a depth of 22m Below ground level only. Availability of Resources is given below.

Table No-1

Section	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Gravel formation in m ³	Weathered Rock in m ³	Geological Resources of Rough stone in m ³
XY-AB	112	102	1	11424	11424		
	112	102	1	11424		11424	
	112	102	20	228480			228480
	Total				11424	11424	228480
XY-CD	83	49	1	4067	4067		
	83	49	1	4067		4067	
	83	49	20	81340			81340
	Total				4067	4067	81340
	Grand Total				15491	15491	309820

Gravel Formation : 15,491m³
Weathered Rock Formation : 15,491m³
The Geological Resources of Rough stone : 3,09,820m³



b. Mineable Reserve

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

Table No-2

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Gravel formation in m ³	Weathered Rock in m ³	Mineable Reserves of Rough stone in m ³
XY-AB	I	104	65	1	6760	6760		
	II	103	63	1	6489		6489	
	III	100	57	5	28500			28500
	IV	93	44	5	20460			20460
	V	86	31	5	13330			13330
	VI	73	18	5	6570			6570
Total						6760	6489	68860
XY-CD	I	75	32	1	2400	2400		
	II	74	30	1	2220		2220	
	III	71	25	5	8875			8875
	IV	65	12	5	3900			3900
Total						2400	2220	12775
Grand Total						9160	8709	81635

The mineable reserve is computed as 81,635m³ of Rough stone, 8,709m³ of Weathered rock formation and 9,160m³ of Gravel formation upto a depth of 22m below ground level only.

Gravel and weathered rock mass will be removed first, after the excavation of weathered rock mass will preserved all along the boundary barrier if market is rise the will be loaded into tipper for needy customer this will be done after paying the necessary Seigniorage Fees to Government.

5.0 Mining:

5.1	Method of Mining	:	1. Opencast method of semi mechanized mining with 5.0m height 5m width and 80° slope of the bench. 2. However, as far as the quarrying of Rough stone is concerned, observance of the provisions of Regulation 106(2) (b) as above is seldom[possible due to various inherent petrogenetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the above regulation from the Director of mines safety for which necessary provision is available with the regulation 106 (2) (b) of MMR-1961, under Mine Act-1952.



5.2	Mode of Working	: The rough stone is proposed to quarry 5m bench height, 5m width with 80° slope and with conventional opencast semi-Mechanized method. The quarry operation involves shallow jack hammer drilling, slurry blasting, excavation, Loading and transportation of Rough stone to the needy buyers. The production of Rough stone in this quarry involves the following method which is typical for Rough Stone quarrying in contrast to other major mineral mining. Splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy buyers. Occasionally hydraulic excavators are attached with rock breakers for fragmentation to avoid secondary blasting. The primary boulders thus splitted are removed from the pits by excavators and further made to smaller sizes by rock breakers attached in excavators. It is a conventional opencast semi mechanized method of mining.
5.3	Proposed bench height & Width	: Quarrying of Rough Stone is proposed bench height of 5m and bench width of 5m.
5.4	Details of Overburden / Mineral Production proposed for the first 5 years.	: The overburden in the form of Gravel and weathered rock mass after the excavation of weathered rock mass will preserved all along the boundary barrier if market is rise the will be loaded into tipper for needy customer this will be done after paying the necessary Seigniorage Fees to Government. The excavated rough stone and gravel 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.



The Yearwise Production and Development Table

Table No -3

Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Gravel in m ³	Weathered Rock in m ³	Mineable reserve of Rough stone in m ³
I	XY-AB	I	61	65	1	3965	3965		
		II	60	63	1	3780		3780	
		III	57	57	5	16245			16245
	Total						3965	3780	16245
II	XY-AB	I	43	65	1	2795	2795		
		II	43	63	1	2709		2709	
		III	43	57	5	12255			12255
	XY-CD	I	31	32	1	992	992		
		II	31	30	1	930		930	
		III	31	25	5	3875			3875
	Total						3787	3639	16130
III	XY-CD	I	44	32	1	1408	1408		
		II	43	30	1	1290		1290	
		III	40	25	5	5000			5000
		IV	65	12	5	3900			3900
	XY-AB	IV	34	44	5	7480			7480
	Total						1408	1290	16380
IV	XY-AB	IV	59	44	5	12980			12980
		V	23	31	5	3565			3565
	Total								16545
V	XY-AB	V	63	31	5	9765			9765
		VI	73	18	5	6570			6570
	Total								16335
Grand Total							9160	8709	81635

The applicant has proposed to carry out 81,635m³ of Rough stone 8,709m³ of Weathered rock formation and 9,160m³ of Gravel formation at the rate of 100% recovery upto a depth of 22m below ground level for the period of five years.

5.5	Machineries to be used						
a.	Drilling		:	It is proposed to use following machineries for quarrying rough stone			
	S.No	Type	Nos	Dia Hole mm	Size Capacity	Make	Motive power
	1	Jack hammer	3	32	1.2m to 6m	Atlas Copco	Compressed air
	2	Compressor	1	-	400 psi	Atlas Capco	Diesel Drive



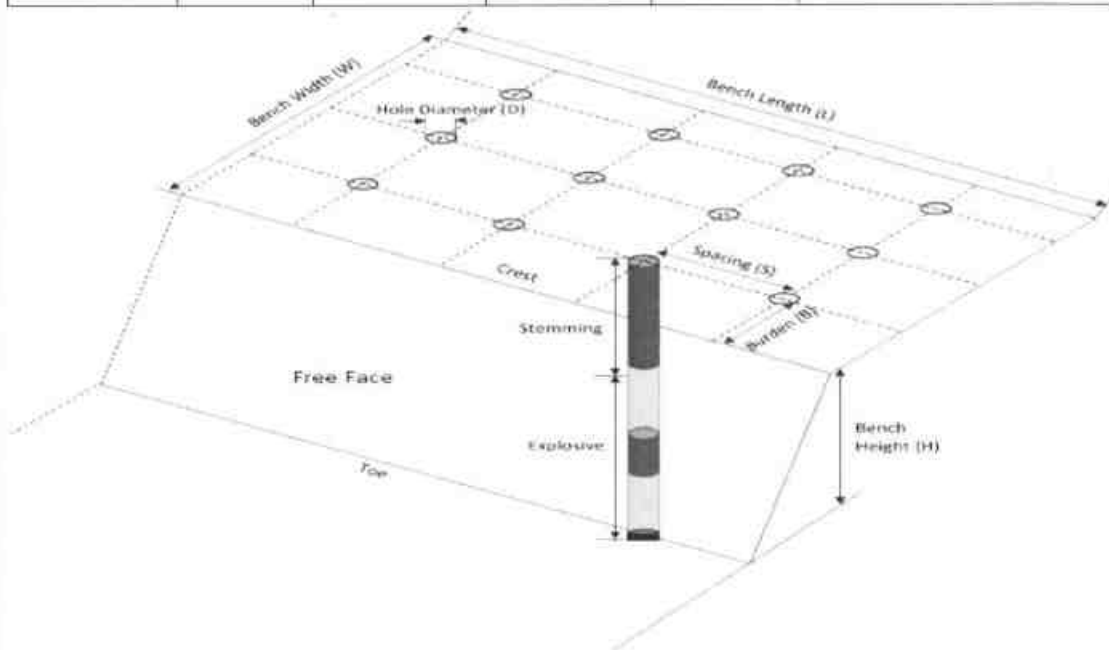
	b.	Loading	:	Excavator of 0.90m ³ bucket capacity (with Rock breaker attachment) (1No).												
	c.	Transportation	:	Tipper 2Nos (5/10Ts) capacity.												
5.6		Disposal of Overburden	:	The overburden in the form of Gravel and weathered rock mass after the excavation of weathered rock mass will preserved all along the boundary barrier if market is rise the will be loaded into tipper for needy customer this will be done after paying the necessary Seigniorage Fees to Government. Gravel 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.												
5.7		Brief Note on Conceptual Mining Plan for the entire lease period	:	Conceptual Mining Plan is prepared with an object of five years of systematic development of bench lay outs, selection of ultimate pit limit, depth of quarrying, ultimate pit slope, selection of sites for construction of infrastructures etc. Ultimate pit size is designed based on certain practical factors such as the economical depth of mining, safety zones, permissible areas etc. Ultimate Pit dimension is given as under, <table><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><tr><td>I</td><td>179</td><td>46</td><td>22m</td></tr></table> Afforestation has been proposed on all along the boundary barrier by planting trees. All the baseline information studies like Air Quality monitoring, Noise and Vibration monitoring, Water Analysis studies will be carried out every year as per the MOEF norms.	Ultimate Pit dimension (M)				Pit No	Length (max) in (m)	Width (Avg) in (m)	Depth(max) in(m)	I	179	46	22m
Ultimate Pit dimension (M)																
Pit No	Length (max) in (m)	Width (Avg) in (m)	Depth(max) in(m)													
I	179	46	22m													



6.0 Blasting:

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

Diameter of the hole	Spacing	Depth	Burden for hole	Pattern of hole	Inclination of hole
32-36mm	0.6m	1 to 1.5m	0.6m	Zig Zag	70° from the horizontal



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



6.3	Measures proposed to minimize ground vibration due to blasting	: ➤ Controlled blasting measures will be adopted for minimizing ground vibration and fly rock. ➤ Shallow depths jackhammer drilling and blasting is proposed to be carried out with minimum use of explosive mainly to give shattering effect in rough stone for easy excavation and to control fly rock. <table border="1"> <tr> <td>Number of holes</td> <td>: 48</td> </tr> <tr> <td>Powder factor</td> <td>: 6Ts/Kg of explosives</td> </tr> <tr> <td>Total explosive required</td> <td>: 24Kg 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	: 48	Powder factor	: 6Ts/Kg of explosives	Total explosive required	: 24Kg slurry explosives	Charge / hole	: 0.5Kg	Blasting time	: 12-2 Pm
Number of holes	: 48											
Powder factor	: 6Ts/Kg of explosives											
Total explosive required	: 24Kg slurry explosives											
Charge / hole	: 0.5Kg											
Blasting time	: 12-2 Pm											
6.4	Storage of Explosives and safety measures to be taken while blasting.	: ➤ The applicant will engage an authorized explosive agency to carry out the small amount of blasting and it will be supervised by competent and statutory foreman/ mines manager. ➤ <i>The applicant ensure that will appoint the Mate (Should have Valid Blaster Certificate) during Blasting Operation.</i>										
7.0 Mine Drainage:												
7.1	Depth of Water table	: The ground water table is reported as 48m below ground level. In the proposed mining plan only 22m Below ground level depth has been envisaged as workable depth for safe & economic quarrying for the entire lease period. Hence the quarrying operation may not affect the ground water.										
7.2	Arrangement and Places where the mine water is finally proposed to be discharged	: The ground water may not rise immediately in this type of mining. However, the rain water percolation and collection of water from the seepage shall be less than 300lpm and it shall be pumped about periodically by a stand by diesel powered Centrifugal pump motivated with 7.5H.P.Motor. The quality of water is potable and it is not contaminated with any hazardous things. Hence, water stored in the quarry pit will be pumped into the adjacent agricultural fields. Further the water stored in the old pit will also be used for plantation purposes										



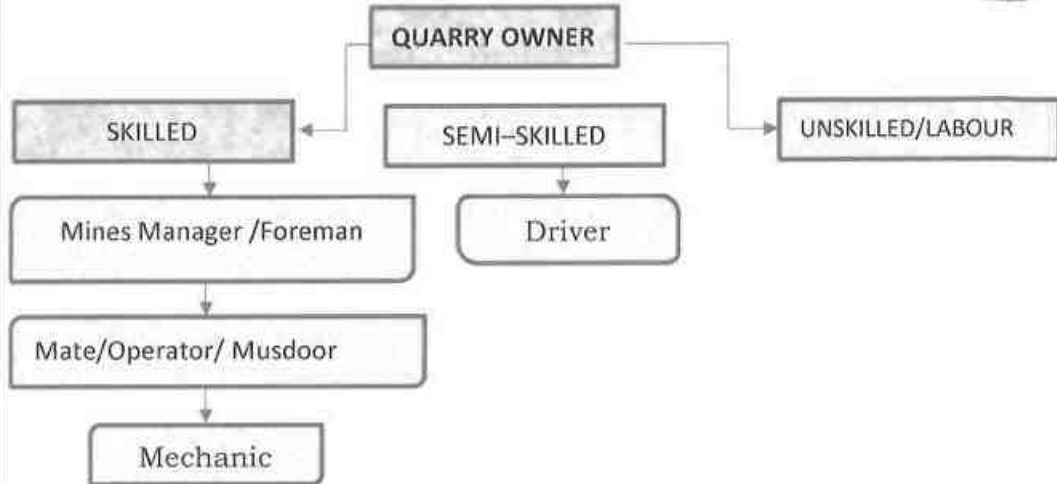
8.0 Other Permanent Structures:		
8.1	Habitations / Village	: There are no habitations within a radius of 300m.
8.2	Power lines (HT/LT)	: There is no HT or LT line located within the radius of 50m.
8.3	Water bodies (River, Pond, Lake, Odai, Channel etc)	: There is Cheyyar river passing northwestern side of the area and is 120m away from the area, There is canal passing on northwestern side of the area and is 50m distance maintained.
8.4	Archeological / Historical Monuments	: There are no Archeological / Historical Monuments within a radius of 500m.
8.5	Road (NH, SH, Village Road etc)	: The Nearest National Highway (NH-48) Chennai – Krishnagiri which is about 26Km on the Northern side of the area. The State Highway (SH-116) Kanchipuram – Vandavasi is about 4.8Km on southeastern side of the area.
8.6	Places of Worship	: There are no Places of Worship within a radius of 500m.
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/ Foreman	2 No.
		Mate	1 No.
		Operator	6 No
		Mechanic	1 No.
2.	Semi-skilled	Driver	2 No.
3.	Unskilled	Labours	10Nos
Total =			22Nos

Allowing 10% absentee, the no. of men of roll will be around 20.

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 Vada Alapirandan village which is about 1.7km on southeastern 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 6.5Km (NW) in Cheyyar the competent and Statutory foreman/ permit manager will be in charge of first aid.
d.	Labour Health	:	As per Mines Rule, Periodic medical examination related to occupational health safety will be conducted to all the workers in applicant's own cost.
e.	Precautionary safety measures to the Labourers:		
	Safety provisions like helmet, goggles, safety shoes, Dust mask, Ear muffs etc., have to be provided as per the circulars and amendments made for Mine labours under the guidance of DGMS being a mechanized operation. Necessary training will be conducted once in a year to all the employees with the help of qualified and experienced officers to train about the safe and systematic quarrying operation.  		



PART - B

10.0 Environmental Management Plan:

10.1	Existing Land Use Pattern	:	1. The area is exhibits almost plain topography covered by Gravel formation. 2. Quarrying operation is proposed up to a depth of 22m Below ground level for the proposed mining plan period. 3. Fluctuation of Water table in this area is in between 48m and 45m during a year. 4. This region receives the average annual rainfall of 800mm to 900mm. The surrounding area is practiced by the seasonal cultivation. The existing land use pattern is given as under. Table No-4 <table border="1"> <thead> <tr> <th>Sl. No.</th><th>Land Use</th><th>Present Area (Hect)</th><th>Area in use during the quarrying period (Hect)</th></tr> </thead> <tbody> <tr> <td>1.</td><td>Quarrying Pit</td><td>Nil</td><td>0.83.0</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>Nil</td><td>0.01.0</td></tr> <tr> <td>4.</td><td>Green Belt</td><td>Nil</td><td>0.15.0</td></tr> <tr> <td>5.</td><td>Unutilized</td><td>1.55.0</td><td>0.55.0</td></tr> <tr> <td></td><td>Total =</td><td>1.55.0</td><td>1.55.0</td></tr> </tbody> </table>	Sl. No.	Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)	1.	Quarrying Pit	Nil	0.83.0	2.	Infrastructure	Nil	0.01.0	3.	Roads	Nil	0.01.0	4.	Green Belt	Nil	0.15.0	5.	Unutilized	1.55.0	0.55.0		Total =	1.55.0	1.55.0
Sl. No.	Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)																												
1.	Quarrying Pit	Nil	0.83.0																												
2.	Infrastructure	Nil	0.01.0																												
3.	Roads	Nil	0.01.0																												
4.	Green Belt	Nil	0.15.0																												
5.	Unutilized	1.55.0	0.55.0																												
	Total =	1.55.0	1.55.0																												
10.2	Water Regime	:	Water table in this area is noticed at a depth of 48m and presently, in the proposed mining plan only 22m Below ground level depth has been envisaged as workable depth for safe & economic quarrying for the entire lease period. hence, it will not affect the ground water depletion of this area.																												
10.3	Flora and Fauna	:	Except acacia bushes, no other valuable trees are noticed in the applied area. Further, neither flora of botanical interest nor fauna of zoological interest is noticed in this area.																												
10.4	Climatic conditions	:	Generally subtropical climatic condition prevails throughout the year and there is no sharp variation in climate. This District receives rain both in south west and north east monsoon. The average rainfall is about 800mm to 900mm and the temperature ranges from 18°C during winter and to a maximum of 42°C during the summer.																												



10.5	Human Settlement	:	The nearest habitations with the population is given as under.
Table No-5			
S. No	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population
1.	Athi	1.4km - NE	150
2.	Velianallur	2.1km - NW	350
3.	Vada Alapirandan	1.7Km – SE	250
4.	Anappathur	1.8Km-SW	300
10.6	Plan for Air, Dust Suppression	:	Air or dust expected to be generated from drilling process, hauling roads, places of excavation etc., will be suppressed by periodical wetting of land by water spraying. Wet drilling and dust extractor arrangements will be provided to drilling units so as to control raise of dust from the site of drilling. Operators, those exposed directly to such conditions will be provide such protective equipment like mask, ear plug, helmet, gloze etc., as per the Mines Act.
10.7	Plan for Noise Control	:	Quarrying of Rough Stone will be carried out by drilling and blasting by using low power explosives, and hence, noise will be very minimum. However, periodical noise level monitoring will be carried out to check the noise level in and around the quarry site. Nowhere the noise level should exceed the permissible limit of 80db during the quarry working hours.
10.8	Environmental Impact Assessment Statement Describing Impact on mining on the next Five years	:	The mining plan proposed is for a small production of Rough stone without involving deep hole drilling and heavy blasting. Such limited mining activity is not likely to cause any impact adversely on environment as far as pollution of air, water and noise is concerned, anyhow environmental impact studies will be conducted as per EIA notification issued by MOEF. It is B2 Category mine.



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 22m (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 22m 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 and 10m 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 a phased manner as described below. Table No-6 <table><tr><th>Year</th><th>No. of tress proposed to be planted</th><th>Survival %</th><th>Area to be covered Sq.m</th><th>Name of the species</th><th>No of trees expected to be grown</th></tr><tr><td>I</td><td>30</td><td>80%</td><td>300</td><td>Neem/Pungan</td><td>24</td></tr><tr><td>II</td><td>30</td><td>80%</td><td>300</td><td>Neem/Pungan</td><td>24</td></tr><tr><td>III</td><td>30</td><td>80%</td><td>300</td><td>Neem/Pungan</td><td>24</td></tr><tr><td>IV</td><td>30</td><td>80%</td><td>300</td><td>Neem/Pungan</td><td>24</td></tr><tr><td>V</td><td>30</td><td>80%</td><td>300</td><td>Neem/Pungan</td><td>24</td></tr></table> Nearly 1500Sq.m area is proposed to use under afforestation by planting 30nos. of Neem/Pungan trees during every year with an anticipated survival rate of 80%. The Quarry landuse, layout and afforestation plan is shown in Plate No.III.	Year	No. of tress proposed to be planted	Survival %	Area to be covered Sq.m	Name of the species	No of trees expected to be grown	I	30	80%	300	Neem/Pungan	24	II	30	80%	300	Neem/Pungan	24	III	30	80%	300	Neem/Pungan	24	IV	30	80%	300	Neem/Pungan	24	V	30	80%	300	Neem/Pungan	24
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IV	30	80%	300	Neem/Pungan	24																																		
V	30	80%	300	Neem/Pungan	24																																		
10.12	Proposed Financial Estimate / Budget for (EMP) Environment Management																																						
	A.Fixed Asset Cost:																																						
	1. Land Cost (600000/1Ha)=	:	Rs.9,30,000																																				
	2. First aid room and accessories	:	Rs.1,00,000																																				
	3. Labour Shed		Rs.1,00,000																																				
	4. Sanitary Facility		Rs.1,00,000																																				
	Total=		Rs.12,30,000/-																																				



B.Operational Cost:		
1. Machineries	:	Rs.40,00,000-
2. Fencing cost	:	Rs. 1,50,000
Total	:	Rs.41,50,000/-
C.EMP Cost:		Budget Provision for the entire quarrying period.
	:	Air Quality Sampling = Rs. 40,000/-
	:	Water Quality Sampling = Rs. 40,000/-
	:	Noise Monitoring = Rs. 20,000/-
	:	Ground vibration test = Rs. 20,000/-
Expenditure		
1. Drinking water facility	:	Rs.1,00,000/-
2. Sanitary Arrangments	:	Rs. 50,000/-
3. Safety kids	:	Rs. 50,000/-
4. Water sprinkling	:	Rs. 1,00,000/-
5. Afforestation	:	Rs. 60,000/-
Total=	:	Rs. 4,80,000/-
Total Project Cost (A+B+C)	:	Rs. 58,60,000/-
CSR Cost(2% of Total Project Cost)	:	Rs. 1,17,200/-

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

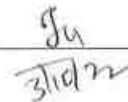

C.Natarajan, M.Sc.,M.Phil.,
Qualified Person
C.NATARAJAN M.Sc.,M.Phil.,
Qualified Person

Place : Salem
Date : 24.09.2022

This Mining Plan is Approved
Subject to the Conditions/Stipulation
Indicated In The Mining Plan Approval
Letter No. 159 /mines/2022 Dt: 03/10/2022
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.



ம.க.எண்:159/கனிமம்/2022

துணை இயக்குநர் (புவியியல் மற்றும் சுரங்கத்துறை)
(புவியியல் மற்றும் சுரங்கத்துறை)
திருவண்ணாமலை-4.
நாள்: 21.09.2022
திருவண்ணாமலை

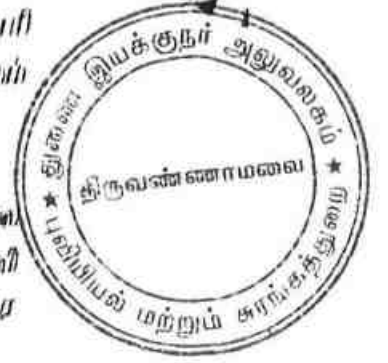
பொருள்: அறிவிக்கை
கனிமங்களும் குவாரிகளும் - மாவட்டம், செய்யார் வட்டம், வடஆளப்பிறந்தான் கிராம புல எண்கள் 211/2A (0.58.0) மற்றும் பலவற்றின் மொத்தப்பரப்பு 1.65.5 ஹெக்டேர் பரப்பில் சாதாரணகல் மற்றும் கிராவல் வெட்டியெடுக்க Tvl.JCK Mines, பங்குதாரர் திரு.J.K.சீனிவாசன் த.பெ. கண்ணன் என்ற நிறுவனத்தினர் விண்ணப்பம் செய்தது - பரிந்துரை அறிக்கை வரப்பெற்றது - சுரங்கத் திட்டம் (Mining Plan) தயார் செய்து சமர்ப்பிக்க கோருவது - தொடர்பாக.

- பார்வை:
1. Tvl.JCK Mines, பங்குதாரர் திரு.J.K.சீனிவாசன் த.பெ. கண்ணன், நெ.782 மாரியம்மன் கோவில் தெரு. ஜம்போடை கிராமம், அழிவிடைதாங்கி அஞ்சல், வெம்பாக்கம் வட்டம், திருவண்ணாமலை என்பவரின் விண்ணப்பம் நாள்.14.07.2022.
 2. இவ்வலுவலக கடிதம் ந.க.எண் 159/கனிமம்/2022, நாள் 14.07.2022.
 3. வருவாய்க்கோட்ட அலுவலர், செய்யார் அவர்களின் கடிதம் ந.க.அ5/3627/2022, நாள் 12.09.2022.
 4. Tvl.JCK Mines, பங்குதாரர் திரு.J.K.சீனிவாசன் த.பெ. கண்ணன் என்ற நிறுவனத்தின் கடிதம் நாள் 19.09.2022.
 5. உதவி புவியியலாளர் மற்றும் தனி வருவாய் ஆய்வாளர், புவியியல் மற்றும் சுரங்கத்துறை திருவண்ணாமலை அவர்களின் புலத்தணிக்கை அறிக்கை நாள் 20.09.2022.
 6. அரசாணை (MS)எண்.169 தொழில் துறை (எம்.எம்.சி1) துறை நாள் 04.08.2020.
 7. தொடர்புடைய ஆவணங்கள்.

திருவண்ணாமலை மாவட்டம், செய்யார் வட்டம், வடஆளப்பிறந்தான் கிராம புல எண்கள் 211/2A (0.58.0), 211/3B (0.10.0), 211/4 (0.08.5), 211/5 (0.05.5), 211/6 (0.08.0), 211/7 (0.13.0), 211/8 (0.32.5) & 211/9 (0.30.0) ஆகியவற்றின் மொத்தப்பரப்பு 1.65.5 ஹெக்டேர் பரப்பில் சாதாரணகல் மற்றும் கிராவல் வெட்டியெடுக்க 10 ஆண்டுகளுக்கு குவாரிக்குத்தகை உரிமம் வழங்கக்கோரி Tvl.JCK Mines, பங்குதாரர் திரு.J.K.சீனிவாசன் த.பெ. கண்ணன் என்ற நிறுவனத்தினர் அளித்த பார்வை 1-ல் கண்ட விண்ணப்பத்தின் மீது பார்வை 3-ல் கண்ட வருவாய்க்கோட்ட அலுவலர், செய்யார் அவர்களின் பரிந்துரை அறிக்கை வரப்பெற்றது.

2. இந்நிலையில் பார்வை 4-ல் காணும் லிண்டர்ஸ்பதாரரின் கடிதத்தில் சாதாரணக் கல் மற்றும் கிராசைல் ரெட்டி யெடுக்க 10 ஆண்டுகளுக்கு கல்சுவாரி குத்தகை உரிமம் வழங்க கோரியதை 5 ஆண்டுகளுக்கு மாட்டும் குத்தகை உரிமம் வழங்குமாறு கோரியுள்ளார்.

3. அதனைத்தொடர்ந்து பார்வை 5-ல் காணும் திருவள்ளூர் மாவட்ட புலியியல் மற்றும் சுரங்கத்துறை துணை இயக்குநர் அலுவலக மதுரை புலியியலாளர் மற்றும் தனி வருவாய் அலுவலர் ஆகியோர் அளித்த பரிந்துரை அறிக்கைகள் பரிசீலிக்கப்பட்டது.



4. Tvl.JCK Mines, பங்குதாரர் திரு.J.K.சீனிவாசன் த.பெ. கண்ணன் என்ற நிறுவனத்தினர் சாதாரணக் கற்கள் மற்றும் கிராசைல் ரெட்டி யெடுக்க 5 ஆண்டுகளுக்கு குவாரிக் குத்தகை உரிமம் வழங்குகோரிய திருவள்ளூர் மாவட்டம், செய்யார் டீட்டம், நெட்டி கா ஆளப்பிறந்தான கிராமம் புன்செய் சர்வே எண்கள் 211/2B (0.48.30) 211/3B (0.09.20), 211/4 (0.08.5) 211/5 (0.05.5) 211/6 (0.08.0) 211/7 (0.13.0) 211/8 (0.32.5) 211/9 (0.30.0) ஆகியவற்றின் மொத்தப்பரப்பு 1.55.0 ஹெக்டேர் நிலப்பரப்பில் எவ்வித தடையும் இன்றி குவாரிப்பணி செய்ய வாய்ப்பு உள்ளதால், மேற்படி லிண்டர்ஸ்பதாரர் Tvl.JCK Mines, பங்குதாரர் திரு.J.K.சீனிவாசன் த.பெ. கண்ணன் என்ற நிறுவனத்தினருக்கு சாதாரண கற்கள் மற்றும் கிராசைல் ரெட்டி யெடுக்க குவாரி குத்தகை உரிமம் வழங்க பரிந்துரை செய்யப்பட்ட 1.55.0 ஹெக்டேர் பரப்பினை கற்குவாரி செய்ய உகந்த புலம் (Precise Area) என தீர்மானித்து கீழ்க்கண்ட நிபந்தனைகளுக்கு உட்பட்டு அறிவிப்பு செய்யப்படுகிறது.

நிபந்தனைகள்

- 1) விண்ணப்ப புலத்திற்கு வடக்கு மற்றும் கிழக்கில் புல எண் 100-ல் அமைந்துள்ள அதி மலைப்புறம்போக்கிற்கு 10மீ பாதுகாப்பு இடைவெளி விடவேண்டும் மற்றும் அரசு புறம்போக்கு புலத்தில் குவாரி கழிவுகள் கொட்டி ஆக்கிரமிப்பு செய்யக்கூடாது.
- 2) பிரஸ்தாப புலத்திற்கு வடமேற்கில் செல்லும் கால்வாய்க்கு 50மீ பாதுகாப்பு இடைவெளி விட வேண்டும்.
- 3) அருகில் உள்ள பட்டா நிலங்களுக்கு 7.5மீ பாதுகாப்பு இடைவெளி விடவேண்டும்.
- 4) பொதுமக்களுக்கும் அருகிலுள்ள நிலங்களுக்கும் எவ்வித பாதிப்பும் ஏற்படுத்தக்கூடாது.
- 5) குவாரிப்பணி தொடங்குவதற்கு முன்பாக குவாரியை சுற்றி முன் கம்பிவேலி அமைத்து குவாரிப்பணி தொடங்க வேண்டும்.
- 6) முறைப்படியும், விஞ்ஞானபூர்வமாகவும் குவாரிப்பணி செய்யவேண்டும்.
- 7) சான்றிதழ் பெறப்பட்ட போர்மேன், வெடிப்பாளர் மற்றும் சுரங்க மேலாளர் மூலம் முறையே குவாரிப்பணி செய்யப்பட வேண்டும்.
- 8) குவாரிப்பணி தொடங்குவதற்கு முன் சுரங்க பாதுகாப்பு இயக்குநர், சென்னை அவர்களுக்கு தகவல் தெரிவிக்கப்பட வேண்டும்.
- 9) பாறைகளைத் தகர்க்க கைத்துணைப்பான்களை கொண்டு பாறைகளை துளையிட்டு குறைவான வெடிபொருட்கள் பயன்படுத்த வேண்டும்.

5. 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.

6. எனவே, Tvl.JCK Mines, பங்குதாரர் திரு.J.K.சீனிவாசன் கண்ணன் என்ற நிறுவனத்தினர் ஒப்புதல் பெறப்பட்ட சுரங்கத்திட்ட அறிக்கை மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மைச் சான்றினை பெற்று சமர்ப்பிக்கும் பட்சத்தில் திருவண்ணாமலை மாவட்டம், செய்யார் வட்டம், நெ153 வட ஆளப்பிறந்தான கிராமம் புன்செய் சர்வே எண்கள் 211/2B (0.48.30) 211/3B (0.09.20), 211/4 (0.08.5) 211/5 (0.05.5) 211/6 (0.08.0) 211/7 (0.13.0) 211/8 (0.32.5) 211/9 (0.30.0) ஆகியவற்றின் மொத்தப்பரப்பு 1.55.0 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.

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

துணை இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
திருவண்ணாமலை.

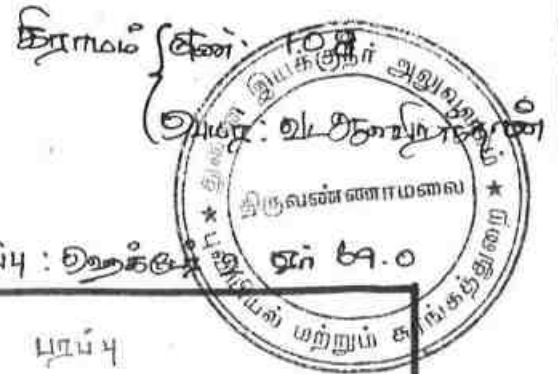
பெறுநர்:

Tvl.JCK Mines,
பங்குதாரர் திரு.J.K.சீனிவாசன்
த.பெ. கண்ணன்,
நெ782 மாரியம்மன் கோவில் தெரு,
ஜம்போடை கிராமம்,
அழிவிடைதாங்கி அஞ்சல்,
வெம்பாக்கம் வட்டம்,
திருவண்ணாமலை.

10/11/2012

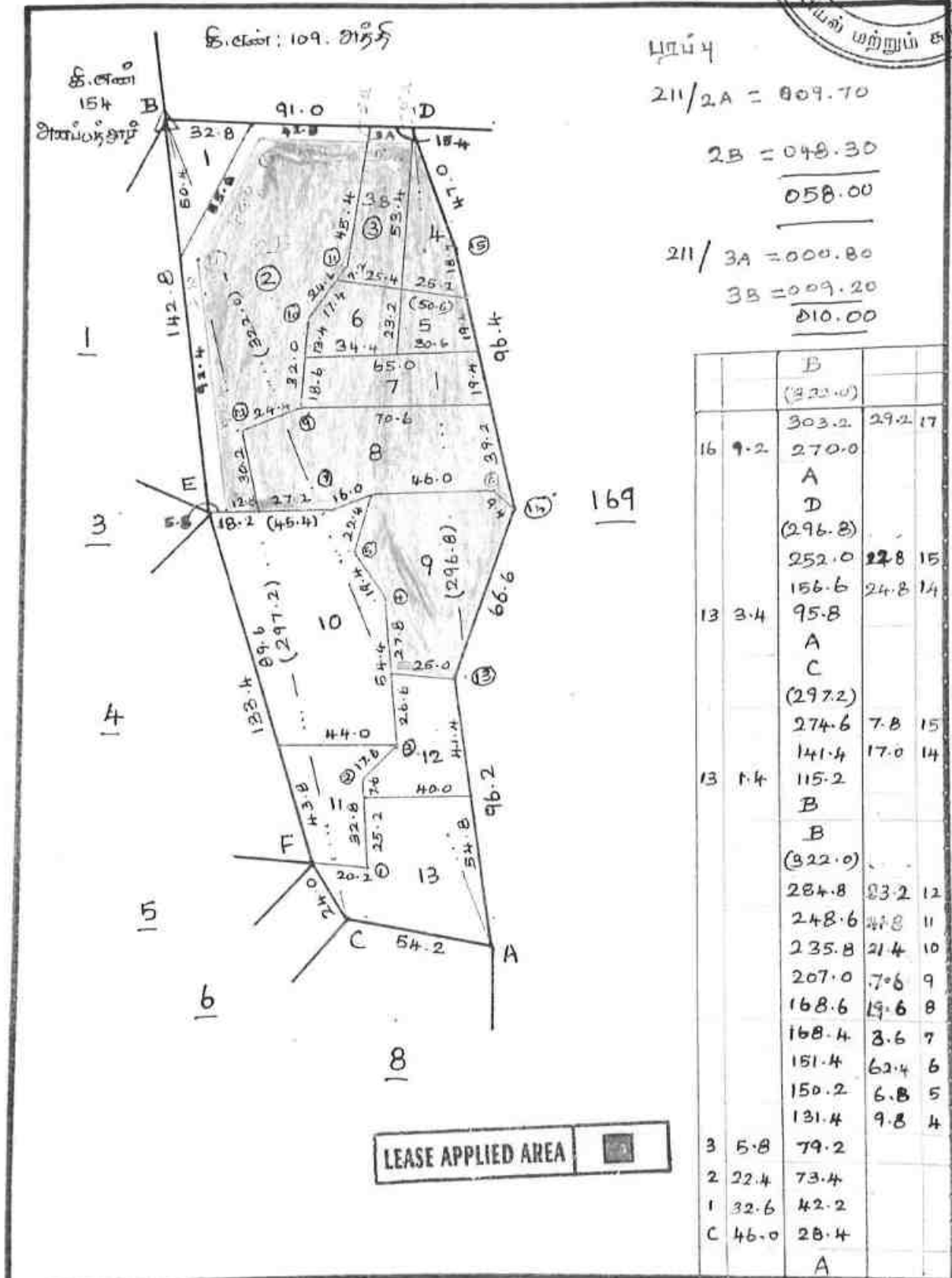
மாலைமீ : திருவண்ணாமலை

அட்டம் : ஒவ்வாடி



40 ஏக்கர் : 211

புரப்பு : ஒவ்வாடி 69.0



சீமாடி : 1:2000

க.எண்
5.16.01

ANNEXURE



No. 153
ALAPIRANDAN (VADA)
CHEYYAR TALUK

TIRUVANNAMALAI DISTRICT

Area of Triangle 231.24 Acres (944.46 Hectares)
Total 521.63 Acres (2105.04 Hectares)

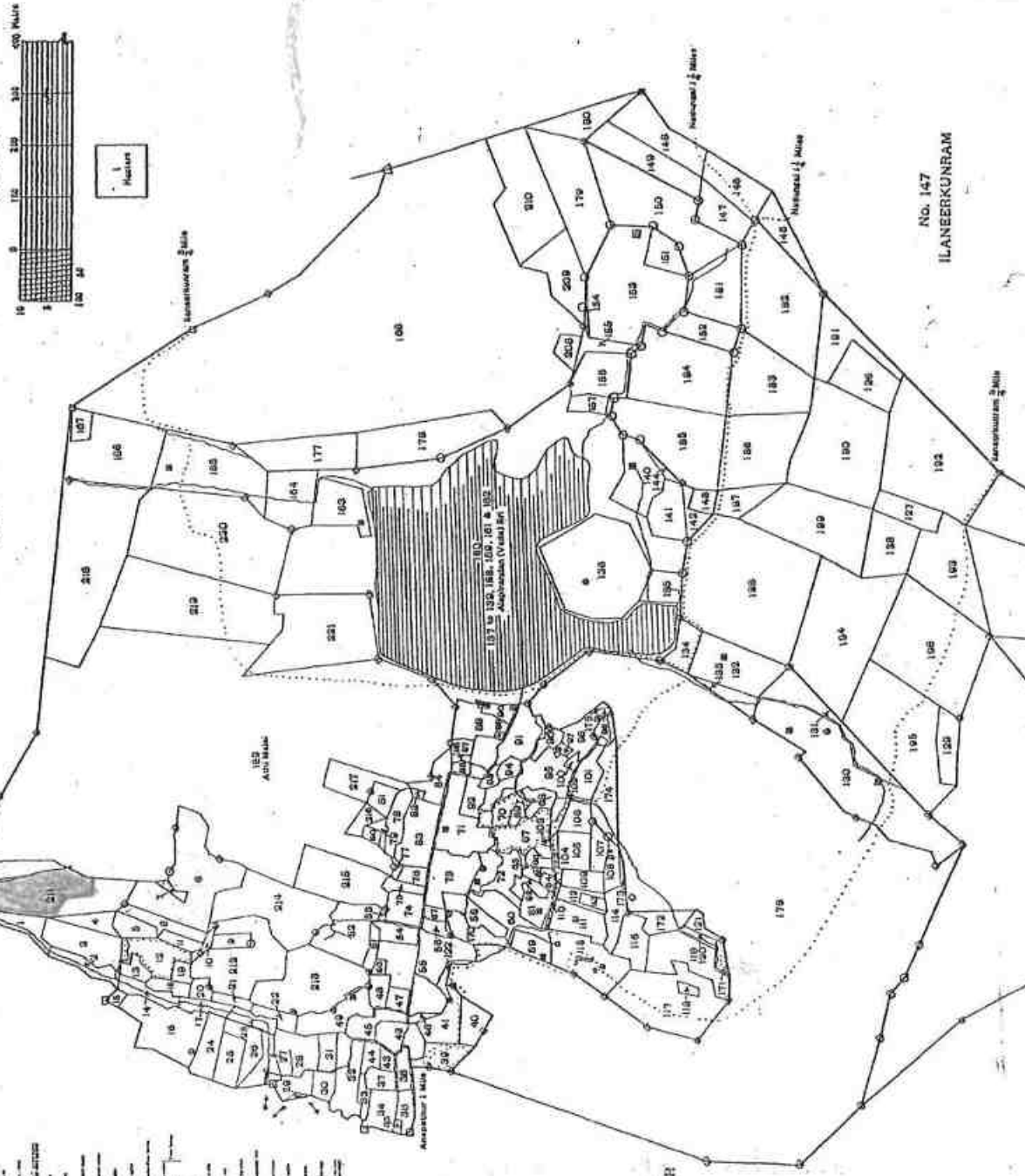
Scale 1:5000



STANDARD SYMBOLS AND NOTATIONS

1	Water	11	Water
2	Water	12	Water
3	Water	13	Water
4	Water	14	Water
5	Water	15	Water
6	Water	16	Water
7	Water	17	Water
8	Water	18	Water
9	Water	19	Water
10	Water	20	Water
21	Water	22	Water
23	Water	24	Water
25	Water	26	Water
27	Water	28	Water
29	Water	30	Water
31	Water	32	Water
33	Water	34	Water
35	Water	36	Water
37	Water	38	Water
39	Water	40	Water
41	Water	42	Water
43	Water	44	Water
45	Water	46	Water
47	Water	48	Water
49	Water	50	Water
51	Water	52	Water
53	Water	54	Water
55	Water	56	Water
57	Water	58	Water
59	Water	60	Water
61	Water	62	Water
63	Water	64	Water
65	Water	66	Water
67	Water	68	Water
69	Water	70	Water
71	Water	72	Water
73	Water	74	Water
75	Water	76	Water
77	Water	78	Water
79	Water	80	Water
81	Water	82	Water
83	Water	84	Water
85	Water	86	Water
87	Water	88	Water
89	Water	90	Water
91	Water	92	Water
93	Water	94	Water
95	Water	96	Water
97	Water	98	Water
99	Water	100	Water

No. 145
ATHI



LEASE APPLIED AREA



9/27/22, 5:58 PM

வட்டாட்சியர் அலுவலக இணைய சேவை - நில உரிமை விபரங்கள்



தமிழக அரசு

வருவாய்த் துறை

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



மாவட்டம் : திருவண்ணாமலை

வட்டம் : செய்யார்

வருவாய் கிராமம் : வடாஅளபிறந்தான்

பட்டா எண் : 765

உரிமையாளர்கள் பெயர்

1.	கண்ணன்	மகன்	சீனிவாசன்	-
2.	கண்ணன்	மகன்	பூபாலன்	-
3.	கண்ணன்	மகன்	கோபாலன்	-
4.	கண்ணன்	மகன்	வெற்றிலேலன்	-
5.	கண்ணன்	மகன்	சுதாகரன்	-

புல எண்	உட்பிரிவு	புன்செய்		நுன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்டர் - ஏர்	ரூ - பை	ஹெக்டர் - ஏர்	ரூ - பை	ஹெக்டர் - ஏர்	ரூ - பை	
11	-	0 - 20.00	0.55	--	--	--	--	2019/0103/06/109421- --- 26-01-2019
211	2B	0 - 48.30	1.30	--	--	--	--	2022/0105/06/371105- -2022/06/04/000036SD -- 30-08-2022
211	3B	0 - 9.20	0.24	--	--	--	--	2022/0105/06/371105- -2022/06/04/000036SD -- 30-08-2022
211	4	0 - 8.50	0.20	--	--	--	--	2019/0103/06/109421- -- -- 26-01-2019
211	5	0 - 5.50	0.15	--	--	--	--	2019/0103/06/109421- -- -- 26-01-2019
211	6	0 - 8.00	0.20	--	--	--	--	2019/0103/06/109421- --- 26-01-2019
211	7	0 - 13.00	0.35	--	--	--	--	2019/0103/06/109421- --- 26-01-2019
211	8	0 - 32.50	0.85	--	--	--	--	2019/0103/06/109421- -- -- 26-01-2019
211	9	0 - 30.00	0.80	--	--	--	--	2019/0103/06/109421- --- 26-01-2019
214	5	0 - 16.00	0.46	--	--	--	--	2019/0103/06/137668- --- 22-08-2019
3	-	0 - 90.00	2.35	--	--	--	--	2019/0103/06/137668- -- -- 22-08-2019
4	1	0 - 12.50	0.35	--	--	--	--	2019/0103/06/137668- -- -- 22-08-2019
4	2	0 - 14.00	0.40	--	--	--	--	2019/0103/06/137668- -- -- 22-08-2019
5	-	0 - 24.50	0.65	--	--	--	--	2019/0103/06/137668-

9/27/22, 5:58 PM

வட்டாட்சியர் அலுவலக இணைய சேவை - நில உரிமை விபரம்

								22-08-2019
7	-	0 - 7.50	0.20	--	--	--	--	2019/0103/06/137668- 22-08-2019
8	1	0 - 92.00	2.40	--	--	--	--	2019/0103/06/137668- 22-08-2019
8	2	0 - 21.00	0.55	--	--	--	--	2019/0103/06/137668- 22-08-2019
8	3	0 - 31.50	0.85	--	--	--	--	2019/0103/06/137668- 22-08-2019
8	5	0 - 28.50	0.75	--	--	--	--	2019/0103/06/137668- 22-08-2019
9	1	0 - 5.50	0.15	--	--	--	--	2019/0103/06/137668- 22-08-2019
9	2	0 - 11.50	0.30	--	--	--	--	2019/0103/06/137668- 22-08-2019
13	-	--	--	0 - 17.00	1.85	--	--	2019/0103/06/137668- 22-08-2019
18	-	--	--	0 - 21.00	2.25	--	--	2019/0103/06/137668- 22-08-2019
		5 - 29.50	14.05	0 - 38.00	4.10			

குறிப்பு 2 :

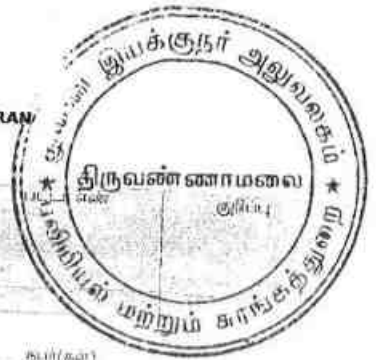


- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 06/04/153/00765/90398 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 27-09-2022 அன்று 05:55:52 PM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

7

~~ANNEXURE~~

262

[illegible]



8T 726865

13-9-18 Glen Allen
R-100- 5 CR mines

12539/91-7 10 3 1991

"J C K MINES "

1) **Mr.K.SRINIVASAN** (Aadhar :5183 7527 2718) S/O.KANNAN ,aged about 46 years now residing at No.782,Mariyamman Koil Street,Jambodai Village,Azhividaithangi Post,Vembakkam taluka,Tiruvannamali Dist-604402, Here in after called party of the First part.

2) **Mr.K.BOOBALAN** (Aadhar:2447 1902 7206) S/O.KANNAN, aged about 44 years now residing at No.782,Mariyamman Koil Street,Jambodai Village,Azhividaithangí Post,Vembakkam Taluka,Tiruvannamalai Dist -604402
Here in after called party of the Second part

1. *[Signature]*
 2. *[Signature]*
 3. *[Signature]*

NOTARY
 P. RAGOTHAM
 Advocate
 60/145 Pile 44
 08-21-02-2010

K. RAGOTHAM
 Advocate
 No. 398A



K.RAGOTHAMAN, M.A., B.L.,
Advocate & Notary,
No.398A, Jeeyar Street,
Cheyyar-604407, T.V.Malai Dt.
Mobile: 9443963509



தமிழ்நாடு தமிழ்நாடு TAMILNADU 36827

Rs 50/- Green 2500
13-9-18 J.C.R. Suresh
- 2 -

AH 203027

B.L.சிவ சுவாமிநாதர்
காலமட்டி வெண்டை
செய்யாறு. திருவனாமலை
No 12639/91-7 Dt: 30-3-1992

- 3) Mr.K.GOPALAN (Aadhar:2495 0194 8421) S/O.KANNAN, aged about 41 years now residing at No.782,Mariyamman Koil Street,Jambodai Village,Azhividaithangi Post,Vembakkam Taluka,Tiruvannamalai Dist -604402
Here in after called party of the Third part
- 4) Mr.K.VETTRIVELAN (Aadhar:9200 9020 9694) S/O.KANNAN, aged about 38 years now residing at No.782,Mariyamman Koil Street,Jambodai Village,Azhividaithangi Post,Vembakkam Taluka,Tiruvannamalai Dist -604402
Here in after called party of the Fourth part
- 5) Mr.K.SUDHAKARAN (Aadhar:3518 4379 6955) S/O.KANNAN, aged about 36 years now residing at No.782,Mariyamman Koil Street,Jambodai Village,Azhividaithangi Post,Vembakkam Taluka,Tiruvannamalai Dist -604402
Here in after called party of the Fifth part

① K. R. Suresh

② K. R. Suresh

K. R. Suresh

④ K. R. Suresh

K. R. Suresh
13/7/2018



K. RAGOTHAMAN, M.A., B.L.,
Advocate & Notary,
No. 398A, Jeeyar Street,
Cheyyar 604 407, T.V. Malai Dist.
Mobile: 9443963509



தமிழ்நாடு தமிழ்நாடு TAMILNADU 36228
 Rs 50/- சென்னை
 10-9-18 JCK mines 3-

AH 203028
 B.L. சுவாமிநாதன்
 ஸ்டாம்பு வெண்டர்
 எசு.யு.டி. தி.மலை டி
 No 12639/91-7 Dt 30-3-1991

Whereas the above parties are decided to do partnership business under the name style of "J CK MINES " to the terms and conditions mutually agreed upon.

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

① [Signature]

② [Signature]

③ [Signature]

④ [Signature]

⑤ [Signature]

(Attested)
 13/12/2022



K. RAGOTHAMAN, M.A., B.L.,
 Advocate & Notary,
 No. 398A, Jeeyar Street,
 Cheyyar-604407, T.V. Malai Dt.
 Mobile: 9443963509



தமிழ்நாடு தமிழ்நாடு TAMILNADU 36830

Rs 50 - ரூபை 50
13.9.18 J.C.K. Mines

- 4 -

AH 203030

B. L. சிவசுந்தரன்
சட்டமது எலக்ட்ரிக்ஸ்
எசுய்யர், தி.மலையூர் மலர்
No 12639/91-7 Dt: 30.3.1995

NOW THIS DEED WITNESSETH THAT:

The name of the partnership business shall be " J C K MINES " and/or such other name/s as may be mutually decided by the parties hereto.

1) The place of business shall be at S.NO.96/5,MELNARMA VILLAGE MELMA POST,CHEYYAR TALUKA,TIRUVANNAMALAI DIST - 604408 or such other place/s as may be mutually decided the parties hereto

2) The business of the partnership shall be carried on Manufacturing of Bluemetals (Stone Crushing) & M.Sand or Such other business/s as may be mutually decided by the parties hereto.

① [Signature]
② [Signature]
③ [Signature]
④ [Signature]
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K.RAGOTHAMAN, M.A.,B.L.,
Advocate & Notary,
No.398A, Jeeyar Street,
Cheyyar-604407, T.V.Malai Dt.
Mobile: 9443963509





- 6 -

6) i) All the Parties are the working partners of the firm. They shall actively engage themselves in conducting the affairs of the business of the firm..

ii) The working partner shall be paid remuneration for the services rendered by them. The remuneration to working partners are eligible to Rs.4000/ p.m per partner .It should be restricted to U/s.40(b) of the Income Tax Act 1951.

iii) "Book profit" shall mean Net Profit as per the Profit & Loss Account of the firm computed in accordance with the provisions of the Income-tax Act after payment of interest to partners but before salary payable to partners under this clause.

iv) Remuneration payable to each working partner shall be credited to his capital/ current account at the year end.

v) In case of loss it is mutually agreed that the working partners are not entitled to any remuneration for the services rendered by them.

① *[Signature]*

④ *[Signature]*

② *[Signature]*

⑤ *[Signature]*

③ *[Signature]*

[Signature]
13/7/2022

K.RAGOTHAMAN, M.A.,B.L.,
Advocate & Notary,
No.398A, Jeeyar Street,
Cheyyar-604407, T.V.Malai Dt.
Mobile: 9443963509



- 7) Proper Books of accounts shall be maintained in respect of all the transactions of the partnership business. All books, vouchers, files and other documents relating to the partnership business shall be kept at the place of business of the firm; all partners shall have power to inspect the books, etc., at all reasonable time and shall have power to take copies, notes or extracts from them.



Every year the books of account shall be closed on 31st march and the net profit/loss salary shall be divided by equally

Bank accounts shall be opened in the name of the firm and operated by Parties of the First Part Mr.K.SRINIVASAN AND Second part Mr.K.BOOBALAN in one / more bank/s as may be mutually decided by all the partners, power to operate bank accounts shall include power to operate all OD, OCC and any other loan a/cs of the firm.

- 8) It shall be the duty of the all partners to carry on the partnership business to the greatest common advantage of both the partners and both shall be true and faithful to each other.

- 9) The partnership shall be a "PARTNERSHIP AT WILL"

- 10) Any partner desiring to retire from the firm shall give one month notice to the other partner. The books of accounts shall be closed, his/her share of profit / loss account up to the date of his/her retirement shall be ascertained and all amount due to the retiring partner shall be paid within 90 days from the date of his/her retirement.

- 11) Any dispute or difference which may arise among the partners of their representatives with regard to the construction, meaning, effect of this deed or any part thereof, or respecting the accounts, profits or losses of the business or the rights and liabilities or the discussion or winding up to the business or any matter relating to the firm shall be referred to arbitration.

① [Signature]

④ [Signature]

② [Signature]

⑤ [Signature]

③ [Signature]

(Attested)
[Signature]
13/12/2022

K.RAGOTHAMAN, M.A.,B.L.,
Advocate & Notary,
No.398A, Jeeyar Street,
Cheyyar-604407, T.V.Malai Dt.
Mobile: 9443963509





-8-

12) Any of the above terms and conditions shall be deleted, varied, altered or added to by the common consent of both the parties hereto

13) This deed partnership shall be effective from 11-09-2018

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

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

WITNESSESS:
I.

1. (J.K. SRINIVASAN)

1. (K. BOOBALAN)
2. (K. BOOBALAN)
3. (K. GOBALAN)

3.(K.GOBALAN)

4.(K.VETRIVELAN)

5.(K.SUDHAKARAN)

This Partnership Deed was prepared by



M. SIVAKUMAR, B.Com., C.A.
Income Tax Practitioner,
Reg.No: 4/2002-2003
No.21, Kasikara Street,
Cheyyar-604407, T.V.M. Dt.



K. RAGOTHAMAN, M.A., B.L.
Advocate & Notary,
No.398A, Jeeyar Street,
Cheyyar-604407, T.V.Malai Dt.
Mobile: 9443963509



GOVERNMENT OF TAMIL NADU
CERTIFICATE OF FIRM REGISTRATION

FORM-C

SEE RULE 9(a)

The Registrar of firms, Cheyyar hereby acknowledges the Receipt of the statement prescribed by Section 58(1) of the Indian Partnership Act, 1932 the statement has been filed and the name of the firm

“ JCK MINES ”

No.96/5,Melnarma Village, Melma Post,
Cheyyar Taluk, Tiruvannamalai District 604 408 has
been entered in the Register Of Firms As No.113 Of 2018



REGISTRAR OF FIRMS
CHEYYAR

20/9/18

CHEYYAR
Dated 20th day of September 2018.



K.RAGOTHAMAN, M.A., B.L.,
Advocate & Notary,
No.398A, Jeeyar Street,
Cheyyar-604407, T.V.Malai Dt.,
Mobile: 9443963509



भारत सरकार
Government of India
सूक्ष्म, लघु एवं मध्यम उद्यम मंत्रालय
Ministry of Micro, Small and Medium Enterprises



UDYAM REGISTRATION CERTIFICATE



TYPE OF ENTERPRISE	☐ MICRO ☒ MANUFACTURING																				
UDYAM REGISTRATION NUMBER	UDYAM-TN-29-0000852																				
NAME OF ENTERPRISE	M/S JCK MINES																				
NAME OF UNITS	<table border="1"> <thead> <tr> <th>SNo.</th> <th>Udyog Aadhaar Memorandum</th> <th>Units Name</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>TN29B0012778</td> <td>JCK MINES</td> </tr> </tbody> </table>	SNo.	Udyog Aadhaar Memorandum	Units Name	1	TN29B0012778	JCK MINES														
SNo.	Udyog Aadhaar Memorandum	Units Name																			
1	TN29B0012778	JCK MINES																			
OFFICIAL ADDRESS OF ENTERPRISE	<table border="1"> <tbody> <tr> <td>Flat/Door/Block No.</td> <td>S.ENO.96/5</td> <td>Name of Premises/ Building</td> <td>MELNARMA</td> </tr> <tr> <td>Village/Town</td> <td>MELNARMA VILLAGE</td> <td>Block</td> <td>MELMA POST</td> </tr> <tr> <td>Road/Street/Lane</td> <td>VACHANUR SALAI</td> <td>City</td> <td>CHEYYAR TALUK</td> </tr> <tr> <td>State</td> <td>TAMIL NADU</td> <td>District</td> <td>TIRUVANNAMALAI, Pin 604408</td> </tr> <tr> <td>Mobile</td> <td>9943969008</td> <td>Email:</td> <td>jckmines@gmail.com</td> </tr> </tbody> </table>	Flat/Door/Block No.	S.ENO.96/5	Name of Premises/ Building	MELNARMA	Village/Town	MELNARMA VILLAGE	Block	MELMA POST	Road/Street/Lane	VACHANUR SALAI	City	CHEYYAR TALUK	State	TAMIL NADU	District	TIRUVANNAMALAI, Pin 604408	Mobile	9943969008	Email:	jckmines@gmail.com
Flat/Door/Block No.	S.ENO.96/5	Name of Premises/ Building	MELNARMA																		
Village/Town	MELNARMA VILLAGE	Block	MELMA POST																		
Road/Street/Lane	VACHANUR SALAI	City	CHEYYAR TALUK																		
State	TAMIL NADU	District	TIRUVANNAMALAI, Pin 604408																		
Mobile	9943969008	Email:	jckmines@gmail.com																		
DATE OF INCORPORATION / REGISTRATION OF ENTERPRISE	06/11/2019																				
DATE OF COMMENCEMENT OF PRODUCTION/BUSINESS																					
NATIONAL INDUSTRY CLASSIFICATION CODE(S)	<table border="1"> <thead> <tr> <th>SNo.</th> <th>NIC 2 Digit</th> <th>NIC 4 Digit</th> <th>NIC 5 Digit</th> <th>Activity</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>08 - Other mining and quarrying</td> <td>0810 - Quarrying of stone, sand and clay</td> <td>08106 - Operation of sand or gravel pits, basalt / porphyry, clay (ordinary), crushing and breaking of stone for use as a flux or raw material in lime or cement, manufacture or as building material, road metal or ballast and other materials for construction</td> <td>Manufacturing</td> </tr> </tbody> </table>	SNo.	NIC 2 Digit	NIC 4 Digit	NIC 5 Digit	Activity	1	08 - Other mining and quarrying	0810 - Quarrying of stone, sand and clay	08106 - Operation of sand or gravel pits, basalt / porphyry, clay (ordinary), crushing and breaking of stone for use as a flux or raw material in lime or cement, manufacture or as building material, road metal or ballast and other materials for construction	Manufacturing										
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DATE OF UDYAM REGISTRATION	10/09/2020																				

Disclaimer: This is computer generated statement, no signature required.
Printed from <https://udyamregistration.gov.in>

For any assistance, you may contact:

1. DIC TIRUVANNAMALAI
2. MSME-DI CHENNAI

1 Affidavit
13/12/2022
K.RAGOTHAMAN, M.A., B.L.,
Advocate & Notary,
No. 20, 1st Floor, Street,
Cheyyar-604407, T.V.Malai Dt.
Mobile: 9443963509



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with the
Ministry of
MSME**

Visit : www.msme.gov.in ; www.demsme.gov.in ; www.charanadepa.org



1/11/2022
13/2/2022

K.RAGOTHAMAN, M.A.,B.L.,
Advocate & Notary,
No.398A, Jeeyar Street,
Cheyyar-604407, T.V.Malai Dt.
Mobile: 9443963509





Government of India
Form GST REG-06
[See Rule 10(1)]

Registration Certificate



Registration Number : 33AAOFJ5875G1ZZ

1.	Legal Name	JCK MINES			
2.	Trade Name, if any	JCK MINES			
3.	Constitution of Business	Partnership			
4.	Address of Principal Place of Business	S.NO.96/5, MELNARMA VILLAGE, VACHANUR SALAI, MELMA POST, CHEYYAR TALUKA, Tiruvannamalai, Tamil Nadu, 604408			
5.	Date of Liability				
6.	Period of Validity	From	06/11/2019	To	Not Applicable
7.	Type of Registration	Regular			
8.	Particulars of Approving Authority	Centre			
Signature					
Name		VENKATESH MUNUSWAMY			
Designation		Superintendent			
Jurisdictional Office		VANDAVASI			
9. Date of issue of Certificate		06/11/2019			
Note: The registration certificate is required to be prominently displayed at all places of business in the State.					

This is a system generated digitally signed Registration Certificate issued based on the approval of application granted on 06/11/2019 by the jurisdictional authority.



(Attended)
K. Ragothaman
13/7/2022
K.RAGOTHAMAN, M.A.,B.L.,
Advocate & Notary,
No.398A, Jeeyar Street,
Cheyyar-604407, T.V.Malai Dt.
Mobile: 9443963509



GSTIN 33AAOFJ5875G1ZZ
Legal Name JCK MINES
Trade Name, if any JCK MINES

**Details of Additional Places of Business**

Total Number of Additional Places of Business in the State 0

13/7/2022
K. Ragotaman
13/7/2022

K.RAGOTHAMAN, M.A.,B.L.,
Advocate & Notary,
No.398A, Jeeyar Street,
Cheyyar-604407, T.V.Malai Dt.
Mobile: 9443963509





GSTIN 33AAOFJ5875G1ZZ
 Legal Name JCK MINES
 Trade Name, if any JCK MINES



Details of Managing / Authorized Partners

1		Name	KANNAN SRINIVASAN
		Designation/Status	PARTNER
		Resident of State	Tamil Nadu
2		Name	BOOBALAN
		Designation/Status	PARTNER
		Resident of State	Tamil Nadu
3		Name	KANNAN GOPALAN
		Designation/Status	PARTNER
		Resident of State	Tamil Nadu
4		Name	KANNAN VETRIVELAN
		Designation/Status	PARTNER
		Resident of State	Tamil Nadu
5		Name	KANNAN SUDHAKARAN
		Designation/Status	PARTNER
		Resident of State	Tamil Nadu



1st attal
13/7/2022
K.RAGOTHAMAN, M.A., B.L.,
 Advocate & Notary,
 No.398A, Jeeyar Street,
 Cheyyar-604 107, T.V.Malai Dt.
 Mobile: 9443963509



இந்திய அரசாங்கம்
Government of India

சின்னாசன் கண்ணன்
Sinnivasan Kannan
தந்தை : கண்ணன்
Father : KANNAN
பிறந்த நாள் / DOB : 15/05/1972
ஆண்மால் / Male

5183 7527 2718

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

இந்திய அடையாள அமைப்பு
Unique Identification Authority of India

முகவரி
S/O கண்ணன் 782, மாரியம்மன்
செரு, ஜம்போடை
அவிதிண்டாங்கி
அவிதிண்டாங்கி
திருவண்ணாமலை, சேய்யார்,
தமிழ் நாடு, 604402

Address:
S/O: Kannan, 782,
MARIYAMMAN STREET,
JAMBODAI, Alvidithangal,
Alvidithangal, Tiruvannamalai,
Cheyyar, Tamil Nadu, 604402

5183 7527 2718

1800 303 1947 Help@uidai.gov.in www.uidai.gov.in

आयकर विभाग
INCOME TAX DEPARTMENT

भारत सरकार
GOVT. OF INDIA

स्थायी लेखा संख्या कार्ड
Permanent Account Number Card
AAOFJ5875G

नाम/ Name
JCK MINES

निगमन/गठन तारीख
Date of Incorporation / Formation
14/09/2018

09/10/2018

इस कार्ड के खोने/पाने पर कृपया सूचित करें/संदर्भ:
आयकर पैन सेवा इकाई, एन एस डी एल
5 वीं मंजिल, मन्त्री स्टर्लिंग,
प्लॉट नं. 341, सर्वे नं. 997/8,
मॉडल कॉलोनी, नज़्द डीप बंगला चौक के पास,
पुणे - 411 016.

**If this card is lost / someone's lost card is found,
please inform / return to:**
Income Tax PAN Services Unit, NSDL
5th Floor, Mantri Sterling,
Plot No. 341, Survey No. 997/8,
Model Colony, Near Deep Bungalow Chowk,
Pune - 411 016.

Tel: 91-20-2721 8080, Fax: 91-20-2721 8081
e-mail: fininfo@nsdl.co.in

CHIETTINAD CEMENT CORPORATION LTD.,

(Regd. Office: RANI SEETHAI HALL BUILDING IV & V FLOORS, 603, ANNA SALAI, MADRAS-600006.)
WORKS OFFICE: PULIYUR.

21144
PHONE 22744 | KARUR
TELE: 21745
GRAM "CEMENT" Puliyur C.F.
Telex: 0456-215.
STD Code: 04324



T. RAJU., B.E.,
MINES MANAGER & DY. GENERAL MANAGER.

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 CHIETTINAD CEMENT CORPORATION LTD.,

(Signature)
(T. RAJU).

Mines Manager & Dy. General Manager.



Faculty of Science

The Senate of the Annamalai University hereby makes known that R. S. Srinivasan has been admitted to the Degree of Master of Science (by Examination) in Zoology, he having been certified by duly appointed Examiners at the examination held in April, 1976, to be qualified to receive the same and that he was placed in the First Class.

Given under the seal of the University.

Annamalai University
24th December, 1976.

S. Chandrasekha
Vice-Chancellor

PLATE NO: I

DATE OF SURVEY : 23.09.2022

APPLICANT:

TWJCK MINES,
THIRUJESINIVASAN (PARTNER),
S/G KANNAN,
No 752 MARIAMMAN KOVIL STREET,
JAMBODAI VILLAGE,
AZHIVIDAITHANCHI POST,
VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT.

QUARRY LEASE APPLIED AREA:

S.F.Nos : 211/2B, 211/3B, 211/4, 211/5, 211/5,
: 211/7, 211/8 & 211/9.

EXTENT : 1.55.3Ha,

VILLAGE : VADA ALAPIRANDAN,

TALUK : CHEYYAR,

DISTRICT : TIRUVANNAMALAI.

INDEX

Q. L. A. AREA : ●

TOPO SHEET NO : 57 P/10

LATITUDE : 12°38'30.31"N to 12°38'37.08"N

LONGITUDE : 79°35'54.79"E to 79°35'58.45"E

LOCATION PLAN

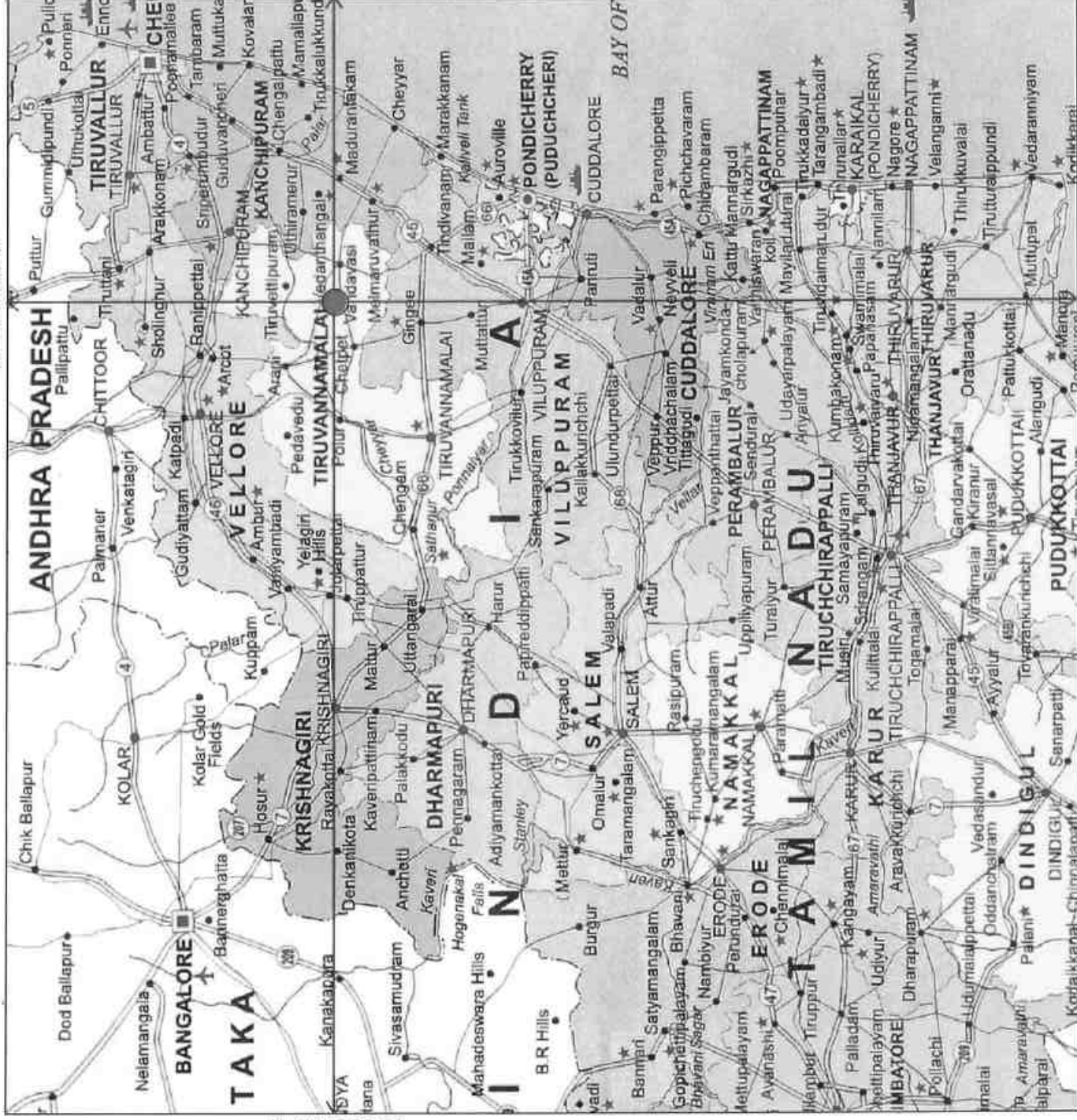
NOT TO SCALE

PREPARED BY :

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

79°35'54.79"E 79°35'58.45"E

C. NATARAJAN, M.Sc., Phil.,
QUALIFIED PERSON



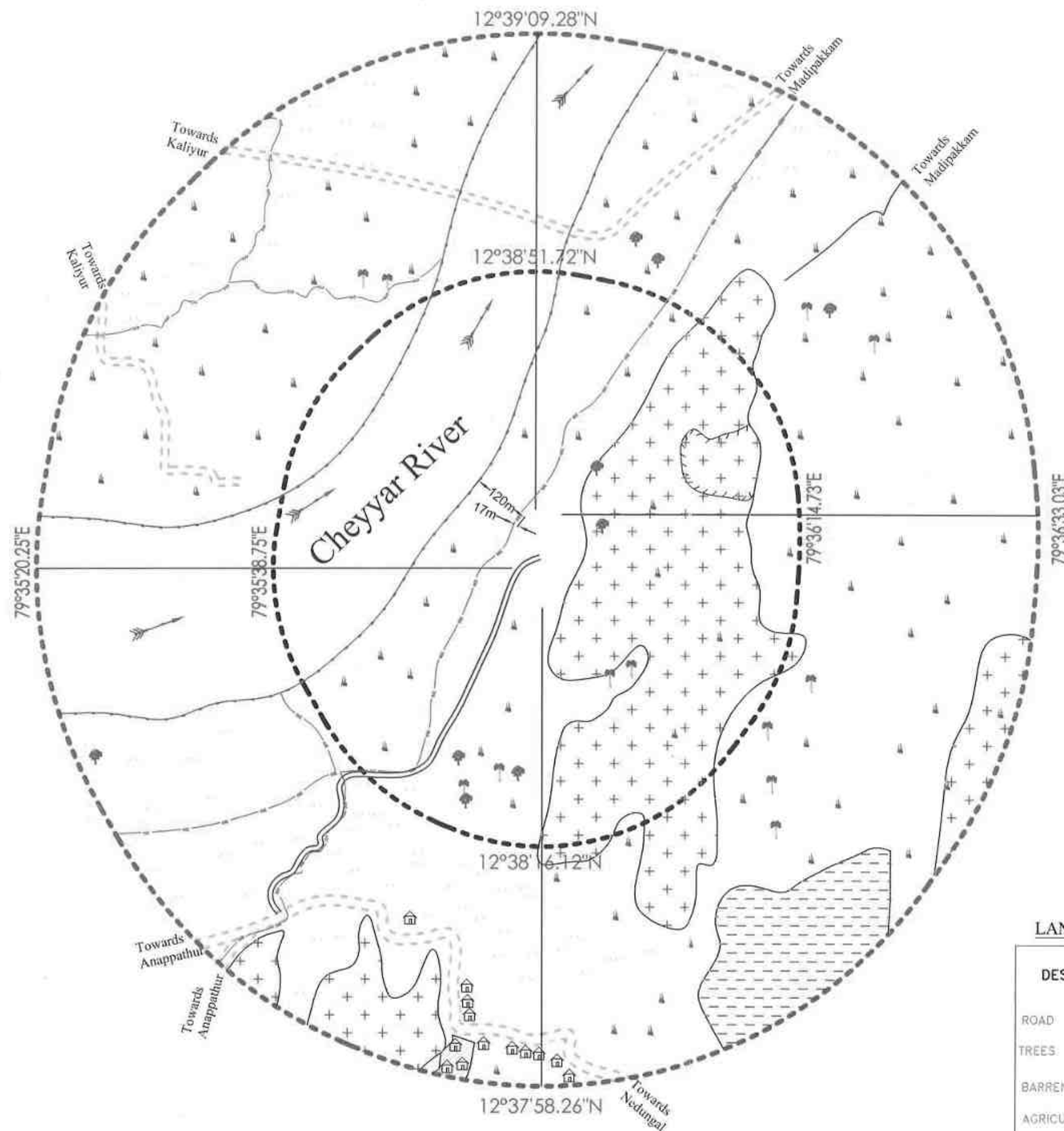
79°35'54.79"E

12°38'30.31"N

PLATE NO: 1A

DATE OF SURVEY : 23.09.2022

N



LAND USE PATTERN

DESCRIPTION	AREA IN (%)
ROAD	10
TREES	05
BARREN LAND	18
AGRICUTURE LAND	15
HABITATIONS	02
WATER BODIES	35
HILLOCK	15

APPLICANT:

TVJCK MINES,
THIRU J.K.SRINIVASAN (PARTNER)
S/o.KANNAN,
No.782 MARIAMMAN KOVIL STREET,
JAMBODAI VILLAGE,
AZHIVIDAITHANGI POST,
VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT.

QUARRY LEASE APPLIED AREA:

S.F.NOs : 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9,

EXTENT : 1.55.0Ha,

VILLAGE : VADA ALAPIRANDAN,

TALUK : CHEYYAR,

DISTRICT : TIRUVANNAMALAI.

INDEX

TOPO SHEET NO : 57 P/10

LATITUDE : 12°38'30.31"N to 12°38'37.08"N

LONGITUDE : 79°35'54.79"E to 79°35'58.45"E

Q.L.APPLIED AREA	
500M RADIUS	
1KM RADIUS	
APPROACH ROAD	
PANCHAYAT ROAD	
ODAI	
BARREN LAND	
TREES	
SEASONAL AGRICULTURE	
HABITATIONS	
QUARRY PIT	
TANK	
CHEYYAR RIVER	
CANAL	
HILLOCK	

ENVIRONMENTAL PLAN

SCALE 1: 10,000

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C.NATARAJAN, M.Sc., M.Phil.,
QUALIFIED PERSON

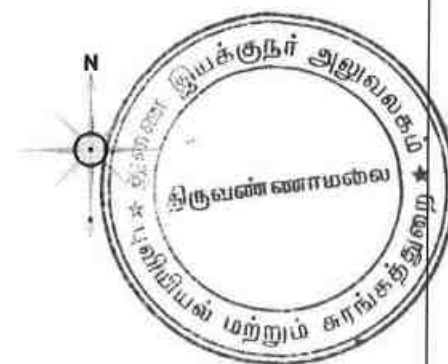


PLATE NO: 1B

DATE OF SURVEY : 23.09.2022

APPLICANT:

Tvl.JCK MINES,
THIRU.J.K.SRINIVASAN (PARTNER),
S/o.KANNAN,
No.782 MARIAMMAN KOVIL STREET,
JAMBODAI VILLAGE,
AZHIVIDAITHANGI POST,
VEMBAKKAM TALUK,
TIRUVANNAMALAI DISTRICT.

QUARRY LEASE APPLIED AREA:

S.F.NO's : 211/2B, 211/3B, 211/4, 211/5, 211/6,
: 211/7, 211/8 & 211/9,

EXTENT : 1.55.0Ha,

VILLAGE : VADA ALAPIRANDAN,

TALUK : CHEYYAR,

DISTRICT : TIRUVANNAMALAI.

INDEX

TOPO SHEET NO : 57 P/10

LATITUDE : 12°38'30.31"N to 12°38'37.08"N

LONGITUDE : 79°35'54.79"E to 79°35'58.45"E

Q.L.APPLIED AREA



500M RADIUS



1KM RADIUS



APPROACH ROAD



PANCHAYAT ROAD



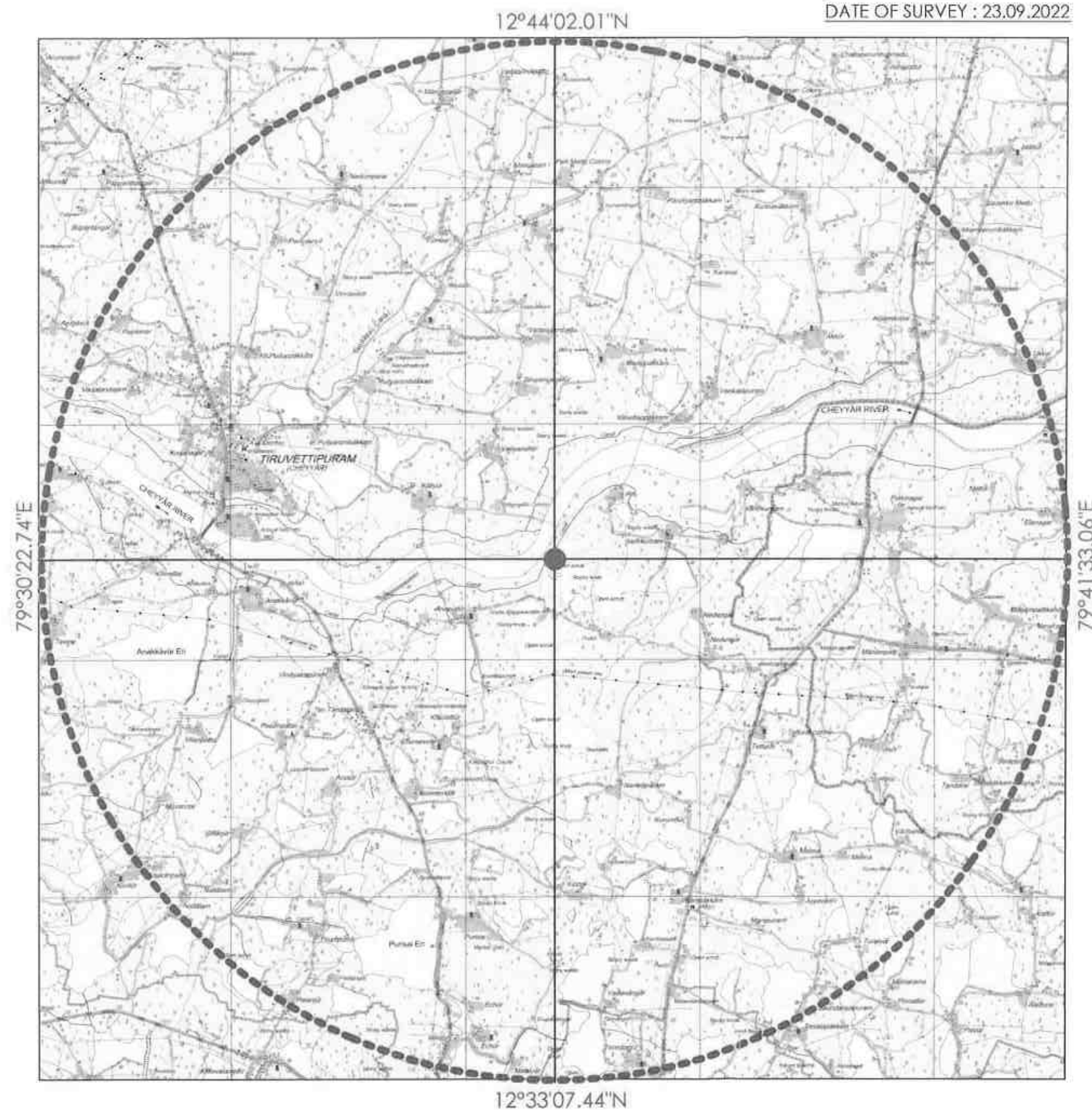
SATELLITE IMAGERY MAP

SCALE 1: 10,000

PREPARED BY :

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GOVERNMENT


C. NATARAJAN, M.Sc., M.Phil.,
QUALIFIED PERSON



APPLICANT:

TIVJCK MINES,
THIRU J. K. SRINIVASAN (PARTNER),
S/o. KANNAN,
No. 782 MARIAMMAN KOVIL STREET,
JAMBODAI VILLAGE,
AZHIVIDAITHANGI POST,
VEMBAKKAM TALUK,
TIRUVANNAMALAI DISTRICT.



QUARRY LEASE APPLIED AREA:

S.F.NOs : 211/2B, 211/3B, 211/4, 211/5, 211/6,
: 211/7, 211/8 & 211/9.

EXTENT : 1.55.0Ha,
VILLAGE : VADA ALAPIRANDAN,
TALUK : CHEYYAR,
DISTRICT : TIRUVANNAMALAI.

INDEX

TOPO SHEET NO : 57 P/10

LATITUDE : 12°38'30.31"N to 12°38'37.08"N

LONGITUDE : 79°35'54.79"E to 79°35'58.45"E

Q.L.APPLIED AREA

10KM RADIOUS

CONVENTIONAL SYMBOLS	
Water bodies, including sea, lake, reservoir, etc.	—
Roads, including main roads, minor roads, etc.	—
Railways, including main lines, branch lines, etc.	—
Boundaries, including village boundaries, etc.	—
Contours, including spot heights, etc.	—
Buildings, including houses, etc.	—
Vegetation, including forests, etc.	—
Other features, including wells, etc.	—

TOPO SKETCH OF QUARRY LEASE

APPLIED AREA FOR

10Km RADIUS

SCALE- 1:100000

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C. NATARAJAN, M.Sc., M.Phil.,
QUALIFIED PERSON

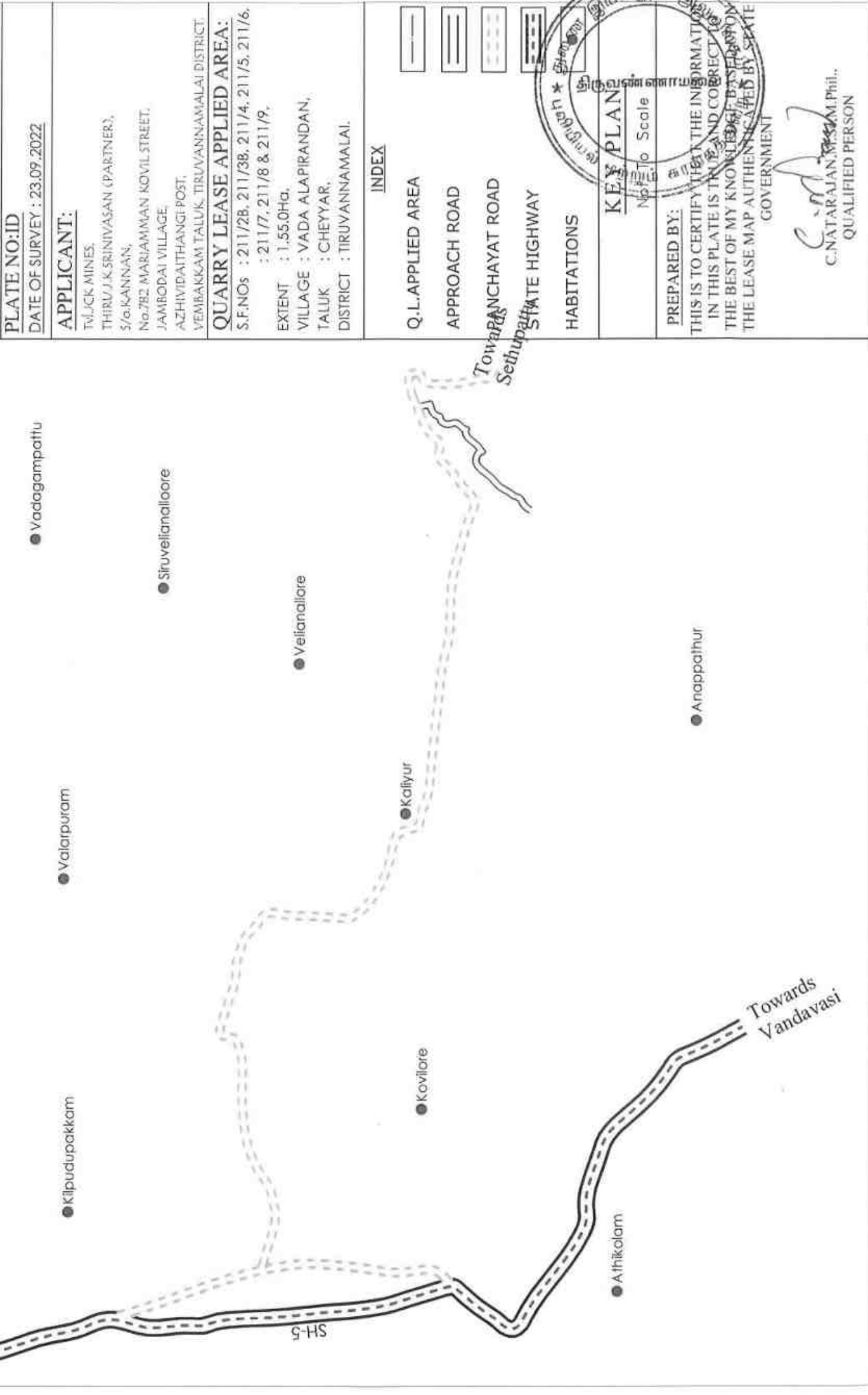
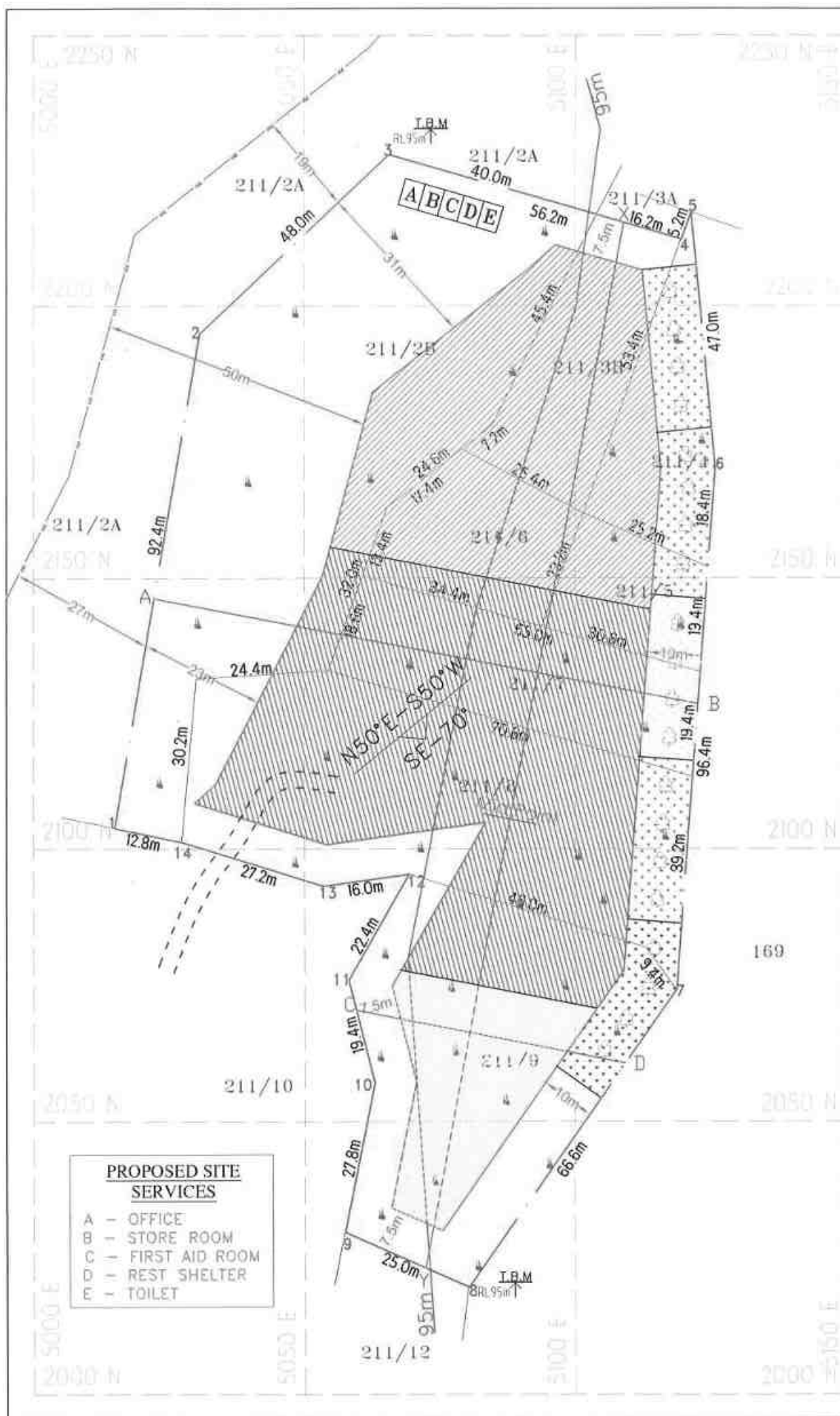


PLATE NO:ID
DATE OF SURVEY : 23.09.2022
APPLICANT: TULJCK MINES, THIRU J.K SRINIVASAN (PARTNER), S/O KANNAN, No.782 MARIAMMAN KOVIL STREET, JAMBODAI VILLAGE, AZHIVIDAITHANGI POST, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT.
QUARRY LEASE APPLIED AREA: S.F.NOs : 211/28, 211/38, 211/4, 211/5, 211/6, : 211/7, 211/8 & 211/9, EXTENT : 1.55.0Ha, VILLAGE : VADA ALAPIRANDAN, TALUK : CHEYYAR, DISTRICT : TIRUVANNAMALAI.
INDEX
Q.L.APPLIED AREA
APPROACH ROAD
TOURANCHAYAT ROAD
STATE HIGHWAY
HABITATIONS
KEY 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, S.M.Phil., QUALIFIED PERSON



BOUNDARY CO-ORDINATE		
LABEL	LATITUDE	LONGITUDE
1	12° 38' 33.03" N	79° 35' 54.79" E
2	12° 38' 36.00" N	79° 35' 55.29" E
3	12° 38' 37.08" N	79° 35' 56.45" E
4	12° 38' 36.58" N	79° 35' 58.24" E
5	12° 38' 36.74" N	79° 35' 58.30" E
6	12° 38' 35.22" N	79° 35' 58.45" E
7	12° 38' 32.09" N	79° 35' 58.24" E
8	12° 38' 30.31" N	79° 35' 56.97" E
9	12° 38' 30.63" N	79° 35' 56.21" E
10	12° 38' 31.52" N	79° 35' 56.39" E
11	12° 38' 32.13" N	79° 35' 56.23" E
12	12° 38' 32.77" N	79° 35' 56.59" E
13	12° 38' 32.69" N	79° 35' 56.07" E
14	12° 38' 32.95" N	79° 35' 55.21" E
WGS 84 DATUM		

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	

1st yr Proposed area to be Planted	
2nd yr Proposed area to be Planted	
3rd yr Proposed area to be Planted	
4th yr Proposed area to be Planted	
5th yr Proposed area to be Planted	

PLATE NO-III
DATE OF SURVEY : 23.09.2022

APPLICANT:

T/L JACK MINES,
THIRU J. K. SRINIVASAN (PARTNER),
S/o KANNAN,
No. 782 MARIAMMAN KOVIL STREET,
JAMBODAI VILLAGE,
AZHIVIDAITHANGI POST,
VEMBAKKAM TALUK,
TIRUVANNAMALAI DISTRICT.

QUARRY LEASE APPLIED AREA:

S.F.NOs : 211/2B, 211/3B, 211/4, 211/5, 211/6,
: 211/7, 211/8 & 211/9,
EXTENT : 1.55.0Ha,
VILLAGE : VADA ALAPIRANDAN,
TALUK : CHEYYAR,
DISTRICT : TIRUVANNAMALAI.

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Q.L.APPLIED BOUNDARY	
7.5m, 10m & 50m SAFETY DISTANCE	
TEMPORARY BENCH MARK	
APPROACH ROAD	
CONTOUR	
SCRUB	
CANAL	
STRIKE & DIP	

TOPOGRAPHY, GEOLOGICAL & YEARWISE DEVELOPMENT & PRODUCTION PLAN

SCALE 1:1000

PREPARED BY :

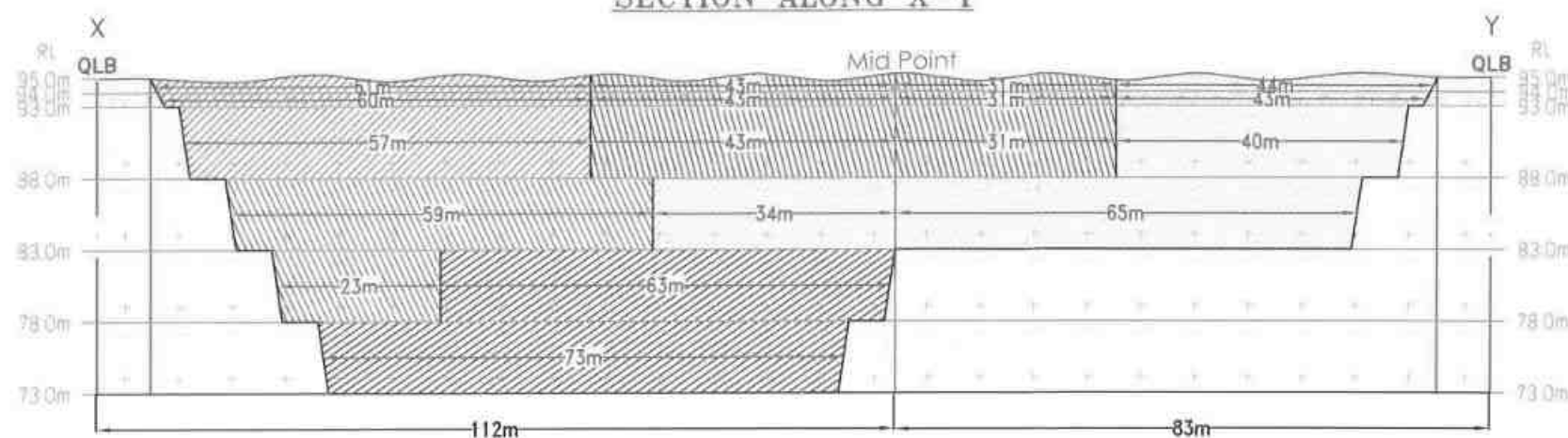
THIS IS TO CERTIFY THAT THE INFORMATION
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GOVERNMENT

C. NATARAJAN, M.Sc., M.Phil.,
QUALIFIED PERSON

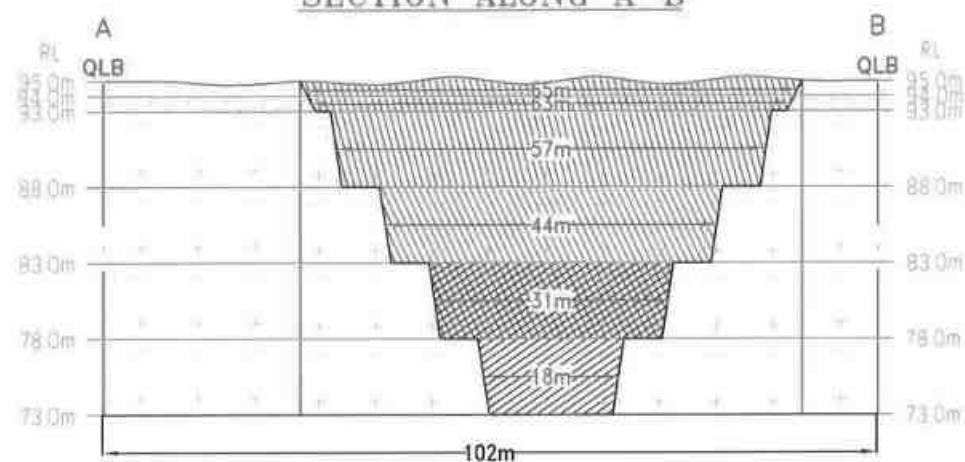




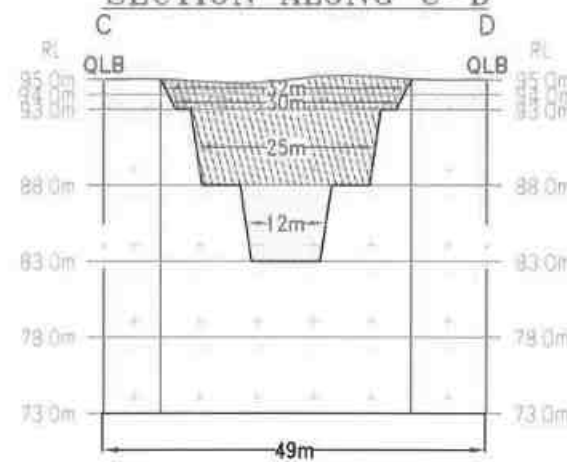
SECTION ALONG X-Y



SECTION ALONG A-B



SECTION ALONG C-D



PRESENT & POST LAND USE PATTERN

DESCRIPTION	PRESENT AREA (Ha)	AREA AT THE END OF THIS QUARRYING PERIOD (Ha)
AREA UNDER QUARRYING	NIL	0.83.0
INFRASTRUCTURE	NIL	0.01.0
ROADS	NIL	0.01.0
GREEN BELT	NIL	0.15.0
UN-UTILIZED AREA	1.55.0	0.55.0
GRAND TOTAL	1.55.0	1.55.0

- 1st yr Proposed area to be Quarried
- 2nd yr Proposed area to be Quarried
- 3rd yr Proposed area to be Quarried
- 4th yr Proposed area to be Quarried
- 5th yr Proposed area to be Quarried

PLATE NO-III

DATE OF SURVEY : 23.09.2022

APPLICANT:

TOLUCK MINES,
THIRU J.K. SRINIVASAN (PARTNER),
S/o. KANNAN,
No.782 MARIAMMAN KOVIL STREET,
JAMBODAI VILLAGE,
AZHIVIDAITHANGI POST,
VEMBAKKAM TALUK,
TIRUVANNAMALAI DISTRICT.

QUARRY LEASE APPLIED AREA:

S.F.NOs : 211/2B, 211/3B, 211/4, 211/5, 211/6,
211/7, 211/8 & 211/9,

EXTENT : 1.55.0Ha,
VILLAGE : VADA ALAPIRANDAN,
TALUK : CHEYYAR,
DISTRICT : TIRUVANNAMALAI.

INDEX

- Q.L.APPLIED BOUNDARY
- 7.5m, 10m & 50m SAFETY DISTANCE
- GRAVEL
- WEATHERED ROCK
- ROUGH STONE

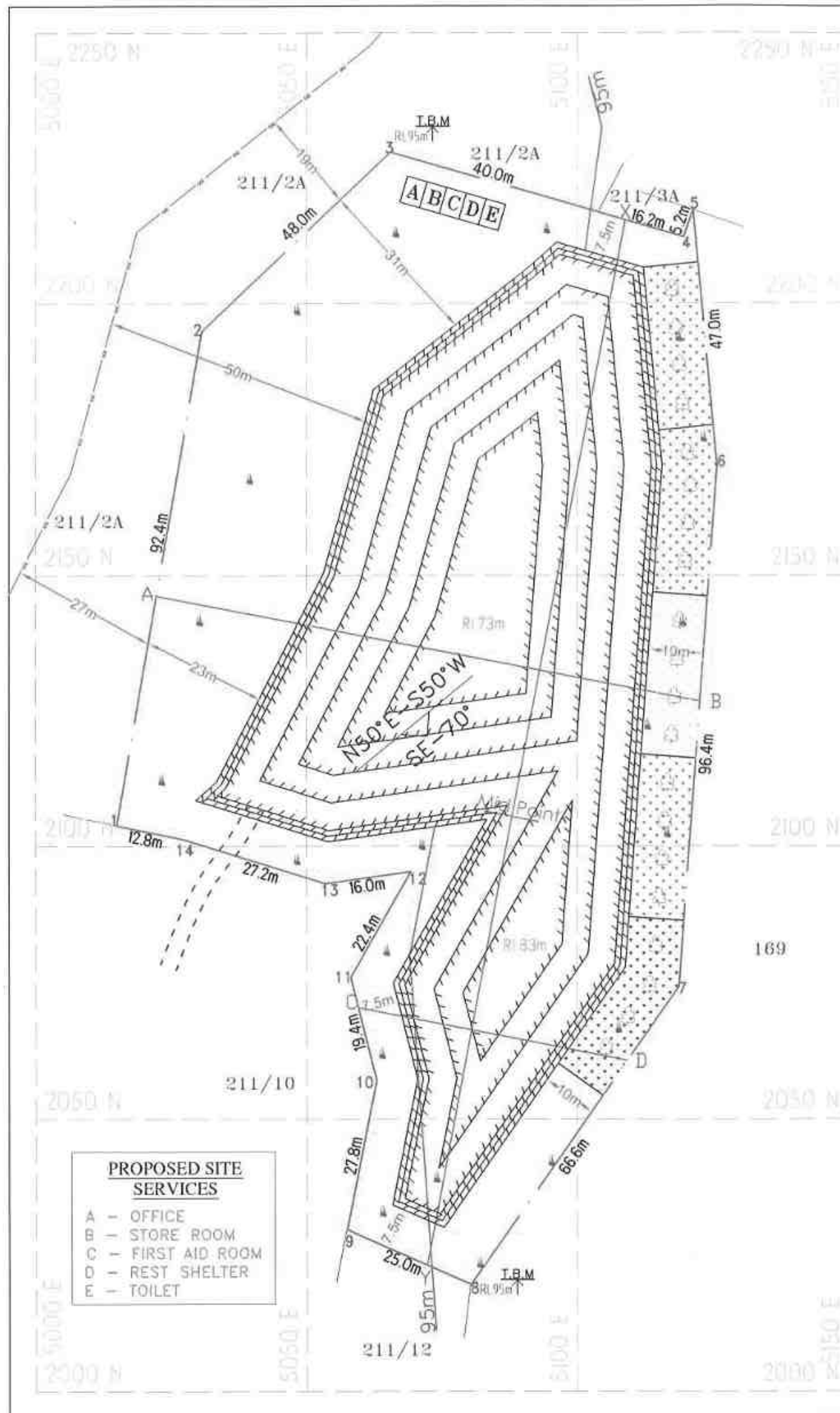
TOPOGRAPHY, GEOLOGICAL & YEARWISE DEVELOPMENT & PRODUCTION SECTIONS

SECTIONS HOR 1 : 1000, VER 1:500

PREPARED BY :

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GOVERNMENT

C.NATARAJAN, M.Sc., M.Phil.,
QUALIFIED PERSON



BOUNDARY CO-ORDINATE		
LABEL	LATITUDE	LONGITUDE
1	12° 38' 33.03" N	79° 35' 54.79" E
2	12° 38' 36.00" N	79° 35' 55.29" E
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13	12° 38' 32.69" N	79° 35' 56.07" E
14	12° 38' 32.95" N	79° 35' 55.21" E
WGS 84 DATUM		

- 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

- 1st yr Proposed area to be Planted
- 2nd yr Proposed area to be Planted
- 3rd yr Proposed area to be Planted
- 4th yr Proposed area to be Planted
- 5th yr Proposed area to be Planted

PLATE NO-IV
DATE OF SURVEY : 23.09.2022

APPLICANT:
T.V. JACK MINES,
THIRU J. K. SRINIVASAN (PARTNER),
S/O. KANNAN,
No. 782 MARIAMMAN KOVIL STREET,
JAMBODAI VILLAGE,
AZHIVIDAITHANGI POST,
VEMBAKKAM TALUK,
TIRUVANNAMALAI DISTRICT.

QUARRY LEASE APPLIED AREA:
S.F. NOS : 211/2B, 211/3B, 211/4, 211/5, 211/6,
211/7, 211/8 & 211/9,
EXTENT : 1.55.0Ha,
VILLAGE : VADA ALAPIRANDAN,
TALUK : CHEYYAR,
DISTRICT : TIRUVANNAMALAI.

INDEX	
Q.L. APPLIED BOUNDARY	---
7.5m, 10m & 50m SAFETY DISTANCE	---
TEMPORARY BENCH MARK	T.B.M.
APPROACH ROAD	---
CONTOUR	---
SCRUB	---
CANAL	---
STRIKE & DIP	---
PROPOSED QUARRY PIT	---

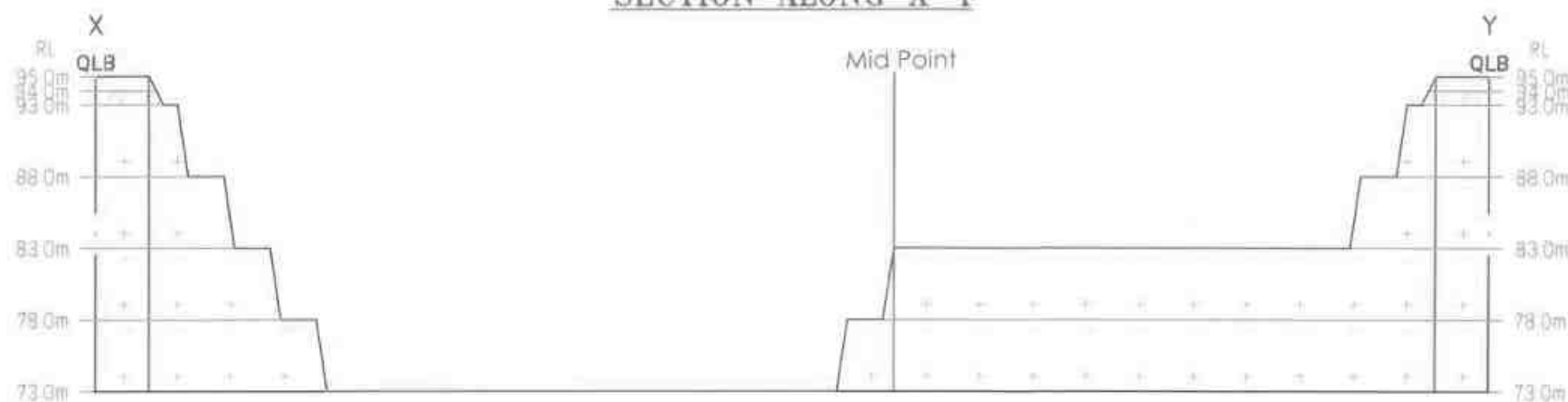
CONCEPTUAL PLAN
SCALE 1 : 1000

PREPARED BY :
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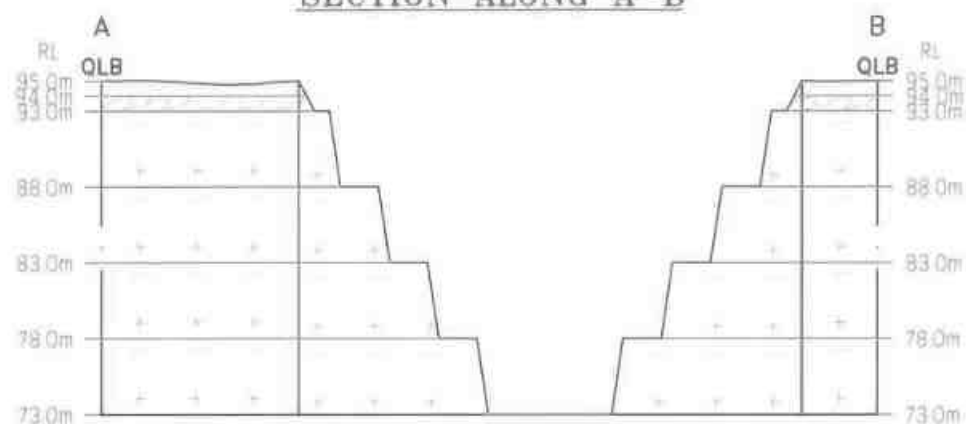
C. NATARAJAN, M.Sc., M.Phil.,
QUALIFIED PERSON



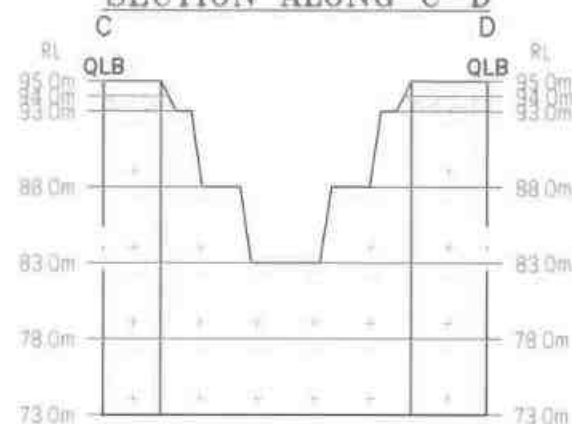
SECTION ALONG X-Y



SECTION ALONG A-B



SECTION ALONG C-D



ULTIMATE PIT DIMENSION
L179m(Max)X46m(Avg)XD22m(Max)



PLATE NO-IVA

DATE OF SURVEY : 23.09.2022

APPLICANT:

T.V. JACK MINES,
THIRU J. K. SRINIVASAN (PARTNER),
S/o. KANNAN,
No. 782 MARIAMMAN KOVIL STREET,
JAMBODAI VILLAGE,
AZHIVIDAITHANGI POST,
VEMBAKKAM TALUK,
TIRUVANNAMALAI DISTRICT.

QUARRY LEASE APPLIED AREA:

S.F.NOs : 211/2B, 211/3B, 211/4, 211/5, 211/6,
: 211/7, 211/8 & 211/9,
EXTENT : 1.55.0Ha,
VILLAGE : VADA ALAPIRANDAN,
TALUK : CHEYYAR,
DISTRICT : TIRUVANNAMALAI.

INDEX

Q.L.APPLIED BOUNDARY	
7.5m, 10m & 50m SAFETY DISTANCE	
GRAVEL	
WEATHERED ROCK	
ROUGH STONE	

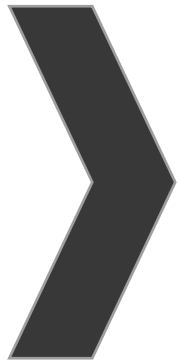
CONCEPTUAL SECTIONS

SECTIONS HOR 1 : 1000, VER 1 : 500

PREPARED BY :

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GOVERNMENT

C. NATARAJAN, M.Sc., M.Phil.,
QUALIFIED PERSON



ANNEXURE-3

From

To

Thiru.A.Perumal, M.sc., M.phil.,
Deputy Director,
Geology and Mining,
Tiruvannamalai District.

Tvl.JCK Mines,
Rep. by its partner of
Thiru.J.K.Srinivasan,
No.782, Mariamman Kovil Street,
Jambodai Village, Azhivedaithangi Post,
Vembakkam Taluk,
Tiruvannamalai District.

Rc.No.159/Kanimam/2022, dated:03.10.2022

Sub: Quarries and Minerals - Minor Mineral Rough Stone and Gravel - Tiruvannamalai District Cheyyar Taluk - Vadalapiranthan village - Patta SF.Nos. 211/2B, & etc., over an extent 1.55.0 hecets., - Application preferred by **Tvl.JCK Mines Rep. by its partner Thiru.J.K.Srinivasan** - Details of quarries located in 500m radius- requested - Regarding.

Ref: Tvl.JCK Mines rep. by its partner Thiru.J.K.Srinivasan, Vembakkam Taluk Dated:03.10.2022.

In the reference cited, applicant **Tvl.JCK Mines represented by its partner Thiru.J.K.Srinivasan**, the applicant of proposed Rough Stone quarry lease in SF.Nos. 211/2B (0.48.30) 211/3B (0.09.20), 211/4 (0.08.5) 211/5 (0.05.5) 211/6 (0.08.0) 211/7 (0.13.0) 211/8 (0.32.5) & 211/9 (0.30.0) over an extent 1.55.0 hecets., of Vadalapiranthan village, Cheyyar Taluk, Tiruvannamalai District has requested to furnish the details of quarries located within 500 meters radius from his proposed quarry.

In this regard, the followings are furnished.

i). Existing quarries

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

ii). Abandoned quarries

Sl. No	Name of the Owner (Tvl)	Village & S.F. Nos.	Extent in Hect.	Lease Period	Remarks
1	Tmt.Poongodhai, W/o.Sundaramoorthy No.96, Road Street, Manamadhi, Unthiramerur Taluk, Kancheepuram District	Athi 301 (Part)	1.00.0	21.08.2008 to 20.08.2018	Quarry Expired

iii). Present Proposed quarries

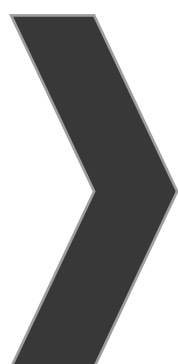
Sl. No	Name of the Owner (Tvl)	Village & S.F. Nos.	Extent in Hect.
1	Tvl.JCK Mines, Rep. by its partner of Thiru.J.K.Srinivasan, No.782, Mariamman Kovil Street, Jambodai Village, Azhivedaithangi Post, Vembakkam Taluk, Tiruvannamalai District.	Vadalapiranthan & 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9	1.55.0

iv). Future Proposed quarries

Sl. No	Name of the Owner (Tvl)	Village & S.F. Nos.	Extent in Hect.
1	Thiru.R.Ganesan, Director of SRC Project Pvt. Ltd., No.47, Brunthavan, Porlands, Salem.	Athi 301 (Part-2)	4.50.0
2	Thiru.M.Ramchandran, S/o. Mogili Nadu, No.15B, Medutharu, Old Perukozhathuvor, Tambaram, Chennai.	Athi 301 (Part-3)	2.00.0
3	Thiru.K.Sudhakaran, S/o. Kannan, No.782, Mariyamman Koil Street, Jambodai village, Vembakkam Taluk, Tiruvannamalai District.	Vadaalapiranthan 7, 8/1, 8/2, 8/3, 8/4, 8/5 & 214/5	2.57.0

Deputy Director,
Geology and Mining,
Tiruvannamalai.

13/10/20



ANNEXURE-4

தமிழ்நாடு வனத்துறை

விடுநர்
திரு.பு.கோ.அருண்லால், இ.வ.ப.,
மாவட்ட வன அலுவலர்,
திருவண்ணாமலை வனக்கோட்டம்,
திருவண்ணாமலை.

பெறுநர்
மாவட்ட ஆட்சித்தலைவர்,
திருவண்ணாமலை மாவட்டம்,
திருவண்ணாமலை.

ந.க.எண்.9166/2022/வ, நாள்: 03.11.2022.

அய்யா,

பொருள் : கனிமங்களும் குவாரிகளும் - திருவண்ணாமலை மாவட்டம் - Tvl.JCK Mines, பங்குதாரர் திரு.J.K.சீனிவாசன், த.பெ.கண்ணன் என்ற நிறுவனத்தின் மனுவில் கல்குவாரி குத்தகை உரிமம் கோரப்பட்ட புலத்திலிருந்து சுமார் 25 கி.மீ தொலைவில் காப்புக்காடுகள், வனவிலங்கு சரணாலயம், யானை வழித்தடங்கள், புலிகள் காப்பகம் அமைந்துள்ளதா என்ற விவரம் கோரியது - தொடர்பாக.

- பார்வை 1. மாவட்ட ஆட்சியர் கடிதம் ந.க.எண்:159/கனிமம்/2022, நாள்: 10.10.2022.
2. Tvl.JCK Mines, பங்குதாரர் திரு.J.K.சீனிவாசன், த.பெ.கண்ணன், ஜம்போடை கிராமம், அழிவிடைத்தாங்கி அஞ்சல், வெம்பாக்கம் வட்டம் என்பவரின் கடித நாள்:10.10.2022.
3. வனச்சரக அலுவலர், ஆரணி வனச்சரகம், ஆரணி க.எண்.543/2022 நாள்:01.11.2022.

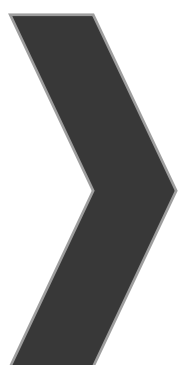
பார்வை-1ல் காணும் கடிதத்தில் Tvl.JCK Mines, பங்குதாரர் திரு.J.K.சீனிவாசன், த.பெ.கண்ணன் என்ற நிறுவனத்தின் கடிதத்தில் திருவண்ணாமலை மாவட்டம், செய்யார் வட்டம், நெ.153 வடஆளப்பிறந்தான் கிராமம் புன்செய் சர்வே எண்கள்.211/2B (0.48.30), 211/3B (0.09.20), 211/4 (0.08.5), 211/5 (0.05.0), 211/6 (0.08.0), 211/7 (0.13.0), 211/8 (0.32.5), 211/9 (0.30.0) ஆகியவற்றின் மொத்த பரப்பு 1.55.0 ஏக்கர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க 5 ஆண்டுகளுக்கு குவாரிக் குத்தகை உரிமம் வழங்கக் கோரி விண்ணப்பிக்கப்பட்ட புலத்திலிருந்து 25 கி.மீ சுற்றளவிற்கு காப்புக் காடுகள், வனவிலங்கு சரணாலயம், யானை வழித்தடங்கள், புலிகள் காப்பகம் ஏதேனும் உள்ளனவா? அவ்வாறு இருந்தால் எவ்வளவு தொலைவில் உள்ளது? என்ற விவரம் கோரப்பட்டது. அது தொடர்பான விவரங்களை பின்வருமாறு தெரிவித்துக்கொள்கிறேன்.

1. மேற்கண்ட குவாரி அமைய உள்ள இடமானது வெங்குணம் காப்புக்காட்டு எல்லையிலிருந்து சுமார் 10.98 கி.மீ தொலைவில் அமைந்துள்ளது.
2. மேற்கண்ட புலத்திலிருந்து 25 கி.மீ சுற்றளவிற்குள் வனவிலங்கு சரணாலயம், யானை வழித்தடங்கள், புலிகள் காப்பகம் ஏதுமில்லை.

தங்கள் உண்மையுள்ள,
ஒம்/-பு.கோ.அருண்லால்,
மாவட்ட வன அலுவலர்,
திருவண்ணாமலை வனக்கோட்டம்,
திருவண்ணாமலை.

//உ.ந.உ.ப.//

வரைதொழில் அலுவலர்.



ANNEXURE-5

TOPOGRAPHICAL VIEW OF VADA ALAPIRANDAN VILLAGE,
ROUGH STONE AND GRAVEL QUARRY



Name of the applicant	: Tvl.JCK Mines, Thiru.J.K.Srinivasan (Partner)
S.F.Nos	: 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 and 211/9
Extent	: 1.55.0 Ha
Name of the Village	: Vada Alapirandan,
Taluk	: Cheyyar
District	: Tiruvannamalai

Place:

Date:

க. ஜி. சீனி
21/10/12
MAO SIGN & SEAL
நெ. 145, சித்தி கிராமம்,
நெ. 153, ஸ்ரீ ஆனந்திபுரத்தான் கிராமம்,
செய்யார் வட்டம், திருவள்ளூர் மாவட்டம்.

சான்று

திருவண்ணாமலை மாவட்டம் ,செய்யார் வட்டம் , வடஆளபிறந்தான் கிராமம் புல எண்கள்.

.211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 மற்றும் 211/9 இல் 1.55.0 ஹெக்டர்

பரப்பளவில் தி/ள் . JCK Mines, பங்குதாரர் திரு .J.K.. சீனிவாசன் த/பெ.கண்ணன் , No. 782,

மாரியம்மன் கோவில் தெரு,இம்போடை கிராமம் ,அழிவிடைந்தாங்கி அஞ்சல் ,வெம்பாக்கம்

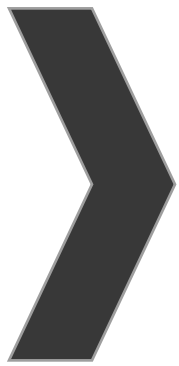
வட்டம் மற்றும் திருவண்ணாமலை மாவட்டம் முகவரியைச் சேர்ந்தவர் சாதாரண கல் மற்றும்

கிராவல் குவாரி பணிமேற்கொள்ள விண்ணப்பித்துள்ளார் .மேற்கொண்ட இடத்தில் சுமார் 300

மீட்டர் சுற்றளவில் குடியிருப்புகளோ,புரதாதன சின்னங்களோ, உயர்மின்னழுத்த கம்பிகளோ

எதுவும் இல்லை.

க. சீனிவாசன்
சான்று
நெ. 145, அத்தி கிராமம்,
நெ. 153, வட ஆளபிறந்தான் கிராமம்
செய்யார் வட்டம், திருவண்ணாமலை மாவட்டம்



ANNEXURE-6



தமிழ்நாடு தமில்நாடு TAMIL NADU
தமிழ்நாடு
02/10/2022
விலை: 20/-
True Explosives
Vellore

08AC 762797

A. பரமநாத்
முத்திரைத்தாள் விற்பனையாளர்
L.No : 02/KPD/2021
தாராபடவேடு, காட்பாடி, வே.மா.

DEED OF AGREEMENT

This agreement entered in to at Vellore on this day of 31st October '2022 between Mr. J.K. SRINIVASAN Partner M/s. JCK Mines, No; 782, Mariamman Kovil Street, Jampodai Village, Azhividaithangi post, Vembakkam Tk, Tiruvannamalai -DT. GST No : 33AAOFJ5875G1ZZ here in after referred to as part of the First Part and M/s T.M.K.Explosives, Plot No. 42, Golden Nager, 3rd Cross, Old Katpadi, Katpadi Tk, Vellore-632014. here in after referred to as part of the Second Part.

The party of first part is operating Crusher and is mining Blue metal in the area of over an extent of 1.55.0 hectares in Survey Nos. 211/2B (0.48.30), 211/3B (0.09.20), 211/4 (0.08.5), 211/5 (0.05.5), 211/6 (0.08.0), 211/7 (0.13.0), 211/8 (0.32.5) & 211/9 (0.30.0) Vadalapiranthan Village, Cheyyar Tk, Tiruvannamalai - DT.

[Signature]

FOR T.M.K. EXPLOSIVES
T.M.K. Srinivasan
PROPRIETOR

Whereas the part of the First Part wants blasting to be done at Quarry to excavate the **Blue metal Blocks**. The blasting work is so intensive and large that the part of the first part has decided to entrust the work involved to the party of the Second Part on contract basis is follows:

The Party of the first part will allot the blasting operations in the above said areas to the party of the Second Part who is responsible for blasting rocks and also making his own arrangements for the explosives and exploding equipments required for the work. The entire blasting in the above quarry and the possession of the blasting equipment will be handled by the party of the second part having valid Explosives Licence No. E/SC/TN/22/115(E10358), E/SV/TN/22/16(E95709), E/SV/TN/22/17(E95711) and the Explosives Magazine situated at S.F.No:56/2V2 Elayanallur Village, Katpadi Tk, Vellore-Dt issued by the Joint Chief Controller of Explosives, South Circle, Chennai .

Payments will be made periodically by the party of the first part for the quantity used, explosives consumed and hours and time of the exploding equipments put into use. Calculations will be made and settlement will be arrived at every month. The rates for the items of work will as mutually agreed as marginal cost which includes cost of Explosives, Transportation Cost and Other Charges for blasting work. This agreement is made for all blasting done in the said area.

This agreement is valid from the date of execution till validity of quarrying leases granted by the State Government to the party of the first part or terminable earlier by mutual consent with a month's notice.

Place: Vellore

Date: 31.10.2022

[Signature]

For First Explosives
T. K. [Signature]
PROPOSITION

Witness:

1. *D. [Signature]*
Gudiyaattam, Vellore - District.

2.

102

अनुमति प्रारूप एच. ई. 3 | LICENCE FORM LE-3

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

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

अनुमति सं. (Licence No.): E/SC/TN/22/115(E10358)

वार्षिक फीस (Annual Fee Rs): 9200/-

Licence is hereby granted to

M/s. T.M.K. EXPLOSIVES (अधिभोगी / Occupier: T.K. Gowtham), No.3/13, Ramar Kovil Street, GOVINDAPURAM VILLAGE
SETHUVANDAI Post, Gudiyattam Taluk, Town/Village - GOVINDAPURAM, District-VELLORE, State-Tamil Nadu, Pincode - 635803



को अनुमति अनुदत्त की जाती है।

1. अनुमतिधारी की प्रारिथि | Status of licensee: Proprietorship Firm

2. अनुमति निम्नलिखित प्रयोजनों के लिए विधिमान्य है।
Licence is valid only for the following purpose

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

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

क्र. सं. Sr. No.	नाम और विवरण Name and Description	वर्ग और प्रभाग Class & Division	उप-प्रभाग Sub-division	मात्रा किसी एक समय में Quantity at any one time
1	Nitrate Mixture	2.0	0	4500 Kg
2	Safety Fuse	6.1	0	10000 Mtrs
3	Detonating Fuse	6.2	0	10000 Mtrs
4	Detonators	6.3	0	44000 Nos.

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

10 times as above.

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

रेखाचित्र सं. (Drawing No.) E/SC/TN/22/115(E10358)
दिनांक (Date) 02/02/2022

5. अनुमति परिसर निम्नलिखित पते पर स्थित है। The licensed premises are situated at following address:
Survey No(s), 56/1V, 16/7 & 26/N, ग्राम (Town/Village): Elayanallur village

जिला (District)
दूरभाष (Phone)

VELLORE

पुलिस थाना (Police Station): MELPADI
राज्य (State)
ई मेल (E-Mail)

Tamil Nadu

पिनकोड (Pincode)
फैक्स (Fax)

6. अनुमति परिसर में निम्नलिखित सुविधाएं अंतर्भूत हैं।
The licensed premises consist of following facilities:

A MAGAZINES WITH DETONATORS ANNEX AND A LOBBY

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

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

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

3. दूरी प्रारूप DE-2 | Distance Form DE-2.

9. यह अनुमति तारीख 31 मार्च 2004 तक विधिमान्य रहेगी। This licence shall remain valid till 31st day of March 2004.

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

तारीख | The Date - 11/02/2023

संयुक्त मुख्य विस्फोटक निपट्रक | Joint Chief Controller of Explosives

South Circle, Chennai

Amendments:

- Amendment of Quantity of Explosives/Monthly Purchase Limit dated: 24/07/2014
- Change in Authorized Signatory/Occupier/Partners/Directors dated: 29/07/2016
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated: 02/02/2018
- Amendment in Drawings/Facilities/Premises dated: 02/02/2022
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated: 02/02/2022

Transfers:

- Change in Licensee Name/Address/Status dated: 25/07/2016
- Change in Licensee Name/Address/Status dated: 25/07/2016
- Change in Licensee Name/Address/Status dated: 25/07/2016
- Change in Licensee Name/Address/Status dated: 29/10/2021

नवीनीकरण के पृष्ठानक के लिए स्थान
Space for Endorsement of Renewal

नवीकरण की तारीख
Date of Renewal

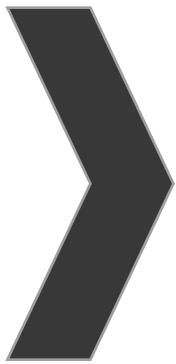
समाप्ति की तारीख
Date of Expiry

अनुमति प्राधिकारी के हस्ताक्षर और स्टाम्प
Signature of licensing authority and stamp

01/02/2019

31/03/2024

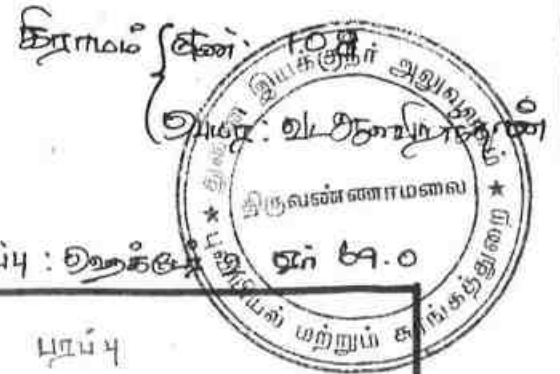
Sd/-
Controller of Explosives, Vellore



ANNEXURE-7

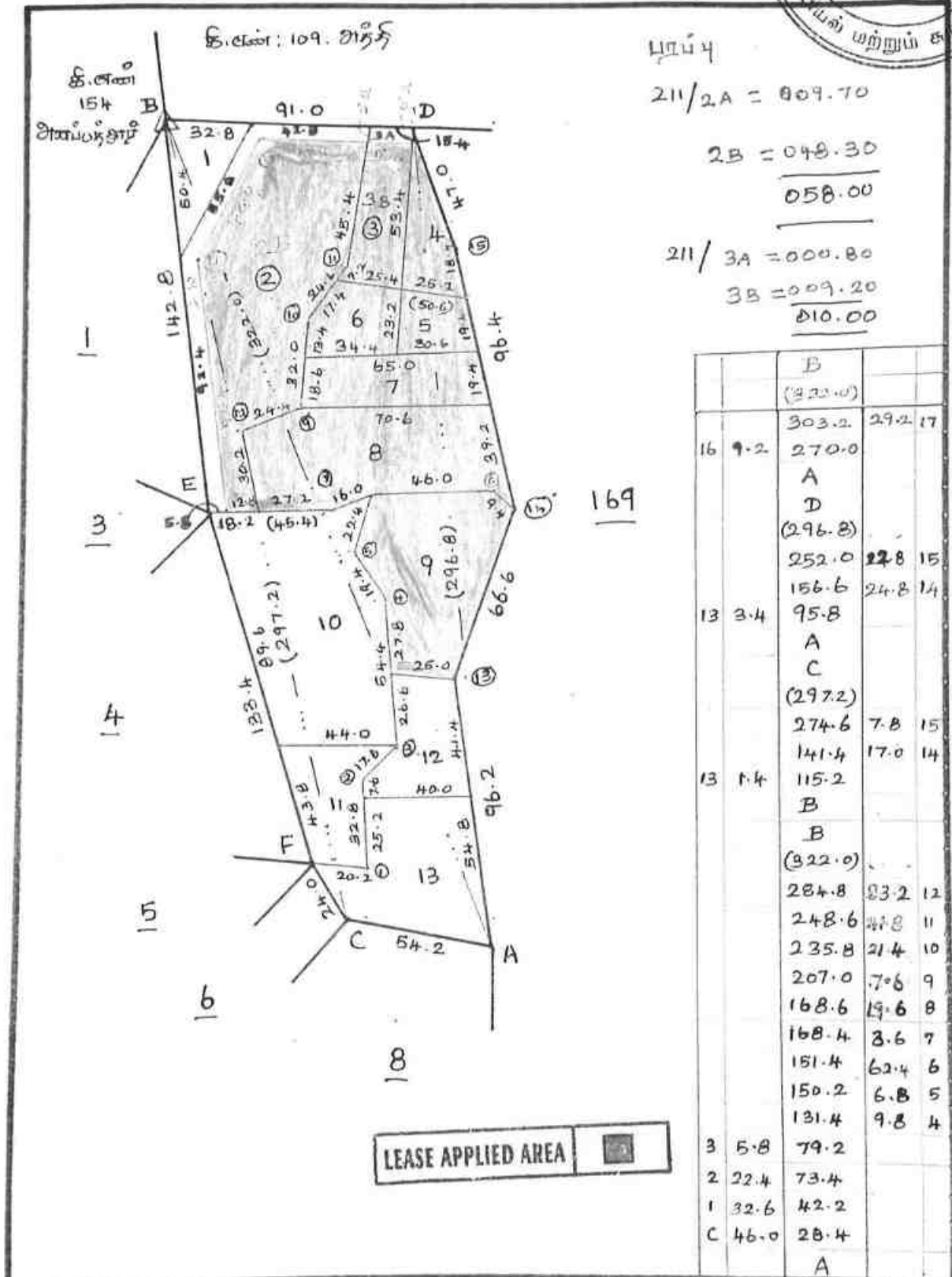
மாலைமீ : திருவண்ணாமலை

அட்டம் : ஒவ்வாடி



40 ஏக்கர் : 211

புரம் : ஒவ்வாடி 69.0



ANNEXURE

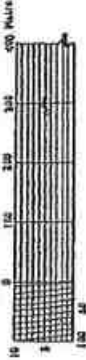


No. 153
ALAPIRANDAN (VADA)
CHEYYAR TALUK

TIRUVANNAMALAI DISTRICT

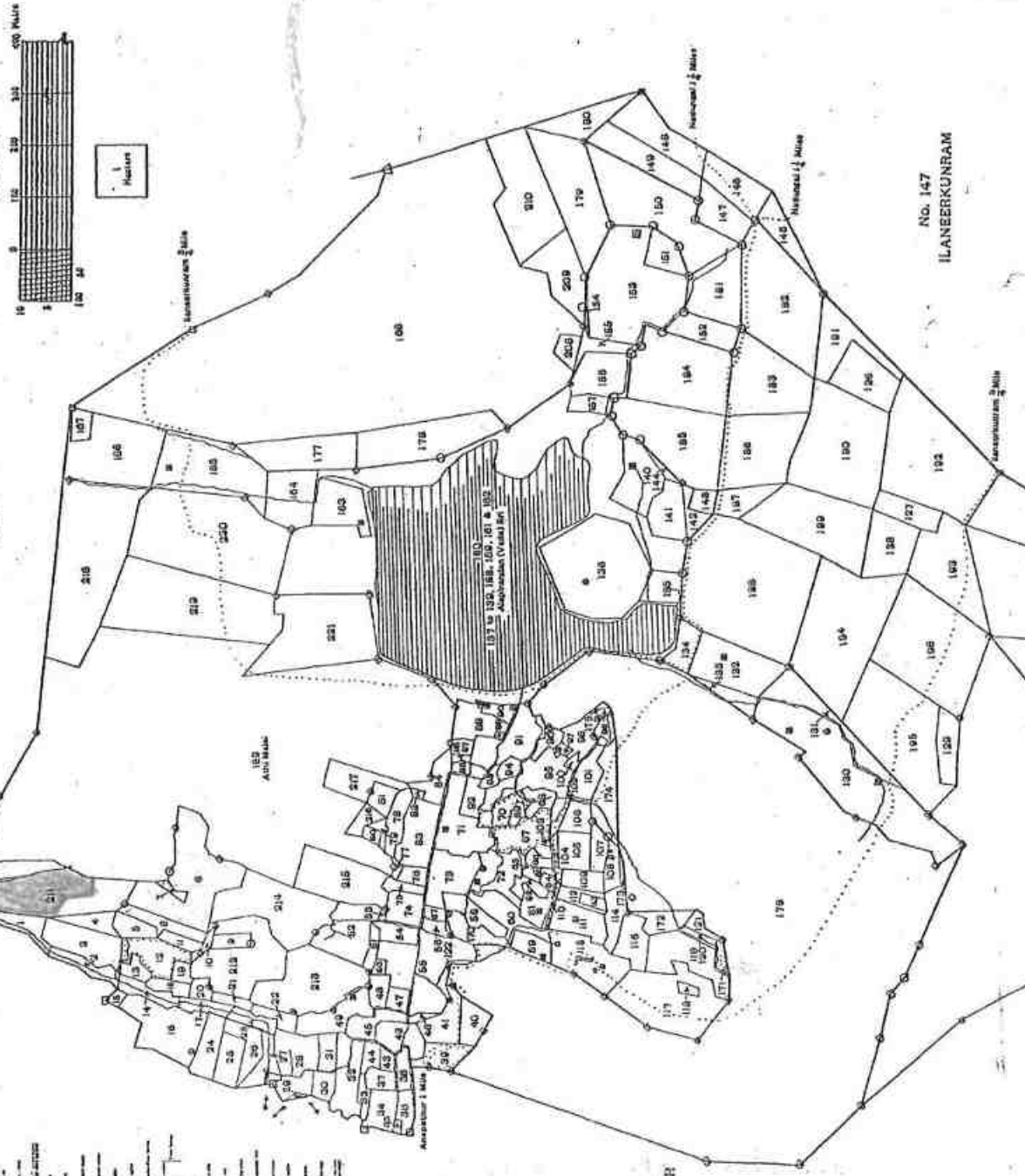
Area by Triangle 821.24 Acres (344.46 Hectares)
Plane 821.63 Acres (345.04 Hectares)

Scale 1:5000



- STANDARD SYMBOLS AND NOTATIONS
- 1. Boundaries of the State
 - 2. Boundaries of the District
 - 3. Boundaries of the Taluk
 - 4. Boundaries of the Village
 - 5. Boundaries of the Ward
 - 6. Boundaries of the Sub-Village
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No. 145
ATHI



No. 147
ILANEERKUNRAM

No. 154
ANAPATHUR

LEASE APPLIED AREA

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வட்டாட்சியர் அலுவலக இணைய சேவை - நில உரிமை விபரங்கள்



தமிழக அரசு

வருவாய்த் துறை

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



மாவட்டம் : திருவண்ணாமலை

வட்டம் : செய்யார்

வருவாய் கிராமம் : வடாஅளபிறந்தான்

பட்டா எண் : 765

உரிமையாளர்கள் பெயர்

1.	கண்ணன்	மகன்	சீனிவாசன்	-
2.	கண்ணன்	மகன்	பூபாலன்	-
3.	கண்ணன்	மகன்	கோபாலன்	-
4.	கண்ணன்	மகன்	வெற்றிலேலன்	-
5.	கண்ணன்	மகன்	சுதாகரன்	-

புல எண்	உட்பிரிவு	புன்செய்		நுன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	
11	-	0 - 20.00	0.55	--	--	--	--	2019/0103/06/109421- --- 26-01-2019
211	2B	0 - 48.30	1.30	--	--	--	--	2022/0105/06/371105- -2022/06/04/000036SD -- 30-08-2022
211	3B	0 - 9.20	0.24	--	--	--	--	2022/0105/06/371105- -2022/06/04/000036SD -- 30-08-2022
211	4	0 - 8.50	0.20	--	--	--	--	2019/0103/06/109421- -- -- 26-01-2019
211	5	0 - 5.50	0.15	--	--	--	--	2019/0103/06/109421- -- -- 26-01-2019
211	6	0 - 8.00	0.20	--	--	--	--	2019/0103/06/109421- --- 26-01-2019
211	7	0 - 13.00	0.35	--	--	--	--	2019/0103/06/109421- --- 26-01-2019
211	8	0 - 32.50	0.85	--	--	--	--	2019/0103/06/109421- -- -- 26-01-2019
211	9	0 - 30.00	0.80	--	--	--	--	2019/0103/06/109421- --- 26-01-2019
214	5	0 - 16.00	0.46	--	--	--	--	2019/0103/06/137668- --- 22-08-2019
3	-	0 - 90.00	2.35	--	--	--	--	2019/0103/06/137668- -- -- 22-08-2019
4	1	0 - 12.50	0.35	--	--	--	--	2019/0103/06/137668- -- -- 22-08-2019
4	2	0 - 14.00	0.40	--	--	--	--	2019/0103/06/137668- -- -- 22-08-2019
5	-	0 - 24.50	0.65	--	--	--	--	2019/0103/06/137668-

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வட்டாட்சியர் அலுவலக இணைய சேவை - நில உரிமை விபரம்

								22-08-2019
7	-	0 - 7.50	0.20	--	--	--	--	2019/0103/06/137668-
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8	5	0 - 28.50	0.75	--	--	--	--	2019/0103/06/137668-
9	1	0 - 5.50	0.15	--	--	--	--	2019/0103/06/137668-
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		5 - 29.50	14.05	0 - 38.00	4.10			

குறிப்பு 2 :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 06/04/153/00765/90398 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 27-09-2022 அன்று 05:55:52 PM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



பக்கம் 2
விவரத்தில் வருவாயிற் புலவாரி வைப்பற்ற வருபு அடங்கல் மகனக்கு

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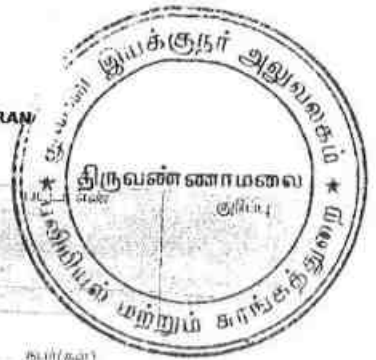
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பக்கம் 2
விவரத்தில் வருவாயிற் புலவாரி வைப்பற்ற வருபு அடங்கல் மகனக்கு

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13-9-18 Glen Allen
R-100- 5 CR mines

12539/91-7 10 3 1991

-1-

"J C K MINES "

1) **Mr.K.SRINIVASAN** (Aadhar :5183 7527 2718) S/O.KANNAN ,aged about 46 years now residing at No.782,Mariyamman Koil Street,Jambodai Village,Azhividaithangi Post,Vembakkam taluka,Tiruvannamali Dist-604402, Here in after called party of the First part.

2) **Mr.K.BOOBALAN** (Aadhar:2447 1902 7206) S/O.KANNAN, aged about 44 years now residing at No.782,Mariyamman Koil Street,Jambodai Village,Azhividaithangí Post,Vembakkam Taluka,Tiruvannamalai Dist -604402
Here in after called party of the Second part

① *He P*

1.6.2014

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K.RAGOTHAMAN, M.A.,B.L.,
Advocate & Notary,
No.398A, Jeeyar Street,
Cheyyar-604407, T.V.Malai Dt.
Mobile: 9443963509



தமிழ்நாடு தமிழ்நாடு TAMILNADU 36827

Rs 50/- Green 25/10/18 J.C.R. Suresh - 2 -

AH 203027

[Signature]

B.L.சிவ சுவாமிநாதர்
காலாம்படி வெண்ணை
செய்யாறு. திருவனாமலை
No 12639/91-7 Dt: 30-3-1992

- 3) Mr.K.GOPALAN (Aadhar:2495 0194 8421) S/O.KANNAN, aged about 41 years now residing at No.782,Mariyamman Koil Street,Jambodai Village,Azhividaithangi Post,Vembakkam Taluka,Tiruvannamalai Dist -604402
Here in after called party of the Third part
- 4) Mr.K.VETTRIVELAN (Aadhar:9200 9020 9694) S/O.KANNAN, aged about 38 years now residing at No.782,Mariyamman Koil Street,Jambodai Village,Azhividaithangi Post,Vembakkam Taluka,Tiruvannamalai Dist -604402
Here in after called party of the Fourth part
- 5) Mr.K.SUDHAKARAN (Aadhar:3518 4379 6955) S/O.KANNAN, aged about 36 years now residing at No.782,Mariyamman Koil Street,Jambodai Village,Azhividaithangi Post,Vembakkam Taluka,Tiruvannamalai Dist -604402
Here in after called party of the Fifth part

① *[Signature]*

④ *[Signature]*

② *[Signature]*

[Signature]



[Signature]
13/7/2012
K.RAGOTHAMAN, M.A., B.L.,
Advocate & Notary,
No.398A, Jeeyar Street,
Cheyyar 604407, T.V.Malai Dist.
Mobile: 9443963509



தமிழ்நாடு தமிழ்நாடு TAMILNADU 36228
 Rs 50 சென்னை
 10-9-18 JCK mines 3-

AH 203028
 B.L. சுவாமிநாதன்
 ஸ்டாம்பு வெண்டர்
 எசய்யாறு, தி.மலை டி
 No 12639/91-7 Dt 30-3-1991

Whereas the above parties are decided to do partnership business under the name style of "J CK MINES " to the terms and conditions mutually agreed upon.

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

① [Signature]

② [Signature]

③ [Signature]

④ [Signature]

⑤ [Signature]

(Attested)
 13/12/2022



K. RAGOTHAMAN, M.A., B.L.,
 Advocate & Notary,
 No. 398A, Jeeyar Street,
 Cheyyar-604407, T.V. Malai Dt.
 Mobile: 9443963509



தமிழ்நாடு தமிழ்நாடு TAMILNADU 36830

Rs 50 - ரூபாய் 50
13.9.18 J.C.K. Mines

AH 203030

B. L. சிவசுந்தரன்
ஸ்டாம்பு வணிகர்,
செய்யாறு, தி.மலையாறு மாவட்டம்
No 12639/91-7 Dt: 30.3.1995

- 4 -

NOW THIS DEED WITNESSETH THAT:

The name of the partnership business shall be " J C K MINES " and/or such other name/s as may be mutually decided by the parties hereto.

1) The place of business shall be at S.NO.96/5,MELNARMA VILLAGE MELMA POST,CHEYYAR TALUKA,TIRUVANNAMALAI DIST - 604408 or such other place/s as may be mutually decided the parties hereto

2) The business of the partnership shall be carried on Manufacturing of Bluemetals (Stone Crushing) & M.Sand or Such other business/s as may be mutually decided by the parties hereto.

① [Signature]

② [Signature]

③ [Signature]

13/9/2022
K.RAGOTHAMAN, M.A.,B.L.,
Advocate & Notary,
No.398A, Jeeyar Street,
Cheyyar-604407, T.V.Malai Dt.
Mobile: 9443963509





- 6 -

6) i) All the Parties are the working partners of the firm. They shall actively engage themselves in conducting the affairs of the business of the firm..

ii) The working partner shall be paid remuneration for the services rendered by them. The remuneration to working partners are eligible to Rs.4000/ p.m per partner .It should be restricted to U/s.40(b) of the Income Tax Act 1951.

iii) "Book profit" shall mean Net Profit as per the Profit & Loss Account of the firm computed in accordance with the provisions of the Income-tax Act after payment of interest to partners but before salary payable to partners under this clause.

iv) Remuneration payable to each working partner shall be credited to his capital/ current account at the year end.

v) In case of loss it is mutually agreed that the working partners are not entitled to any remuneration for the services rendered by them.

① *[Signature]*

④ *[Signature]*

② *[Signature]*

⑤ *[Signature]*

③ *[Signature]*

[Signature]
13/7/2022

K.RAGOTHAMAN, M.A.,B.L.,
Advocate & Notary,
No.398A, Jeeyar Street,
Cheyyar-604407, T.V.Malai Dt.
Mobile: 9443963509



- 7) Proper Books of accounts shall be maintained in respect of all the transactions of the partnership business. All books, vouchers, files and other documents relating to the partnership business shall be kept in the place of business of the firm; all partners shall have power to inspect the books, etc., at all reasonable time and shall have power to take copies, notes or extracts from them.



Every year the books of account shall be closed on 31st march and the net profit/loss salary shall be divided by equally

Bank accounts shall be opened in the name of the firm and operated by Parties of the First Part Mr.K.SRINIVASAN AND Second part Mr.K.BOOBALAN in one / more bank/s as may be mutually decided by all the partners, power to operate bank accounts shall include power to operate all OD, OCC and any other loan a/cs of the firm.

- 8) It shall be the duty of the all partners to carry on the partnership business to the greatest common advantage of both the partners and both shall be true and faithful to each other.

- 9) The partnership shall be a "PARTNERSHIP AT WILL"

- 10) Any partner desiring to retire from the firm shall give one month notice to the other partner. The books of accounts shall be closed, his/her share of profit / loss account up to the date of his/her retirement shall be ascertained and all amount due to the retiring partner shall be paid within 90 days from the date of his/her retirement.

- 11) Any dispute or difference which may arise among the partners of their representatives with regard to the construction, meaning, effect of this deed or any part thereof, or respecting the accounts, profits or losses of the business or the rights and liabilities or the discussion or winding up to the business or any matter relating to the firm shall be referred to arbitration.

① [Signature]

④ [Signature]

② [Signature]

⑤ [Signature]

③ [Signature]

(Attested)

13/12/2022

K.RAGOTHAMAN, M.A., B.L.,
Advocate & Notary,
No.398A, Jeeyar Street,
Cheyyar-604407, T.V.Malai Dt.
Mobile: 9443963509





-8-

12) Any of the above terms and conditions shall be deleted, varied, or added to by the common consent of both the parties hereto

13) This deed partnership shall be effective from 14-09-2018

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

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

WITNESSESS:

1.

1.(J.K.SRINIVASAN)

2. (K. BOOBALAN)

3.(K.GOBALAN)

4.(K.VETRIVELAN)

5.(K.SUDHAKARAN)

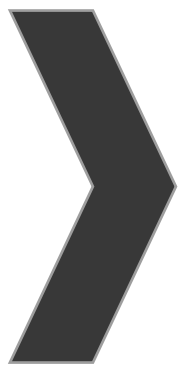
This Partnership Deed was prepared by



M. SIVAKUMAR, B.Com., C.A.
Income Tax Practitioner,
Reg.No: 4/2002-2003
No. 21, Kasikara Street,
Cheyyar-604407, T.V.M. Dt.



K. RAGOTHAMAN, M.A., B.L.
Advocate & Notary,
No. 398A, Jeeyar Street,
Cheyyar-604407, T.V. Malai Dt.
Mobile: 9443963509



ANNEXURE-8

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 15th January 2016 & S.O.3611 (E) Dated 25th 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

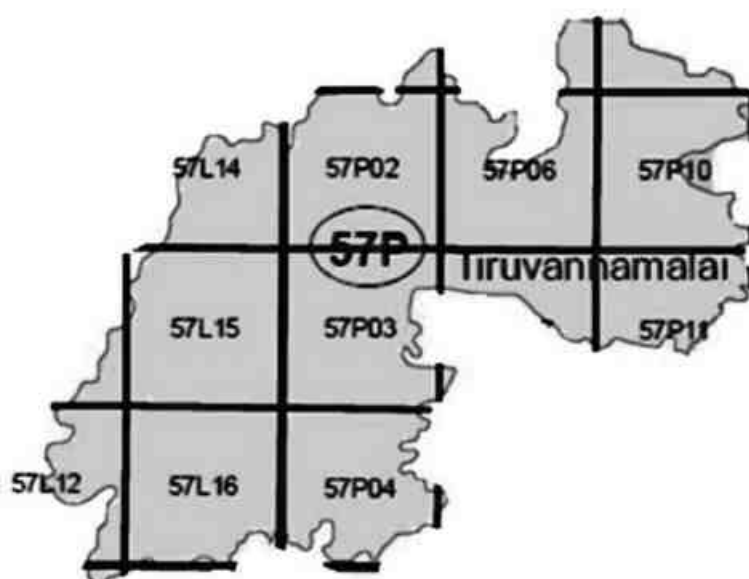
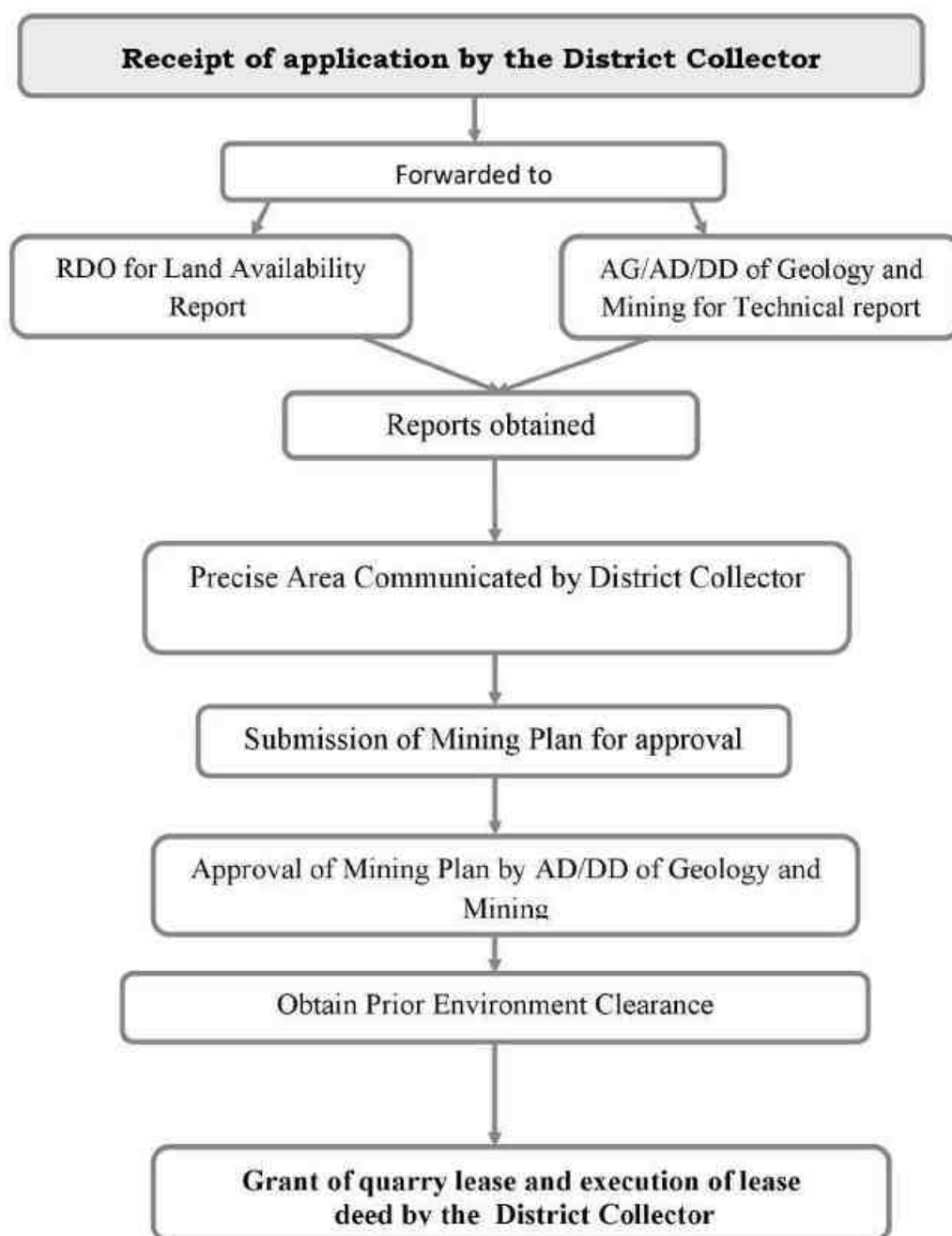


Fig. 1.1 Toposheet in Tiruvannamalai District

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.

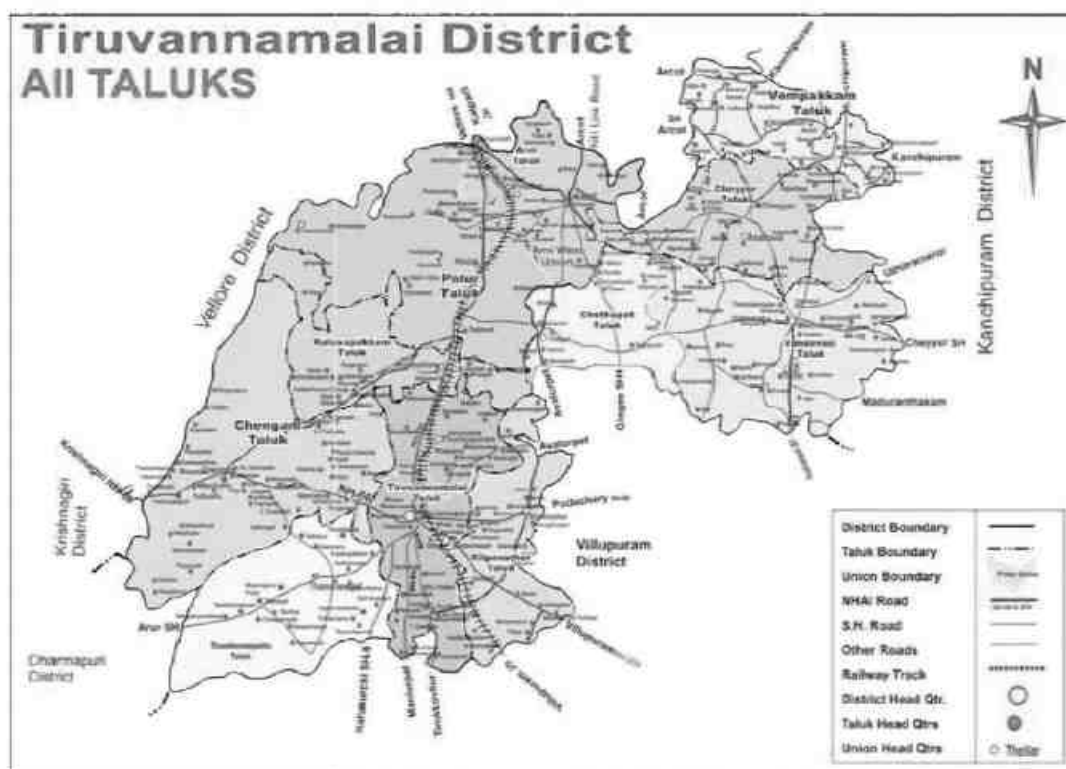


Fig.3.1 Tiruvannamalai District (Taluk wise)

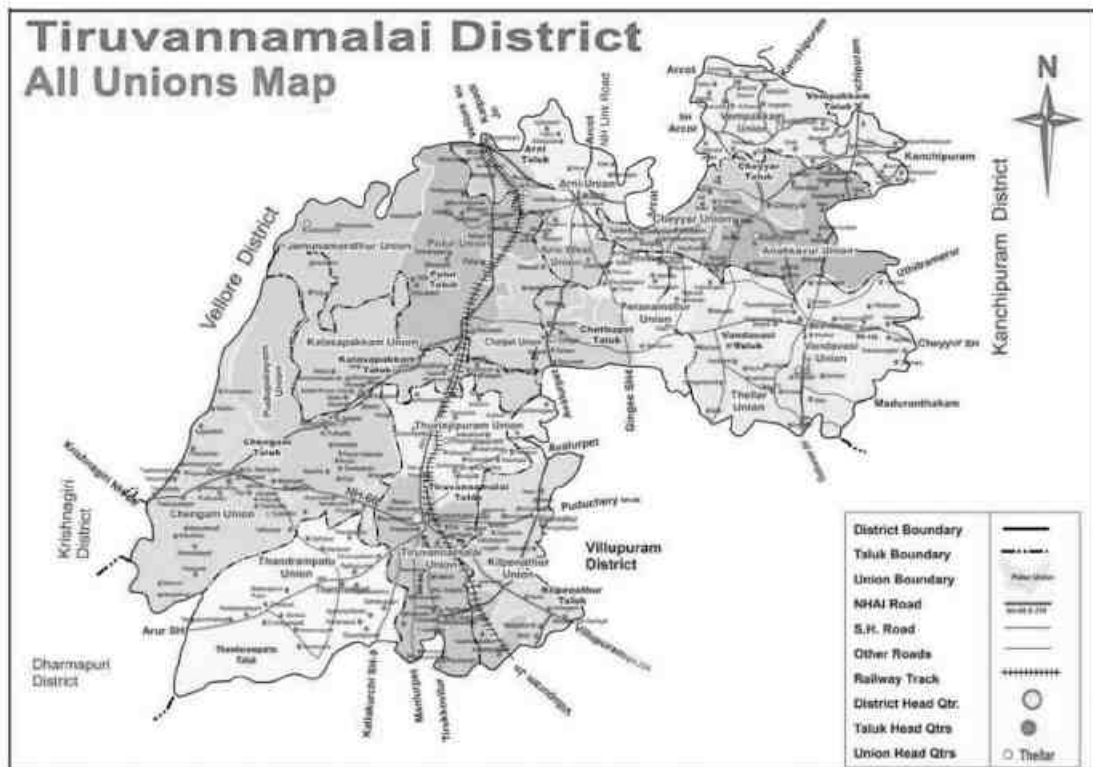


Fig.3.2 All Union Map, Tiruvannamalai District

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 migmatised. 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 and 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	6,19,100	100.00

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 thereafter 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.

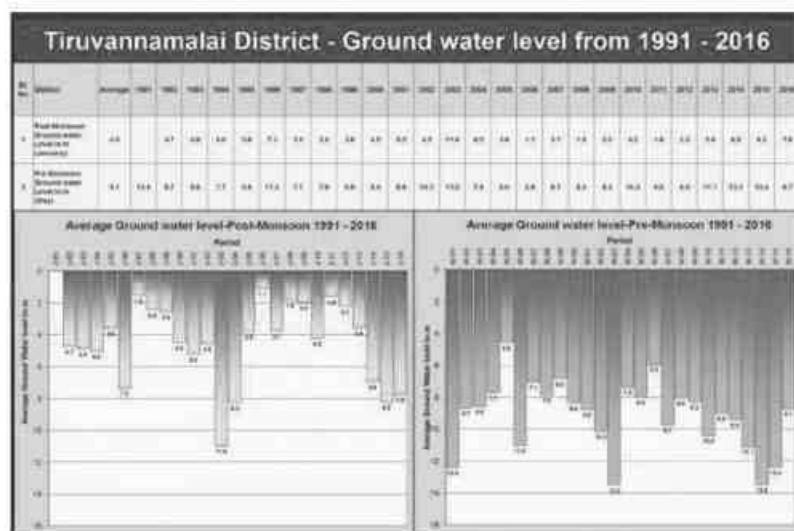


Figure 7.0 Geology And Mineral Resources Map Of Tiruvannamalai District

Over exploited (Greater than 100%)	Critical (Between 90 and 100%)	Semi - Critical (70 - 90%)	Safe (Less than 70%)
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 st / 2 nd ... 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" N 12° 06' 43" N 79° 16' 27" E 79° 16' 31" E	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, Tundarampet	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, Tiruvannamalai 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/20 17/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 /TVM/TN/F. No.97- 58/K/2015 E.C.No.315/ 2017-28 dt:17.9.2018	Uchimalaikuppam 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	Manalurnel Siruvalur 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 DEIAA- 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	Kolaman- janur 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-	Royanda-puram Thandaram-pattu 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/F.No.43 55/EC/1 (a)/ EC.No.2552 /2015 dt.23.12.2015	Varagur Thandaram pattu 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 Thandaram-pattu 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.Chen galpattu.	169/K2/2010 17.12.2011	1.00.0	17.12.2011	16.12.2021	-	-	17.12.2011	Non-Operative	Non Captive	-No-	Jeganatha-puram 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 L26.09.2016	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" E 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 Polur 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	Agatheri-pattu 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-	Sithala-pakkam 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" N 12° 44' 19" N 79° 42' 14" E 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, Sessa 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/F. 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/F. 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.83/1 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/F. No.05/K/2018E.C.No.315/2017-25 dt:17.9.2018	Kundiyan-thandalam 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, Besant 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, Urupakkam 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.Mani,	Vetrilaikara 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:

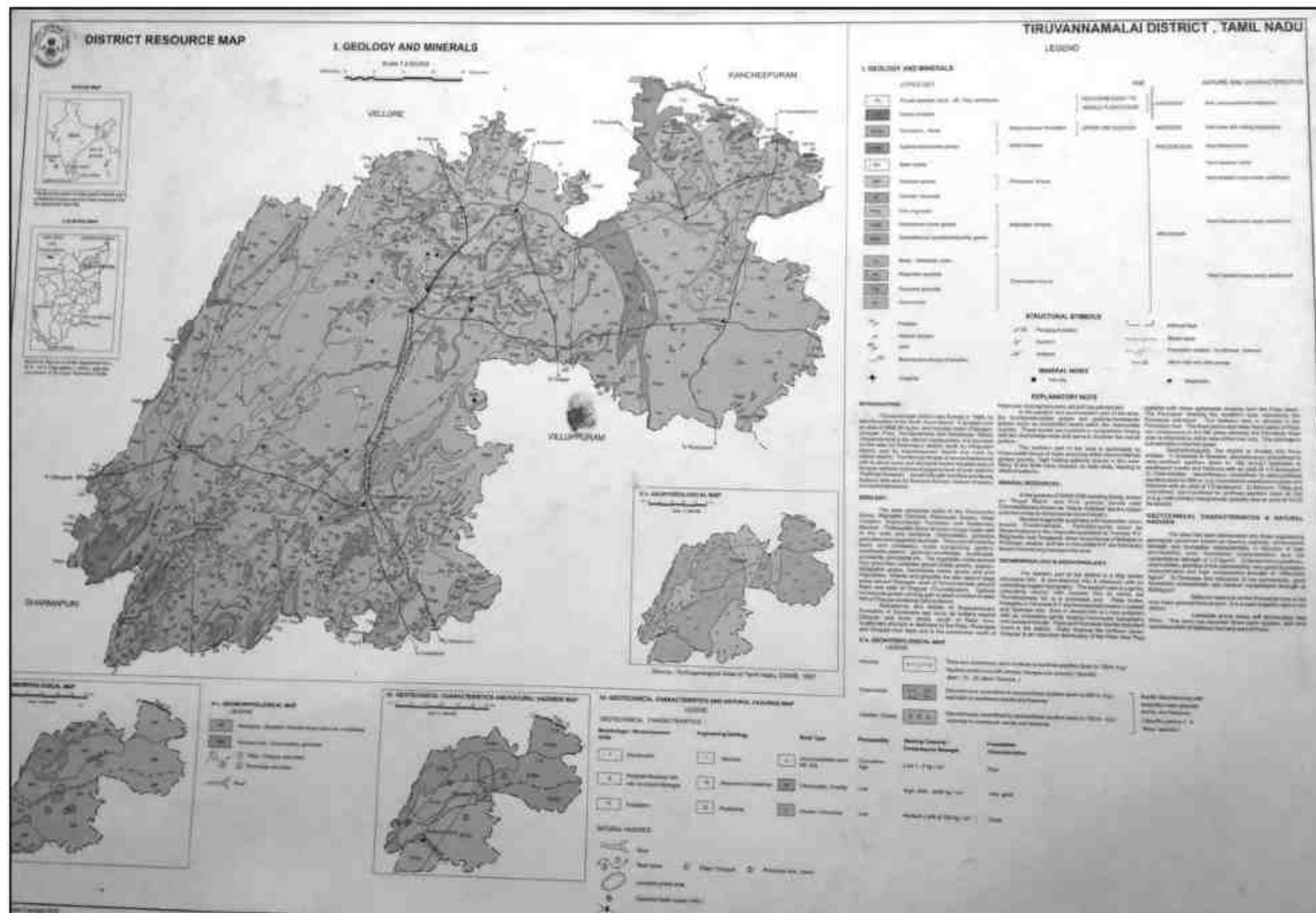
Sl.No	Year	Revenue realized
1.	2016-2017	33519675
2.	2017-2018	38311705
3.	2018-2019	59673732

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:

Sl.No	Year	Production of Rough Stone
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 th 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, Madhayan 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 rd 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 Tambaram, 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	Rough Stone	D.Jaiganesh,	Vettavalam village, Tiruvannamalai Taluk	614/K2/2009 10.11.2017	1.00.0	Vettavalam Tiruvannamalai 12°06' 38" 12° 06' 43" 79° 16' 27" 79° 16' 31"	109580 cbm Rough Stone
2	Rough Stone	R.Prasath,	Polur Main Road, Tiruvannamalai.	39/K2/2010 08.03.2010	2.00.0	Veraiyur Tiruvannamalai 2°05' 33" N 12° 05' 37" N 79° 07' 11" E 79° 07' 19" E	182300 cbm Rough Stone
3	Rough Stone	E.Murugesan ,	Nachanandhal Tiruvannamalai.	22/K2/2010 05.04.2010	1.00.0	Pavupattu Tiruvannamalai 12°07' 58"N 12° 07'53"N 79° 02' 55"E 79° 02' 50"E	213395 cbm Rough Stone
4	Rough Stone	R.Singaram,	Thenimalai, Tiruvannamalai	73/K2/2010 05.04.2010	1.00.0	Athipadi Tiruvannamalai 12°05' 06" N 12° 05' 02"N 79° 02' 18"E 79° 02' 13"E	100010 cbm Rough Stone
5	Rough Stone	A.Nakkeeran,	3, Kardukarar Street, Vettavalam	636/K2/2009 10.05.2010	0.77.0	Vettavalam Tiruvannamalai 12°06' 27"N 12° 06' 32"N 79° 14' 07"E 79° 14' 11"E	192500 cbm Rough Stone

6	Rough Stone	R.Arul,	Melanandahal Village, Tirukovilur Taluk.	40/K2/2010 13.05.2010	1.00.0	Athipadi Tiruvannmalai 12°05' 04" N 12° 05' 09"N 79° 02' 11"E 79° 02' 15"E	148500 cbm Rough Stone
7	Rough Stone	N.Suresh,	25/73, Ayyankula Street, Tiruvannamalai	43/K2/2010 16.12.2010	2.00.0	Meyyur Tiruvannmalai 12°08' 59"N 12° 09' 05"N 79° 01' 49"E 79° 01' 54"E	500000 cbm Rough Stone
8	Rough Stone	M.Selvaraj,	Chengam Road, Tiruvannamalai.	74/K2/2010 16.12.2010	1.00.0	Adaiyur Tiruvannmalai 12° 16' 24" N 12° 16' 28"N 79° 02' 55" E 79° 02' 59"E	100250 cbm Rough Stone
9	Rough Stone	S.Prasanth,	Chengam Road, Tiruvannamalai	75/K2/2010 23.12.2010	0.96.5	Adaiyur Tiruvannmalai 12°16' 20" N 12° 16' 25" N 79° 02' 54" E 79° 02' 58"E	92750 cbm Rough Stone
10	Rough Stone	S.Senthilkumar,	10, Kardukarar Street, Vettavalam.	168/K2/2010 24.12.2010	1.23.5	Vettavalam T iruvannamalai 12° 07' 34"N 12° 07' 38"N 79° 15' 48"E 79° 15' 53"E	61820 cbm Rough Stone
11	Rough Stone	K.Thirumal,	Perayampattu post and Village, Tandarampet	72/K2/2010 01.03.2011	1.30.0	Athipadi Tiruvannmalai 12°05' 01"N 12° 05' 05"N 79° 02' 03"E 79° 02' 09"E	165490 cbm Rough Stone

12	Rough Stone	N. Harijayashree,	No.18/7, Vadamathathi St.,Tiruvannamalai	57/K/2012 28.04.2012	4.00.0	Vallivagai Tiruvannmalai 12° 16' 41"N 12° 16' 32"N 79° 08' 52"E 79° 08' 39"E	600795 cbm Rough Stone
13	Rough Stone	R.Sekar,	Mel Chinna Goundanpatti, Tharamangalam Village, Omalur Taluk, Salem Dt.	47/K2/2015 12.09.2017	1.00.0	Koothalavadi Tiruvannmalai 12° 20 02.45"N 12° 20' 07.2"N 79° 06' 49.93'E 79°06' 53.59"E	38760 cbm Rough- Stone
14	Rough Stone	P.Adimoolam,	57A, Tamizhnagar, Tiruavannamalai taluk	130/K2/2009 01.07.2009	1.00.0	lynkunam Kilpennathur 12°15' 36" N 12° 15' 47" N 79° 09' 56" E 79° 10' 02" E	154000 cbm Rough Stone
15	Rough Stone	R.Karthikeyan	23/29, Lakshmipuram, Gandhi Nagar, Tiruvannamalai-2.	483/K2/2009 20.04.2011	1.00.0	Iynkunam Kilpennathur 12° 15' 43"N 12° 15' 47"N 79° 09' 41"E 79° 09' 47"E	190500 cbm Rough Stone
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	Polakunam Kilpennathur N 12°12'32.00" 12°12'34.95" E 79°08'40.72" 79°08'46.20"	300750 cbm Rough Stone
17	Rough Stone	S.Vasanthkumari	Uchimalaikuppam Chengam	621/K2/2009 12.04.2010	1.35.5	Uchimalaikuppam Chengam N 12°15'54" 12°15'58" E 78°54'21" 78°54'27"	124560 cbm Rough Stone

18	Rough Stone	K.Durai	1/2, Ramalinganar Street, Tiruvannamalai	27/K2/2010 05.05.2010	1.00.0	Paliapattu Chengam 12° 16' 10" N 12° 16' 01" N 79° 00' 15" E 79° 00' 08"E	274040 cbm Rough Stone
19	Rough Stone	R.Jeevanantham,	50, Avarangaatu Street, Tiruvannamalai	24/K2/2010 13.05.2010	2.00.0	Chinnakola-padi Chengam 12° 15' 16"N 12° 15' 22"N 78° 59' 10"E 78° 59' 17"E	300000 cbm Rough Stone
20	Rough Stone	R.M.Jayavelu	Chengam Road, Tiruvannamalai	28/K2/2010 03.11.2010	1.50.0	Paliapattu Chengam 12° 16' 11"N 12° 16' 04"N 79° 00' 20"E 79° 00' 14"E	155610 cbm Rough Stone
21	Rough Stone	M.Palani	6, Peygopuram St., Tiruvannamalai	15/K2/2011 12.01.2016	0.50.0	Periyakola-padi Chengam 12° 15'02.12"N 12° 15' 05.67"N 79° 58'50.59"E 79°58'52.31"E	47595 cbm Rough Stone
22	Rough Stone	Sadhaknawas,	No. 25, 3rd Street, Valace Garden, Chennai-6.	14/K2/2011 12.01.2016	0.50.0	Periyakola-padi Chengam 12° 15'01.92"N 12° 15' 05.72"N 79° 58'49.37"E 79°58'51.19"E	57465 cbm Rough Stone
23	Rough Stone	Tmt.S.Kanimozhi	No.152, Old Street, Avoor Village Tiruvannamalai	48/K2/2015 28.07.2016	1.00.0	Periyakola-padi Chengam 12° 15' 03" N 12° 15' 06" N 78° 58' 53" E 78° 58' 58" E	266480 cbm Rough Stone

24	Rough Stone	M.Julia	180, Vambalur Road, Tirumalai village, Polur taluk	231/K2/2009 22.06.2009	2.00.0	Tirumalai Polur 12° 33' 44"N 12° 33' 47"N 79° 11' 26"E 79° 11' 33"E	288000 cbm Rough Stone
25	Rough Stone	M.Parthiban,	27/A, Vengadathan street, Polur taluk & village.	136/K2/2010 24.12.2010	1.00.0	Pudhu-palayam Polur 12° 29' 18" N 79° 6' 40.64" E	70385 cbm Rough Stone
26	Rough Stone	S.Rajakumar	2/57, Pillaiyar koil street, Kalasapakkam.	50/K/2015 21.07.2016	2.00.0	Vasur Polur 12° 29' 16" N 12° 29' 21" N 79° 07' 11" E 79° 07' 17"E	392950 cbm Rough Stone
27	Rough Stone	E.Sivakumar,	No.20.26.J.30, VRS Nagar, Govindasamy street, Polur.	51/K/2015 21.07.2016	2.00.0	Pudu-palayam Polur 12° 29' 17"N 12° 29' 22" N 79° 06' 26" E 79° 06' 31"E	239070 cbm Rough Stone
28	Rough Stone	P.Radhakrishnan	Mettu Street, Tiruvannamalai	20/K2/2010 12.04.2010	1.03.5	Sathanur Thandarampattu 12° 11' 08"N 12° 11' 13"N 78° 53' 01"E 78° 53' 05"E	134345 cbm Rough Stone
29	Rough Stone	M.Govindarajan,	No.3/337, Allabasha street, Mungilthuraipattu Village, Shankarapuram Tk.	79/K2/2010 28.06.2010	2.00.0	Thonda-manur Thandaram-pattu 12° 03' 48"N 12° 04' 03"N 78° 56' 57"E 78° 57' 05"E	279000 cbm Rough Stone

30	Rough Stone	A.Thenarmozhi	Manalurmel Siruvallur Village, Sankarapuram	134/K2/2010 23.08.2010	2.00.0	Perukulathur Thandaram-pattu 12° 01' 28" N 12° 01' 33" N 78° 55' 03" E 78° 55' 07"E	199420 cbm Rough Stone
31	Rough Stone	Tmt.K.Sarasu	53, Nehru Street, Chengam	626/K2/2009 17.03.2011	1.00.0	Sathanur Thandarampattu 12°11'21"N 12°11'26"N 78°52'52"E 78°52'56"E	182750 cbm Rough Stone
32	Rough Stone	R.Dhanakotti	Varagur Village, Tandrapet	18/K2/2011 30.03.2011	1.00.0	Varagur Thandarampattu 12° 08' 58" N 12° 08' 54" N 79° 01' 48"E 79° 01' 42"E	186000 cbm Rough Stone
33	Rough Stone	P.Palani	Kolamanjanur Village, Tandarampet.	20/K2/2011 18.04.2011	2.00.0	Kolaman-janur Thandarampattu 12° 08' 14"N 12° 08' 25"N 78° 53' 05"E 78° 53' 12"E	365400 cbm Rough Stone
34	Rough Stone	M.Veeramani	Royandapuram Village Thandarampattu Taluk.	19/K2/2011 24.05.2012	2.00.0	Royanda-puram Thandaram-pattu 12°04'49"N 12°04'55"N 78°56'23"E 78°56'29"E	543200 cbm Rough Stone
35	Rough Stone	M.Vinothkannan,	Varagur Village, Tandrapet	49/K/ 2015 20.01.2016	0.40.0	Varagur Thandarampattu 12° 08' 32" N 12° 08' 29" N 79° 01' 39" E 79° 01' 37"E	101250 cbm Rough Stone

36	Rough Stone	Tmt.R.Amutha	No.712, Bajanai Koil Street, Dhesurpalayam Village, Keelvanakkambadi Thandrampattu Taluk	396/K/ 2017 11.06.2018	2.00.0	Allappanur Thandaram-pattu N 12°06'06.86" 12°06'12.52" E 78°56'39.04" 78°56'45.64"	1000000 cbm Rough Stone
37	Rough Stone	S.Nagaraj	Manampathy Village, Uthiramerur Taluk.	29/K2/2011 17.12.2011	1.53.0	Athi Cheyyar 12° 38' 18"N 12° 38' 29"N 79° 36' 30"E 79° 36' 39"E	230055 cbm Rough Stone
38	Rough Stone	K.Gopinath,	Kandigai melkottaiyur post, Chengelpet taluk.	26/K2/2011 03.06.2011	2.00.0	Avaniapuram Chetpattu 12° 08' 54"N 12° 08' 58"N 79° 01' 34"E 79° 01'41"E	200080 cbm Rough Stone
39	Rough Stone	V.Rajagopal,	Oorapakkam,Chengalpet.	169/K2/2010 17.12.2011	1.00.0	Jeganatha-puram Chetpattu 12° 28' 51"N 12° 28' 57"N 79° 24' 06"E 79° 24' 10"E	199820 Cbm of Rough stone
40	Rough Stone	D.Saravanan,	Venkatapuram, Saidapet,Chennai - 15.	140/K2/2010 18.10.2010	2.00.0	Seeyalam Vandavasi 12° 26' 24"N 12° 26' 27 N 79° 43' 05"E 79° 43' 12"E	295245 cbm Rough Stone
41	Rough Stone	R.Tamilvanan.	Saidapet,Chennai -15.	143/K2/2010 18.10.2010	2.00.0	Seeyalam Vandavasi 12° 26' 14"N 12° 26' 18 N 79°43' 02"E 79° 43' 11"E	222720 cbm Rough Stone

2	Rough Stone	Siddique Basha,	Kunnathur village, Arni taluk	602/K2/2009 19.11.2009	2.00.0	Melnagar ramasani kuppam Arni 12°42'13"N 12°42'07" N 79°11'01"E 79°10' 55"E	353600 cbm Rough Stone
43	Rough Stone	S.Suresh,	3, Saradha Nagar, Agraharam Koratur, Chennai – 76.	135/K2/2009 23.11.2009	1.00.0	Mullan-diram Arni 12°49'02.10"N 12°49'06.57" N 79°15'31.79"N 79°15'36.38"N	204000 cbm Rough Stone
44	Rough Stone	M.Shajakhan	855, Bazar Street Santhavasal, Polur Tk.	68/K/2012 24.05.2012	1.00.0	Melnagar Arni 12° 42' 27"N 12° 42' 32"N 79° 10' 17"E 79° 10' 21"E	136950 cbm Rough Stone
45	Rough Stone	A.Nazeer Basha,	520/1, C.C.Road, Vannangulam, Arni taluk	51/K2/2010 14.09.2010	2.00.0	Ayyam-palayam Arni 12° 42' 10"N 12° 42' 18"N 79° 10' 15"E 79° 10' 21"E	266450 cbm Rough Stone
46	Rough Stone	A.G.Mohan,	43, V.A.K.Nagar, Arni Taluk	52/K/2015 13.11.2017	0.40.0	Ariyapadi Arni 12° 41' 52"N 12° 41' 54"N 79° 13' 22"E 79° 13' 25"E	101250 cbm Rough Stone
47	Rough Stone	P.Vinayagamoorthi	Ramana Nagar, Thiruvannamalai.	104/K2/2015 02.03.2016	0.75.5	Pavithram Tiruvannamalai 12°07'21"N 12°07'24" E 79°06'26" 79°06'32"E	151840 cbm Rough Stone

48	Rough Stone	C.Shanthi	No.3/22 Nehru Street, Vettavalam Taluk	132/K2/2015 15.05.2018	0.65.0	Vettavalam Kilpennathur 12°06'15.10" 12°06'18.00" 79°13'59.75" 79°14'04.16"	130000 cbm Rough Stone
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	Kasthambadi Polur N 12°35'55" 12°36'01" E 79°11'51" 79°11'57"	207480 cbm Rough Stone
50	Rough Stone	T.Selvaraj,	Harur Main Road, Mothakkal village, Thandarampattu Tk.	31/K/2013 16.06.2014	0.40.5	Mothakkal Tmpt 12°05'25.30"N 12°05'22.51"N 78°43'34.90"E 78°43'36.52"E	22276 cbm Rough- Stone
51	Rough Stone	R.Gopi,	4/75B, Veerapathran Kovil St., Vijayappanur, Thandarampattu Tk.	101/K/2015 02.06.2016	1.71.0	Varagur Thandarampattu 12°08'54"N 12°08'58"N 79°01'34"E 79°01'41"E	171170 cbm Rough Stone
52	Rough Stone	R.Venkatachalam,.	No.30, New State Bank Colony, West Tambaram, Chennai.	95/K/2015 21.07.2016	2.90.0	Palli Cheyyar 12° 42' 53"N 12° 43'01"N 79° 36' 08"E 79° 36'15"E	290000 cbm Rough Stone
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	Palli Cheyyar 12° 43' 20"N 12° 43' 30"N 79° 36' 14" E 79° 36' 24"E	1902000 cbm Rough Stone

54	Rough Stone	I.Prakash	Senthamangalam Village S.V.Chathiram (Via), Sriperumpthur Taluk, Kanchipuram District.	122/K/2015 28.07.2016	0.78.0	Painkinar Cheyyar 12°41'20.08" 12°41'24.79" 79°31'11.49" 79°31'15.16"	168080 cbm Rough Stone
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	Kurumbur Cheyyar 12°35'56.33" N 12°36'07.32"N 79°36'54.98" E 79°37'02.93"E	900840 cbm Rough Stone
56	Rough Stone	R.Velmurugan,	304, Theradi Street, Asanamapettai Village, Vembakkam Taluk.	360/K/2017 17.09.2018	1.20.0	Palli Cheyyar N 12°43'15" 12°43'19" E 79°35'36" 79°35'43"	416080 cbm Rough Stone
57	Rough Stone	S.MURUGAN,	No.62/2 , Vedanatham Village, Tiruvannamalai Taluk & District.	125/K/2015 03.11.2018	2.06.5	Agatheri-pattu Cheyyar N 12°36'39.77" 12°36'46.70" E 79°27'00.45" 79°27'05.69"	450740 cbm Rough Stone
58	Rough Stone	M.Marimuthu,	Kilpudupakkam Village, Cheyyar Taluk, Tiruvannamalai District.	413/K/2017 16.11.2018	0.98.5	Palli Cheyyar N 12°43'14" 12°43'20" E 79°35'59" 79°36'02"	244200 cbm Rough Stone
59	Rough Stone	R.Seenuvasan,	Road Street,Arasanipalai village, Vembakkam Taluk	176/K/2013 27.06.2014	3.42.0	Ezhacheri Vembakkam 12° 42' 48" N 12° 43' 1" N 79° 43' 17" E 79° 43' 27" E	150155 cbm Rough- Stone

60	Rough Stone	Ganesh Kaskar,	RMC Ready mix (India) Sidco Industrial Estate, Thirumudivakkam, Chennai.	105/K/2013 14.07.2014	4.23.5	Sithala-pakkam Vembakkam 12°43'23"N 12° 43'10"N 79°43'29" E 79°43'36" E	968970 cbm Rough Stone
61	Rough Stone	D.Madhavan	19, Sarangapani street, Krishnapuram, Ambathur, Chennai-53.	116/K/2013 03.03.2015	0.90.0	Girijapuram Vembakkam 12° 44'25" 12° 44'19"N 79° 42' 14" 79° 42'11"E	76000 cbm Rough- Stone
62	Rough Stone	R.Mohanraj	No.33, Pillaiyar koil street, Puliyambedu village, Ambatthur Taluk.	242/K/2012 13.05.2015	0.81.0	Girijapuram Vembakkam 12° 44' 11" N 12° 44' 08" N 79° 42' 12" E 79° 42' 09" E	257400 cbm Rough Stone
63	Rough Stone	N.Subramani	No 210 , Mandapam Junction Arpakkam Village, Kanchipuram	75/K/2014 21.07.2016	3.02.5	Menallur Vembakkam 12°44'08.63"N 12°44'18.71"N 79°42'16.36"E 79°42'21.37"E	89184 cbm Rough Stone
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	Kundiyan-thandalm Vembakkam 12°43'55.90"N 12°43'59.56"N 79°43'6.08" E 79°43'12.04"E	316710 cbm Rough Stone
65	Rough Stone	K.Kumar,	No.2/32, Mandapam Junction, Arpakkam Village & Post, Kanchipuram.	14/K/2015 28.07.2016	2.29.5	Kundiyan-thandalm Vembakkam 12°43'50.86"N 12°43'58.24"N 79°42'56.50"E 79°43'03.46"E	334530 cbm Rough Stone

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	Suruttal Vembakkam 12°43' 56.14"N 12°44' 02.73"N 79°43' 48.82"E 79°43' 55.08"E	257475 cbm Rough Stone
67	Rough Stone	Tmt.Deepa	81, Santhi Nagar First Street, Chengalpattu, Kanchipuram District	11/K/2014 06.06.2016	0.90.5	Thiruppana-moor Vembakkam 12°45'34.03"N 12°45'39.08"N 79°34'44.00"E 79°34'49.08"E	20610 cbm Rough Stone
68	Rough Stone	J. Venkatesan	153-A/1, Pillaiyar Koil Street, Melapattu Vge.,Ramakrishnapura m. Cheyyar Taluk.	06/K/2017 14.09.2017	1.00.0	Chithathur Vembakkam N 12°43'15" 12°43'20" E 79°36'25" 79°36'28"	249150 cbm Rough Stone
69	Rough Stone	E.Panneerselvam	89, Vanniya Mettu St., Arpakkam Village, Kanchipuram Tk & Dt.	131/K/2015 14.09.2017	1.43.0	Kundiyan-thandalm Vembakkam N 12°43'45.58" 12°43'51.42" E 79°42'58.50" 79°43'02.06"	500500 cbm Rough Stone
70	Rough Stone	L.Sudhakar ,	89, Palla Street, Agaram Village Thenneri Post, Kanchipuram Taluk.	105/K/2016 14.09.2017	3.51.5	Girijapuram Vembakkam 12°44'03.76" 12°44'12.07N 79°42'00.56E" 79°42'08.36E	1127350 cbm Rough Stone
71	Rough Stone	A.Aron Samuvel,	No.15, Sesha Nagar, Poovirnthavalli, Chennai – 600 056.	80/K/2017 17.09.2018	1.83.5	Kundiyan-thandalm Vembakkam N 12°43'46.58" 12°43'52.64" E 79°43'15.17" 79°43'21.32"	306990 cbm Rough Stone

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	Kundiyan-thandalm Vembakkam N 12°43'51.14" 12°43'57.08" E 79°43'07.34" 79°43'16.63"	634000 cbm Rough Stone
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	Kaganam Vembakkam N 12°44'36.64" 12°44'45.79" E 79°34'38.22" 79°34'48.97"	1721925 cbm Rough Stone
74	Rough Stone	B.Deenan ,	Vembakkam Taluk	78/K/2014 20.07.2018	0.95.5	Ezhacheri Vembakkam N 12°42'51" 12°42'48" E 79°43'25" 79°43'21"	238000 cbm Rough Stone
75	Rough Stone	K.Devaraj,	No.105, Gandhisilai Street, Lakshmipuram Village, Vembakkam Taluk, Tiruvannamalai	248/K/2017 17.10.2018	2.10.0	Girijapuram Vembakkam N 12°44'14" 12°44'21" E 79°42'03" 79°42'09"	822160 cbm Rough Stone
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	Chithathur Vembakkam N 12°44'09" 12°44'14" E 79°37'18" 79°37'25"	484640 cbm Rough Stone
77	Rough Stone	M.R.Azhagiri,	No.120, Shanmuganandhar Kovil Street Mangadu, Sriperumbuthur Tk, Kancheepuram	85/K/2018 17.10.2018	3.87.5	Chithala-pakkam Vembakkam N 12°42'46.17" 12°42'52.84" E 79°43'25.08" 79°43'33.59"	968750 cbm Rough Stone

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	Ezhacheri Vembakkam N12°43'18.09" 12°43'24.02" E 79°43'19.41" 79°43'11.43"	1310610 cbm Rough Stone
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	Ezhacheri Vembakkam N 12°43'16.06" 12°43'19.39" E 79°43'10.40" 79°43'19.71"	638750 cbm Rough Stone
80	Rough Stone	Muthukrishnan,	No.221,Chenjiamman Koil Street, Chithalappakkam Village, Arasanipalayam Post, Vempakkam Taluk.	337/K/2017 22.11.2018	1.26.0	Chithala-pakkam Vembakkam N 12°43'18.67" 12°43'24.09" E 79°43'30.36" 79°43'34.30"	441000 cbm Rough Stone
81	Rough Stone	R.Venkatasubramanian,	No.83/1 Pillaiyar Kovil Street, Sirumayilur Village, Kancheepuram.	05/K/2018 04.12.2018	2.43.0	Kundiyan-thandalam Vembakkam N12°44'12" 12°44'44'17" E 79°43'03" 79°43'12"	107395 cbm Rough Stone
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	Chithathur Vembakkam N 12°43'19.14" 12°43'27.05" E 79°36'22.83" 79°36'34.83"	2121750 cbm Rough Stone
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	Kizhnamandi Vandavasi 12° 23'15"N 12° 23'23"N 79°29'40"E 79°29'43" E	102767 cbm Rough- Stone

84	Rough Stone	G.Vasudevan	Door No.842-D, Vengidamangalam Road, Melakkottaiyur,Chengalpattu Taluk,Kancheepuram.	115/K/2015 08.12.2016	1.04.0	Septangulam Vandavasi 12°31' 53.54" 12°31' 56.24" 79°26'21.93" 79°26'28.09"	256700 cbm Rough Stone
85	Rough Stone	G.Rajendran,	No.18, First Street, Rajiv Gandhi Nagar, Urapakkam Village, Chengalpattu .	37/K/2014 22.12.2016	1.68.0	Mavalavadi Vandavasi 12°22'32.00"N 79°39'29.10"E	202464 cbm Rough Stone
86	Rough Stone	A.C.Mani,	Vetrilaikara street, Arni.	36/K/2013 25.09.2014	0.67.0	Ariyapadi Arni 12°41'56"N 12° 41' 52"N 79° 13' 20" E 79° 13' 23"E	36244 cbm Rough - Stone
87	Rough Stone	R.Monishkumar	No.35/88, Rajaji Street, Chengalpattu.	Rc.No.379/ Kanimam / 2017 dt:17.07.2018	3.12.5	Ezhacheri Vembakkam 12°43'01.10"N 12°43'08.27"N 79°43'06.48"E 79°43'16.34"E	894250 cbm Rough Stone
88	Rough Stone	R.Gunasekaran	No.50/70 Kalyanasundharam St, Merku Thambaram, Chennai.	Rc.No.378/ Kanimam /2017 dt:06.08.2018	1.49.0	Vazhavandal Vembakkam 12°44'10.61"N 12°44'16.71"N 79°41'19.33"E 79°41'23.75"E	521500 cbm Rough Stone
89	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	Thirupanamoor Vembakkam 12°45'38.82"N 12°45'47.05"N 79°34'45.63"E 79°34'56.70"E	1180000 cbm Rough Stone

90	Rough Stone	A.WILLIAM	No.139, 4 th 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	692200 cbm Rough Stone
91	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	Kiznayacken palayam & Girijapuram vembakkam 12°44'07.37"N 12°44'13.71"N 79°41'53.84"E 79°41'00.88"E	2133360 cbm Rough Stone
92	Rough Stone	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	1326400 cbm Rough Stone
93	Rough Stone	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	566755 cbm Rough Stone
94	Rough Stone	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	520800 cbm Rough Stone
95	Rough Stone	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	326190 cbm Rough Stone

96	Rough Stone	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	355250 cbm Rough Stone
97	Rough Stone	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"	182600 cbm Rough Stone
98	Rough Stone	K.Chandreskaran	No.301, Madhayan 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	681640 cbm Rough Stone
99	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	Kundiyanthandalam Vembakkam 12°43'50.85"N 79°43'05.5"E	807200 cbm Rough Stone
100	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	Athi Cheyyar 12°38'34.74"N 12°38'43.98"N 79°35'58.85"E 79°36'07.81"E	3294775 cbm Rough Stone
101	Rough Stone	M/s.Rajiraj Minerals Pvt. Ltd.,	O/F Penna Complex, Vellore Main Road, 3 rd 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	7630070 cbm Rough Stone

102	Rough Stone	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	1240800 cbm Rough Stone
103	Rough Stone	N.Ragu	S/o.Nadarajan, No.14/2 Center street, Ganapathypuram, East Tambaram, 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	1178520 cbm Rough Stone
104	Rough Stone	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	1298250 cbm Rough Stone

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 :-

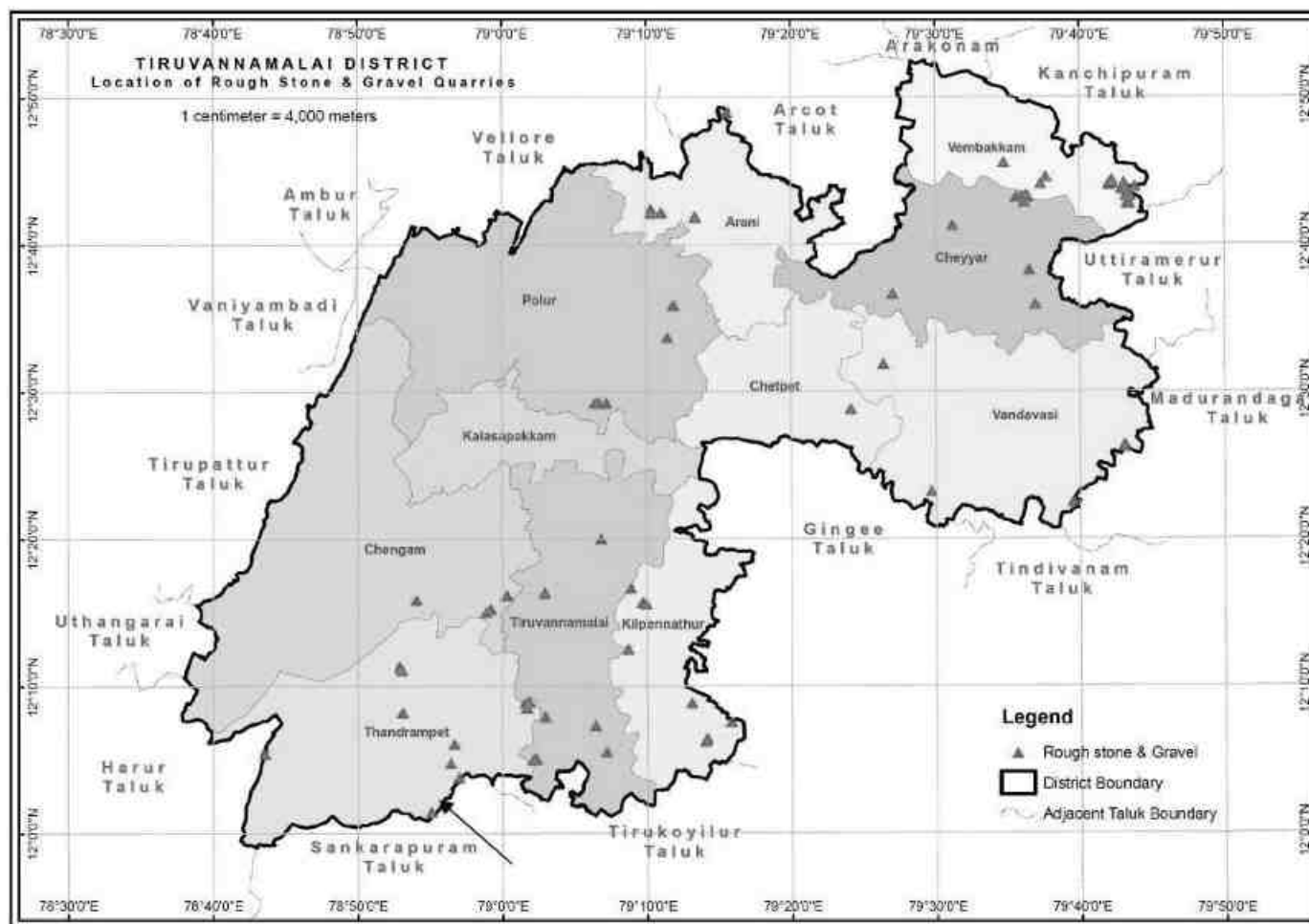
There is a huge demand for Rough stone and Gravel in the district due to the sudden increase of Construction activities and highway projects around the district.

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"	
				Chithala-pakkam	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"	
					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	Kundiyan-thandalam	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_x, SO₂ 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 or 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 carry out 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, taxi 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 falcatoria</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.

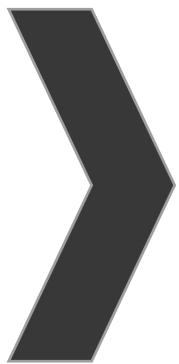
CER/CSR activities shall be carried out by providing social and welfare measures to the local community of the nearby villages. The main activities would be like drinking water facilities for the government schools children, public toilets to the local community and government schools, conducting free 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-9

TEST REPORT

Report No.	SES/AAQ/966/2023-24			Report Date	24.03.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A1- WITHIN THE MINE LEASE AREA JCK MINES			Sample Received on	20.03.2023
Sample Collected by	SES			Test Commenced on	20.03.2023
Sample Collected Date	07.03.2023			Test Completed on	20.03.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 ($<10 \mu\text{m}$)	49.8	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 ($< 2.5 \mu\text{m}$)	21.8	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO_2)	4.6	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO_2)	6.3	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		 Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/967/2023-24			Report Date	24.03.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A1- WITHIN THE MINE LEASE AREA JCK MINES			Sample Received on	20.03.2023
Sample Collected by	SES			Test Commenced on	20.03.2023
Sample Collected Date	08.03.2023			Test Completed on	20.03.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	47.2	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	19.5	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	3.8	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/968/2023-24			Report Date	24.03.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A2-ATHI VILLAGE			Sample Received on	20.03.2023
Sample Collected by	SES			Test Commenced on	20.03.2023
Sample Collected Date	07.03.2023			Test Completed on	20.03.2023
Sl.No	Parameters	Results (µg/m ³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	45.1	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	23.3	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.4	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.0	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
					
Chemist		 Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/969/2023-24			Report Date	24.03.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A2-ATHI VILLAGE			Sample Received on	20.03.2023
Sample Collected by	SES			Test Commenced on	20.03.2023
Sample Collected Date	08.03.2023			Test Completed on	20.03.2023
Sl.No	Parameters	Results (µg/m ³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	47.4	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	20.6	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	3.8	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.4	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/970/2023-24			Report Date	24.03.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A3-KILNETHAPAKKAM VILLAGE			Sample Received on	20.03.2023
Sample Collected by	SES			Test Commenced on	20.03.2023
Sample Collected Date	09.03.2023			Test Completed on	20.03.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	44.2	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	22.1	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.3	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.6	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/971/2023-24			Report Date	24.03.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A3-KILNETHAPAKKAM VILLAGE	Sample Received on	20.03.2023		
Sample Collected by	SES	Test Commenced on	20.03.2023		
Sample Collected Date	10.03.2023	Test Completed on	20.03.2023		
Sl.No	Parameters	Results (µg/m³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	45.1	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	18.7	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	5.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/972/2023-24			Report Date	24.03.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A4-VADA ALAPIRANTHAN PUDUR VILLAGE			Sample Received on	20.03.2023
Sample Collected by	SES			Test Commenced on	20.03.2023
Sample Collected Date	09.03.2023			Test Completed on	20.03.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	55.1	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	30.2	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	5.6	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.6	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/973/2023-24			Report Date	24.03.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A4-VADA ALAPIRANTHAN PUDUR VILLAGE			Sample Received on	20.03.2023
Sample Collected by	SES			Test Commenced on	20.03.2023
Sample Collected Date	10.03.2023			Test Completed on	20.03.2023
Sl.No	Parameters	Results (µg/m³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	52.4	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	24.6	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.6	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	8.4	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd;			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/974/2023-24			Report Date	24.03.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A5-ANAPPATHUR VILLAGE			Sample Received on	20.03.2023
Sample Collected by	SES			Test Commenced on	20.03.2023
Sample Collected Date	11.03.2023			Test Completed on	20.03.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	49.7	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	23.2	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	5.1	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	8.4	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
					
Chemist		 Authorized Signatory A.Prabhu Quality/Technical Manager			

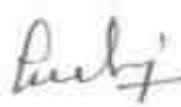
TEST REPORT

Report No.	SES/AAQ/975/2023-24			Report Date	24.03.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A5-ANAPPATHUR VILLAGE			Sample Received on	20.03.2023
Sample Collected by	SES			Test Commenced on	20.03.2023
Sample Collected Date	12.03.2023			Test Completed on	20.03.2023
Sl.No	Parameters	Results (µg/m³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	47.2	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	24.1	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.6	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	8.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

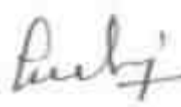
TEST REPORT

Report No.	SES/AAQ/976/2023-24			Report Date	24.03.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A5-ANAPPATHUR VILLAGE			Sample Received on	20.03.2023
Sample Collected by	SES			Test Commenced on	20.03.2023
Sample Collected Date	14.03.2023			Test Completed on	20.03.2023
Sl.No	Parameters	Results (µg/m³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	54.2	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	23.1	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	7.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	8.4	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/977/2023-24			Report Date	24.03.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A5-ANAPPATHUR VILLAGE			Sample Received on	20.03.2023
Sample Collected by	SES			Test Commenced on	20.03.2023
Sample Collected Date	15.03.2023			Test Completed on	20.03.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	59.4	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	27.2	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	9.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/978/2023-24			Report Date	24.03.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A4-VADA ALAPIRANTHAN PUDUR VILLAGE			Sample Received on	20.03.2023
Sample Collected by	SES			Test Commenced on	20.03.2023
Sample Collected Date	16.03.2023			Test Completed on	20.03.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	60.2	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	28.2	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	5.4	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.6	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/979/2023-24			Report Date	24.03.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A4-VADA ALAPIRANTHAN PUDUR VILLAGE			Sample Received on	20.03.2023
Sample Collected by	SES			Test Commenced on	20.03.2023
Sample Collected Date	17.03.2023			Test Completed on	20.03.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	57.2	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	29.0	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	6.8	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	8.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/980/2023-24			Report Date	24.03.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A3-KILNETHAPAKKAM VILLAGE			Sample Received on	20.03.2023
Sample Collected by	SES			Test Commenced on	20.03.2023
Sample Collected Date	16.03.2023			Test Completed on	20.03.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	52.3	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	24.9	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	6.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	8.3	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/981/2023-24			Report Date	24.03.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A3-KILNETHAPAKKAM VILLAGE			Sample Received on	20.03.2023
Sample Collected by	SES			Test Commenced on	20.03.2023
Sample Collected Date	17.03.2023			Test Completed on	20.03.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	50.4	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	25.3	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	5.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.4	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/982/2023-24			Report Date	24.03.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A2-ATHI VILLAGE			Sample Received on	20.03.2023
Sample Collected by	SES			Test Commenced on	20.03.2023
Sample Collected Date	18.03.2023			Test Completed on	20.03.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	46.2	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	23.8	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.5	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/983/2023-24			Report Date	24.03.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A2-ATHI VILLAGE			Sample Received on	20.03.2023
Sample Collected by	SES			Test Commenced on	20.03.2023
Sample Collected Date	19.03.2023			Test Completed on	20.03.2023
Sl.No	Parameters	Results (µg/m³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	45.1	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	21.3	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.6	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/984/2023-24			Report Date	24.03.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A1- WITHIN THE MINE LEASE AREA JCK MINES			Sample Received on	20.03.2023
Sample Collected by	SES			Test Commenced on	20.03.2023
Sample Collected Date	18.03.2023			Test Completed on	20.03.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 ($<10 \mu\text{m}$)	45.4	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 ($< 2.5 \mu\text{m}$)	22.2	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO_2)	4.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO_2)	6.0	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/985/2023-24			Report Date	24.03.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A1- WITHIN THE MINE LEASE AREA JCK MINES			Sample Received on	20.03.2023
Sample Collected by	SES			Test Commenced on	20.03.2023
Sample Collected Date	19.03.2023			Test Completed on	20.03.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	53.4	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	23.4	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.6	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.4	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

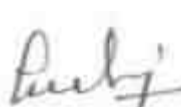
TEST REPORT

Report No.	SES/AAQ/986/2023-24			Report Date	08.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A1- WITHIN THE MINE LEASE AREA JCK MINES			Sample Received on	03.04.2023
Sample Collected by	SES			Test Commenced on	03.04.2023
Sample Collected Date	21.03.2023			Test Completed on	08.04.2023
Sl.No	Parameters	Results (µg/m ³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	50.4	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	24.1	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.4	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		 Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/987/2023-24			Report Date	08.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A1- WITHIN THE MINE LEASE AREA JCK MINES			Sample Received on	03.04.2023
Sample Collected by	SES			Test Commenced on	03.04.2023
Sample Collected Date	22.03.2023			Test Completed on	08.04.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	42.4	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	20.6	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	5.4	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/988/2023-24			Report Date	08.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A2-ATHI VILLAGE			Sample Received on	03.04.2023
Sample Collected by	SES			Test Commenced on	03.04.2023
Sample Collected Date	21.03.2023			Test Completed on	08.04.2023
Sl.No	Parameters	Results (µg/m ³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	48.6	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	23.7	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.5	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.3	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

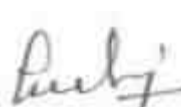
TEST REPORT

Report No.	SES/AAQ/989/2023-24			Report Date	08.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A2-ATHI VILLAGE			Sample Received on	03.04.2023
Sample Collected by	SES			Test Commenced on	03.04.2023
Sample Collected Date	22.03.2023			Test Completed on	08.04.2023
Sl.No	Parameters	Results (µg/m ³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	46.2	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	20.4	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.1	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.7	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/990/2023-24			Report Date	08.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A3-KILNETHAPAKKAM VILLAGE			Sample Received on	03.04.2023
Sample Collected by	SES			Test Commenced on	03.04.2023
Sample Collected Date	23.03.2023			Test Completed on	08.04.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 ($<10 \mu\text{m}$)	57.2	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 ($< 2.5 \mu\text{m}$)	26.2	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO_2)	4.8	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO_2)	6.6	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
					
Chemist		 Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/991/2023-24			Report Date	08.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A3-KILNETHAPAKKAM VILLAGE			Sample Received on	03.04.2023
Sample Collected by	SES			Test Commenced on	03.04.2023
Sample Collected Date	24.03.2023			Test Completed on	08.04.2023
Sl.No	Parameters	Results (µg/m ³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	52.1	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	28.1	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.6	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.8	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/992/2023-24			Report Date	08.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A4-VADA ALAPIRANTHAN PUDUR VILLAGE			Sample Received on	03.04.2023
Sample Collected by	SES			Test Commenced on	03.04.2023
Sample Collected Date	23.03.2023			Test Completed on	08.04.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	51.8	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	23.6	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	5.4	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	9.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/993/2023-24			Report Date	08.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A4-VADA ALAPIRANTHAN PUDUR VILLAGE			Sample Received on	03.04.2023
Sample Collected by	SES			Test Commenced on	03.04.2023
Sample Collected Date	24.03.2023			Test Completed on	08.04.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	55.4	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	24.2	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO_2)	5.4	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO_2)	8.4	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/994/2023-24			Report Date	08.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A5-ANAPPATHUR VILLAGE			Sample Received on	03.04.2023
Sample Collected by	SES			Test Commenced on	03.04.2023
Sample Collected Date	25.03.2023			Test Completed on	08.04.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	52.1	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	25.1	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	7.6	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	8.6	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

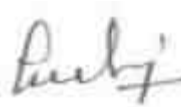
TEST REPORT

Report No.	SES/AAQ/995/2023-24			Report Date	08.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A5-ANAPPATHUR VILLAGE			Sample Received on	03.04.2023
Sample Collected by	SES			Test Commenced on	03.04.2023
Sample Collected Date	26.03.2023			Test Completed on	08.04.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	54.6	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	26.1	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.6	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	10.4	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

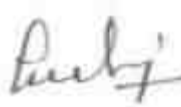
TEST REPORT

Report No.	SES/AAQ/996/2023-24			Report Date	08.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A5-ANAPPATHUR VILLAGE			Sample Received on	03.04.2023
Sample Collected by	SES			Test Commenced on	03.04.2023
Sample Collected Date	28.03.2023			Test Completed on	08.04.2023
Sl.No	Parameters	Results (µg/m³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	47.4	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	24.3	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.8	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.8	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/997/2023-24			Report Date	08.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A5-ANAPPATHUR VILLAGE			Sample Received on	03.04.2023
Sample Collected by	SES			Test Commenced on	03.04.2023
Sample Collected Date	29.03.2023			Test Completed on	08.04.2023
Sl.No	Parameters	Results (µg/m³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	49.7	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	22.8	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	5.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.8	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/998/2023-24			Report Date	08.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A4-VADA ALAPIRANTHAN PUDUR VILLAGE			Sample Received on	03.04.2023
Sample Collected by	SES			Test Commenced on	03.04.2023
Sample Collected Date	30.03.2023			Test Completed on	08.04.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	45.4	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	21.6	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	7.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	9.4	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

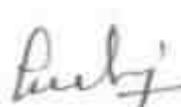
TEST REPORT

Report No.	SES/AAQ/999/2023-24			Report Date	08.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A4-VADA ALAPIRANTHAN PUDUR VILLAGE			Sample Received on	03.04.2023
Sample Collected by	SES			Test Commenced on	03.04.2023
Sample Collected Date	31.03.2023			Test Completed on	08.04.2023
Sl.No	Parameters	Results (µg/m³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	48.1	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	20.6	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	6.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.8	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

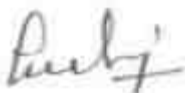
TEST REPORT

Report No.	SES/AAQ/1000/2023-24			Report Date	08.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A3-KILNETHAPAKKAM VILLAGE			Sample Received on	03.04.2023
Sample Collected by	SES			Test Commenced on	03.04.2023
Sample Collected Date	30.03.2023			Test Completed on	08.04.2023
Sl.No	Parameters	Results (µg/m³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	45.2	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	22.1	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.0	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	8.4	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1001/2023-24			Report Date	08.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A3-KILNETHAPAKKAM VILLAGE			Sample Received on	03.04.2023
Sample Collected by	SES			Test Commenced on	03.04.2023
Sample Collected Date	31.03.2023			Test Completed on	08.04.2023
Sl.No	Parameters	Results (µg/m³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	49.2	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	24.3	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	5.4	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.8	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1002/2023-24			Report Date	08.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A2-ATHI VILLAGE			Sample Received on	03.04.2023
Sample Collected by	SES			Test Commenced on	03.04.2023
Sample Collected Date	01.04.2023			Test Completed on	08.04.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	45.3	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	23.4	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.6	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.4	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
					
Chemist		 Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1003/2023-24			Report Date	08.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A2-ATHI VILLAGE			Sample Received on	03.04.2023
Sample Collected by	SES			Test Commenced on	03.04.2023
Sample Collected Date	02.04.2023			Test Completed on	08.04.2023
Sl.No	Parameters	Results (µg/m³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	46.9	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	22.4	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.3	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.6	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1004/2023-24			Report Date	08.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A1- WITHIN THE MINE LEASE AREA JCK MINES			Sample Received on	03.04.2023
Sample Collected by	SES			Test Commenced on	03.04.2023
Sample Collected Date	01.04.2023			Test Completed on	08.04.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	48.2	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	24.7	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.1	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	5.4	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1005/2023-24			Report Date	08.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A1- WITHIN THE MINE LEASE AREA JCK MINES			Sample Received on	03.04.2023
Sample Collected by	SES			Test Commenced on	03.04.2023
Sample Collected Date	02.04.2023			Test Completed on	08.04.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	43.1	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	21.4	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	5.8	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1006/2023-24			Report Date	22.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A1- WITHIN THE MINE LEASE AREA JCK MINES			Sample Received on	17.04.2023
Sample Collected by	SES			Test Commenced on	17.04.2023
Sample Collected Date	04.04.2023			Test Completed on	22.04.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 ($<10 \mu\text{m}$)	51.4	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 ($< 2.5 \mu\text{m}$)	23.5	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO_2)	4.0	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO_2)	6.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
					
Chemist		 Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1007/2023-24			Report Date	22.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A1- WITHIN THE MINE LEASE AREA JCK MINES			Sample Received on	17.04.2023
Sample Collected by	SES			Test Commenced on	17.04.2023
Sample Collected Date	05.04.2023			Test Completed on	22.04.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 ($<10 \mu\text{m}$)	45.7	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 ($< 2.5 \mu\text{m}$)	20.3	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO_2)	4.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO_2)	5.5	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1008/2023-24			Report Date	22.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A2-ATHI VILLAGE			Sample Received on	17.04.2023
Sample Collected by	SES			Test Commenced on	17.04.2023
Sample Collected Date	04.04.2023			Test Completed on	22.04.2023
Sl.No	Parameters	Results (µg/m ³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	48.3	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	24.2	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	3.8	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.4	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1009/2023-24			Report Date	22.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A2-ATHI VILLAGE			Sample Received on	17.04.2023
Sample Collected by	SES			Test Commenced on	17.04.2023
Sample Collected Date	05.04.2023			Test Completed on	22.04.2023
Sl.No	Parameters	Results (µg/m ³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	45.5	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	22.6	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.6	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.7	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

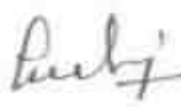
TEST REPORT

Report No.	SES/AAQ/1010/2023-24			Report Date	22.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A3-KILNETHAPAKKAM VILLAGE			Sample Received on	17.04.2023
Sample Collected by	SES			Test Commenced on	17.04.2023
Sample Collected Date	06.04.2023			Test Completed on	22.04.2023
Sl.No	Parameters	Results (µg/m ³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	44.1	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	22.2	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.3	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.9	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
					
Chemist		 Authorized Signatory A.Prabhu Quality/Technical Manager			

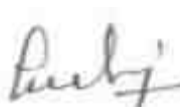
TEST REPORT

Report No.	SES/AAQ/1011/2023-24			Report Date	22.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A3-KILNETHAPAKKAM VILLAGE			Sample Received on	17.04.2023
Sample Collected by	SES			Test Commenced on	17.04.2023
Sample Collected Date	07.04.2023			Test Completed on	22.04.2023
Sl.No	Parameters	Results (µg/m ³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	50.2	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	26.3	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.1	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	8.4	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1012/2023-24			Report Date	22.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A4-VADA ALAPIRANTHAN PUDUR VILLAGE			Sample Received on	17.04.2023
Sample Collected by	SES			Test Commenced on	17.04.2023
Sample Collected Date	06.04.2023			Test Completed on	22.04.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	50.4	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	22.8	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	6.8	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	8.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1013/2023-24			Report Date	22.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A4-VADA ALAPIRANTHAN PUDUR VILLAGE			Sample Received on	17.04.2023
Sample Collected by	SES			Test Commenced on	17.04.2023
Sample Collected Date	07.04.2023			Test Completed on	22.04.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	46.9	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	22.4	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.3	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.6	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1014/2023-24			Report Date	22.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A5-ANAPPATHUR VILLAGE			Sample Received on	17.04.2023
Sample Collected by	SES			Test Commenced on	17.04.2023
Sample Collected Date	08.04.2023			Test Completed on	22.04.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	55.7	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	25.2	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.3	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.6	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1015/2023-24			Report Date	22.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A5-ANAPPATHUR VILLAGE			Sample Received on	17.04.2023
Sample Collected by	SES			Test Commenced on	17.04.2023
Sample Collected Date	09.04.2023			Test Completed on	22.04.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	51.4	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	26.3	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	5.4	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.8	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1016/2023-24			Report Date	22.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A5-ANAPPATHUR VILLAGE			Sample Received on	17.04.2023
Sample Collected by	SES			Test Commenced on	17.04.2023
Sample Collected Date	11.04.2023			Test Completed on	22.04.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	53.2	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	23.2	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.8	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	8.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

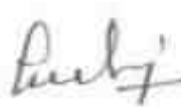
TEST REPORT

Report No.	SES/AAQ/1017/2023-24			Report Date	22.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A5-ANAPPATHUR VILLAGE			Sample Received on	17.04.2023
Sample Collected by	SES			Test Commenced on	17.04.2023
Sample Collected Date	12.04.2023			Test Completed on	22.04.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	51.4	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	24.3	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO_2)	5.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO_2)	7.6	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1018/2023-24			Report Date	22.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A4-VADA ALAPIRANTHAN PUDUR VILLAGE			Sample Received on	17.04.2023
Sample Collected by	SES			Test Commenced on	17.04.2023
Sample Collected Date	13.04.2023			Test Completed on	22.04.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	48.3	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	24.2	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	3.8	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.4	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

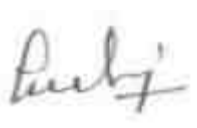
TEST REPORT

Report No.	SES/AAQ/1019/2023-24			Report Date	22.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A4-VADA ALAPIRANTHAN PUDUR VILLAGE			Sample Received on	17.04.2023
Sample Collected by	SES			Test Commenced on	17.04.2023
Sample Collected Date	14.04.2023			Test Completed on	22.04.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	47.5	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	22.6	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.6	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.7	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1020/2023-24			Report Date	22.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A3-KILNETHAPAKKAM VILLAGE			Sample Received on	17.04.2023
Sample Collected by	SES			Test Commenced on	17.04.2023
Sample Collected Date	13.04.2023			Test Completed on	22.04.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	52.1	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	25.7	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO_2)	4.6	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO_2)	6.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1021/2023-24			Report Date	22.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A3-KILNETHAPAKKAM VILLAGE			Sample Received on	17.04.2023
Sample Collected by	SES			Test Commenced on	17.04.2023
Sample Collected Date	14.04.2023			Test Completed on	22.04.2023
Sl.No	Parameters	Results (µg/m³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	49.6	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	28.1	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.3	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	8.4	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
					
Chemist		 Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1022/2023-24			Report Date	22.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A2-ATHI VILLAGE			Sample Received on	17.04.2023
Sample Collected by	SES			Test Commenced on	17.04.2023
Sample Collected Date	15.04.2023			Test Completed on	22.04.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	47.6	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	21.6	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.6	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1023/2023-24			Report Date	22.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A2-ATHI VILLAGE			Sample Received on	17.04.2023
Sample Collected by	SES			Test Commenced on	17.04.2023
Sample Collected Date	16.04.2023			Test Completed on	22.04.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	50.6	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	23.1	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	5.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	5.8	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1024/2023-24			Report Date	22.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A1- WITHIN THE MINE LEASE AREA JCK MINES			Sample Received on	17.04.2023
Sample Collected by	SES			Test Commenced on	17.04.2023
Sample Collected Date	15.04.2023			Test Completed on	22.04.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	50.6	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	24.6	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	5.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	5.8	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1025/2023-24			Report Date	22.04.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A1- WITHIN THE MINE LEASE AREA JCK MINES			Sample Received on	17.04.2023
Sample Collected by	SES			Test Commenced on	17.04.2023
Sample Collected Date	16.04.2023			Test Completed on	22.04.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	54.1	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	23.2	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1026/2023-24			Report Date	06.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A1- WITHIN THE MINE LEASE AREA JCK MINES			Sample Received on	01.05.2023
Sample Collected by	SES			Test Commenced on	01.05.2023
Sample Collected Date	18.04.2023			Test Completed on	06.05.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	45.3	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	21.6	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO_2)	3.8	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO_2)	6.3	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
					
Chemist		 Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1027/2023-24			Report Date	06.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A1- WITHIN THE MINE LEASE AREA JCK MINES			Sample Received on	01.05.2023
Sample Collected by	SES			Test Commenced on	01.05.2023
Sample Collected Date	19.04.2023			Test Completed on	06.05.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	52.4	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	23.1	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.4	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.4	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1028/2023-24			Report Date	06.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A2-ATHI VILLAGE			Sample Received on	01.05.2023
Sample Collected by	SES			Test Commenced on	01.05.2023
Sample Collected Date	18.04.2023			Test Completed on	06.05.2023
Sl.No	Parameters	Results (µg/m ³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	53.1	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	25.1	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	6.0	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

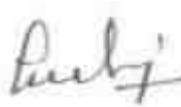
TEST REPORT

Report No.	SES/AAQ/1029/2023-24			Report Date	06.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A2-ATHI VILLAGE			Sample Received on	01.05.2023
Sample Collected by	SES			Test Commenced on	01.05.2023
Sample Collected Date	19.04.2023			Test Completed on	06.05.2023
Sl.No	Parameters	Results (µg/m ³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	50.3	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	26.5	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	5.6	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.8	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1030/2023-24			Report Date	06.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A3-KILNETHAPAKKAM VILLAGE			Sample Received on	01.05.2023
Sample Collected by	SES			Test Commenced on	01.05.2023
Sample Collected Date	20.04.2023			Test Completed on	06.05.2023
Sl.No	Parameters	Results (µg/m ³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	48.3	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	29.1	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	5.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

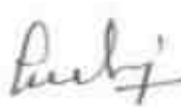
TEST REPORT

Report No.	SES/AAQ/1031/2023-24			Report Date	06.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A3-KILNETHAPAKKAM VILLAGE			Sample Received on	01.05.2023
Sample Collected by	SES			Test Commenced on	01.05.2023
Sample Collected Date	21.04.2023			Test Completed on	06.05.2023
Sl.No	Parameters	Results (µg/m ³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	52.1	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	24.6	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.4	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1032/2023-24			Report Date	06.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A4-VADA ALAPIRANTHAN PUDUR VILLAGE			Sample Received on	01.05.2023
Sample Collected by	SES			Test Commenced on	01.05.2023
Sample Collected Date	20.04.2023			Test Completed on	06.05.2023
Sl.No	Parameters	Results (µg/m³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	45.6	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	24.2	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	8.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1033/2023-24			Report Date	06.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A4-VADA ALAPIRANTHAN PUDUR VILLAGE			Sample Received on	01.05.2023
Sample Collected by	SES			Test Commenced on	01.05.2023
Sample Collected Date	21.04.2023			Test Completed on	06.05.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	47.2	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	23.6	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	6.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1034/2023-24			Report Date	06.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A5-ANAPPATHUR VILLAGE			Sample Received on	01.05.2023
Sample Collected by	SES			Test Commenced on	01.05.2023
Sample Collected Date	22.04.2023			Test Completed on	06.05.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	47.8	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	23.6	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.8	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.8	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1035/2023-24			Report Date	06.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A5-ANAPPATHUR VILLAGE			Sample Received on	01.05.2023
Sample Collected by	SES			Test Commenced on	01.05.2023
Sample Collected Date	23.04.2023			Test Completed on	06.05.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	55.4	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	25.7	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.8	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	9.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1036/2023-24			Report Date	06.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A5-ANAPPATHUR VILLAGE			Sample Received on	01.05.2023
Sample Collected by	SES			Test Commenced on	01.05.2023
Sample Collected Date	25.04.2023			Test Completed on	06.05.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	50.6	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	24.3	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	6.6	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1037/2023-24			Report Date	06.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A5-ANAPPATHUR VILLAGE			Sample Received on	01.05.2023
Sample Collected by	SES			Test Commenced on	01.05.2023
Sample Collected Date	26.04.2023			Test Completed on	06.05.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	48.3	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	23.6	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.5	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.4	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1038/2023-24			Report Date	06.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A4-VADA ALAPIRANTHAN PUDUR VILLAGE			Sample Received on	01.05.2023
Sample Collected by	SES			Test Commenced on	01.05.2023
Sample Collected Date	27.04.2023			Test Completed on	06.05.2023
Sl.No	Parameters	Results (µg/m³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	57.4	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	26.3	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	6.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	8.6	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1039/2023-24			Report Date	06.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A4-VADA ALAPIRANTHAN PUDUR VILLAGE			Sample Received on	01.05.2023
Sample Collected by	SES			Test Commenced on	01.05.2023
Sample Collected Date	28.04.2023			Test Completed on	06.05.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	50.6	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	23.6	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	5.8	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	10.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1040/2023-24			Report Date	06.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A3-KILNETHAPAKKAM VILLAGE			Sample Received on	01.05.2023
Sample Collected by	SES			Test Commenced on	01.05.2023
Sample Collected Date	27.04.2023			Test Completed on	06.05.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	50.6	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	25.1	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	5.4	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.8	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1041/2023-24			Report Date	06.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A3-KILNETHAPAKKAM VILLAGE			Sample Received on	01.05.2023
Sample Collected by	SES			Test Commenced on	01.05.2023
Sample Collected Date	28.04.2023			Test Completed on	06.05.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	47.6	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	24.1	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO_2)	4.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO_2)	7.4	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1042/2023-24			Report Date	06.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A2-ATHI VILLAGE			Sample Received on	01.05.2023
Sample Collected by	SES			Test Commenced on	01.05.2023
Sample Collected Date	29.04.2023			Test Completed on	06.05.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	51.2	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	25.1	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

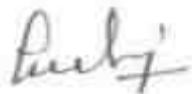
TEST REPORT

Report No.	SES/AAQ/1043/2023-24			Report Date	06.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A2-ATHI VILLAGE			Sample Received on	01.05.2023
Sample Collected by	SES			Test Commenced on	01.05.2023
Sample Collected Date	30.04.2023			Test Completed on	06.05.2023
Sl.No	Parameters	Results (µg/m³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	48.4	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	23.1	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	6.4	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	5.8	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

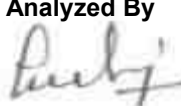
TEST REPORT

Report No.	SES/AAQ/1044/2023-24			Report Date	06.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A1- WITHIN THE MINE LEASE AREA JCK MINES			Sample Received on	01.05.2023
Sample Collected by	SES			Test Commenced on	01.05.2023
Sample Collected Date	29.04.2023			Test Completed on	06.05.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	46.3	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	20.8	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	3.9	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.6	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

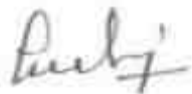
TEST REPORT

Report No.	SES/AAQ/1045/2023-24			Report Date	06.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A1- WITHIN THE MINE LEASE AREA JCK MINES			Sample Received on	01.05.2023
Sample Collected by	SES			Test Commenced on	01.05.2023
Sample Collected Date	30.04.2023			Test Completed on	06.05.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	53.2	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	22.1	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.6	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	5.8	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1046/2023-24			Report Date	20.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A1- WITHIN THE MINE LEASE AREA JCK MINES			Sample Received on	15.05.2023
Sample Collected by	SES			Test Commenced on	15.05.2023
Sample Collected Date	02.05.2023			Test Completed on	20.05.2023
Sl.No	Parameters	Results (µg/m ³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	51.6	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	25.4	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.4	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By  Chemist		For Swasti Enviro Solutions Pvt Ltd,  Authorized Signatory A.Prabhu Quality/Technical Manager			

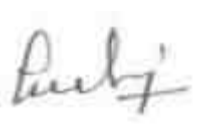
TEST REPORT

Report No.	SES/AAQ/1047/2023-24			Report Date	20.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A1- WITHIN THE MINE LEASE AREA JCK MINES			Sample Received on	15.05.2023
Sample Collected by	SES			Test Commenced on	15.05.2023
Sample Collected Date	03.05.2023			Test Completed on	20.05.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	54.2	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	23.4	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.6	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.6	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By  Chemist		For Swasti Enviro Solutions Pvt Ltd,   Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1048/2023-24			Report Date	20.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A2-ATHI VILLAGE			Sample Received on	15.05.2023
Sample Collected by	SES			Test Commenced on	15.05.2023
Sample Collected Date	02.05.2023			Test Completed on	20.05.2023
Sl.No	Parameters	Results (µg/m ³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	50.6	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	25.2	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	5.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.6	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1049/2023-24			Report Date	20.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A2-ATHI VILLAGE			Sample Received on	15.05.2023
Sample Collected by	SES			Test Commenced on	15.05.2023
Sample Collected Date	03.05.2023			Test Completed on	20.05.2023
Sl.No	Parameters	Results (µg/m ³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	53.1	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	24.2	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	3.8	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
					
Chemist		 Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1050/2023-24			Report Date	20.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A3-KILNETHAPAKKAM VILLAGE			Sample Received on	15.05.2023
Sample Collected by	SES			Test Commenced on	15.05.2023
Sample Collected Date	04.05.2023			Test Completed on	20.05.2023
Sl.No	Parameters	Results (µg/m ³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	44.2	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	21.1	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.6	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	8.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1051/2023-24			Report Date	20.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A3-KILNETHAPAKKAM VILLAGE			Sample Received on	15.05.2023
Sample Collected by	SES			Test Commenced on	15.05.2023
Sample Collected Date	05.05.2023			Test Completed on	20.05.2023
Sl.No	Parameters	Results (µg/m ³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	48.6	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	22.3	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	5.8	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.6	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By  Chemist		For Swasti Enviro Solutions Pvt Ltd,   Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1052/2023-24			Report Date	20.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A4-VADA ALAPIRANTHAN PUDUR VILLAGE			Sample Received on	15.05.2023
Sample Collected by	SES			Test Commenced on	15.05.2023
Sample Collected Date	04.05.2023			Test Completed on	20.05.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	53.2	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	25.3	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	5.4	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	8.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1053/2023-24			Report Date	20.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A4-VADA ALAPIRANTHAN PUDUR VILLAGE			Sample Received on	15.05.2023
Sample Collected by	SES			Test Commenced on	15.05.2023
Sample Collected Date	05.05.2023			Test Completed on	20.05.2023
Sl.No	Parameters	Results (µg/m³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	52.4	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	24.3	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	6.3	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	11.4	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1054/2023-24			Report Date	20.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A5-ANAPPATHUR VILLAGE			Sample Received on	15.05.2023
Sample Collected by	SES			Test Commenced on	15.05.2023
Sample Collected Date	06.05.2023			Test Completed on	20.05.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	49.8	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	22.2	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO_2)	5.8	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO_2)	9.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1055/2023-24			Report Date	20.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A5-ANAPPATHUR VILLAGE			Sample Received on	15.05.2023
Sample Collected by	SES			Test Commenced on	15.05.2023
Sample Collected Date	07.05.2023			Test Completed on	20.05.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	47.9	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	23.1	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	5.4	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	8.3	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

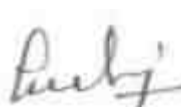
TEST REPORT

Report No.	SES/AAQ/1056/2023-24			Report Date	20.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A5-ANAPPATHUR VILLAGE			Sample Received on	15.05.2023
Sample Collected by	SES			Test Commenced on	15.05.2023
Sample Collected Date	09.05.2023			Test Completed on	20.05.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	52.1	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	27.2	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO_2)	6.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO_2)	7.4	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

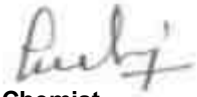
TEST REPORT

Report No.	SES/AAQ/1057/2023-24			Report Date	20.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A5-ANAPPATHUR VILLAGE			Sample Received on	15.05.2023
Sample Collected by	SES			Test Commenced on	15.05.2023
Sample Collected Date	10.05.2023			Test Completed on	20.05.2023
Sl.No	Parameters	Results (µg/m³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	50.3	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	24.6	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	5.8	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	9.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

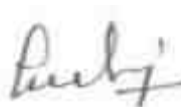
TEST REPORT

Report No.	SES/AAQ/1058/2023-24			Report Date	20.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A4-VADA ALAPIRANTHAN PUDUR VILLAGE			Sample Received on	15.05.2023
Sample Collected by	SES			Test Commenced on	15.05.2023
Sample Collected Date	11.05.2023			Test Completed on	20.05.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	57.2	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	27.2	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	5.6	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	9.4	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1059/2023-24			Report Date	20.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A4-VADA ALAPIRANTHAN PUDUR VILLAGE			Sample Received on	15.05.2023
Sample Collected by	SES			Test Commenced on	15.05.2023
Sample Collected Date	12.05.2023			Test Completed on	20.05.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	54.3	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	25.3	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	8.4	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	10.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1060/2023-24			Report Date	20.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A3-KILNETHAPAKKAM VILLAGE			Sample Received on	15.05.2023
Sample Collected by	SES			Test Commenced on	15.05.2023
Sample Collected Date	11.05.2023			Test Completed on	20.05.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	43.2	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	20.5	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	5.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	9.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1061/2023-24			Report Date	20.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A3-KILNETHAPAKKAM VILLAGE			Sample Received on	15.05.2023
Sample Collected by	SES			Test Commenced on	15.05.2023
Sample Collected Date	12.05.2023			Test Completed on	20.05.2023
Sl.No	Parameters	Results (µg/m³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	50.5	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	26.8	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	6.4	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	8.3	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1062/2023-24			Report Date	20.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A2-ATHI VILLAGE			Sample Received on	15.05.2023
Sample Collected by	SES			Test Commenced on	15.05.2023
Sample Collected Date	13.05.2023			Test Completed on	20.05.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	56.4	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	29.3	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.1	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1063/2023-24			Report Date	20.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A2-ATHI VILLAGE			Sample Received on	15.05.2023
Sample Collected by	SES			Test Commenced on	15.05.2023
Sample Collected Date	14.05.2023			Test Completed on	20.05.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	55.1	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	25.1	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.6	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.4	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1064/2023-24			Report Date	20.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A1- WITHIN THE MINE LEASE AREA JCK MINES			Sample Received on	15.05.2023
Sample Collected by	SES			Test Commenced on	15.05.2023
Sample Collected Date	13.05.2023			Test Completed on	20.05.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	50.6	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	25.1	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	3.8	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.0	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1065/2023-24			Report Date	20.05.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A1- WITHIN THE MINE LEASE AREA JCK MINES			Sample Received on	15.05.2023
Sample Collected by	SES			Test Commenced on	15.05.2023
Sample Collected Date	14.05.2023			Test Completed on	20.05.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	53.2	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	24.2	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO_2)	5.8	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO_2)	7.9	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1066/2023-24			Report Date	07.06.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A1- WITHIN THE MINE LEASE AREA JCK MINES			Sample Received on	29.05.2023
Sample Collected by	SES			Test Commenced on	29.05.2023
Sample Collected Date	16.05.2023			Test Completed on	07.06.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	51.6	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	29.3	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO_2)	4.4	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO_2)	7.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
					
Chemist		 Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1067/2023-24			Report Date	07.06.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A1- WITHIN THE MINE LEASE AREA JCK MINES			Sample Received on	29.05.2023
Sample Collected by	SES			Test Commenced on	29.05.2023
Sample Collected Date	17.05.2023			Test Completed on	07.06.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	46.3	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	19.3	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	3.4	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.5	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1068/2023-24			Report Date	07.06.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A2-ATHI VILLAGE			Sample Received on	29.05.2023
Sample Collected by	SES			Test Commenced on	29.05.2023
Sample Collected Date	16.05.2023			Test Completed on	07.06.2023
Sl.No	Parameters	Results (µg/m³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	52.4	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	23.3	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	3.8	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.6	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1069/2023-24			Report Date	07.06.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A2-ATHI VILLAGE			Sample Received on	29.05.2023
Sample Collected by	SES			Test Commenced on	29.05.2023
Sample Collected Date	17.05.2023			Test Completed on	07.06.2023
Sl.No	Parameters	Results (µg/m ³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	50.7	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	22.4	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	3.7	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.1	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1070/2023-24			Report Date	07.06.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A3-KILNETHAPAKKAM VILLAGE			Sample Received on	29.05.2023
Sample Collected by	SES			Test Commenced on	29.05.2023
Sample Collected Date	18.05.2023			Test Completed on	07.06.2023
Sl.No	Parameters	Results (µg/m ³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	43.1	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	25.7	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.1	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.4	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
					
Chemist		 Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1071/2023-24			Report Date	07.06.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A3-KILNETHAPAKKAM VILLAGE	Sample Received on	29.05.2023		
Sample Collected by	SES	Test Commenced on	29.05.2023		
Sample Collected Date	19.05.2023	Test Completed on	07.06.2023		
Sl.No	Parameters	Results (µg/m ³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	47.4	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	23.1	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.4	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.6	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1072/2023-24			Report Date	07.06.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A4-VADA ALAPIRANTHAN PUDUR VILLAGE			Sample Received on	29.05.2023
Sample Collected by	SES			Test Commenced on	29.05.2023
Sample Collected Date	18.05.2023			Test Completed on	07.06.2023
Sl.No	Parameters	Results (µg/m³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	57.1	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	29.4	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	7.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	8.6	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1073/2023-24			Report Date	07.06.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A4-VADA ALAPIRANTHAN PUDUR VILLAGE			Sample Received on	29.05.2023
Sample Collected by	SES			Test Commenced on	29.05.2023
Sample Collected Date	19.05.2023			Test Completed on	07.06.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	52.6	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	26.1	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	6.0	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	9.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1074/2023-24			Report Date	07.06.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A5-ANAPPATHUR VILLAGE			Sample Received on	29.05.2023
Sample Collected by	SES			Test Commenced on	29.05.2023
Sample Collected Date	20.05.2023			Test Completed on	07.06.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	55.2	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	26.3	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.6	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	8.0	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

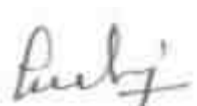
TEST REPORT

Report No.	SES/AAQ/1075/2023-24			Report Date	07.06.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A5-ANAPPATHUR VILLAGE			Sample Received on	29.05.2023
Sample Collected by	SES			Test Commenced on	29.05.2023
Sample Collected Date	21.05.2023			Test Completed on	07.06.2023
Sl.No	Parameters	Results (µg/m³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	61.3	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	34.3	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	5.4	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	8.4	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
					
Chemist		 Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1076/2023-24			Report Date	07.06.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A5-ANAPPATHUR VILLAGE			Sample Received on	29.05.2023
Sample Collected by	SES			Test Commenced on	29.05.2023
Sample Collected Date	23.05.2023			Test Completed on	07.06.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	57.2	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	30.2	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	5.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.6	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1077/2023-24			Report Date	07.06.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A5-ANAPPATHUR VILLAGE			Sample Received on	29.05.2023
Sample Collected by	SES			Test Commenced on	29.05.2023
Sample Collected Date	24.05.2023			Test Completed on	07.06.2023
Sl.No	Parameters	Results (µg/m³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	53.1	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	28.1	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	6.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.6	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1078/2023-24			Report Date	07.06.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A4-VADA ALAPIRANTHAN PUDUR VILLAGE			Sample Received on	29.05.2023
Sample Collected by	SES			Test Commenced on	29.05.2023
Sample Collected Date	25.05.2023			Test Completed on	07.06.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	55.7	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	28.3	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	5.8	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.6	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By  Chemist		For Swasti Enviro Solutions Pvt Ltd,   Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1079/2023-24			Report Date	07.06.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A4-VADA ALAPIRANTHAN PUDUR VILLAGE			Sample Received on	29.05.2023
Sample Collected by	SES			Test Commenced on	29.05.2023
Sample Collected Date	26.05.2023			Test Completed on	07.06.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	50.4	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	24.2	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	5.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	8.4	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1080/2023-24			Report Date	07.06.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A3-KILNETHAPAKKAM VILLAGE			Sample Received on	29.05.2023
Sample Collected by	SES			Test Commenced on	29.05.2023
Sample Collected Date	25.05.2023			Test Completed on	07.06.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	45.7	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	20.4	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	5.2	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.9	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1081/2023-24			Report Date	07.06.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A3-KILNETHAPAKKAM VILLAGE			Sample Received on	29.05.2023
Sample Collected by	SES			Test Commenced on	29.05.2023
Sample Collected Date	26.05.2023			Test Completed on	07.06.2023
Sl.No	Parameters	Results (µg/m³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	46.1	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	24.2	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.4	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

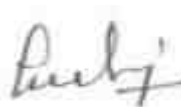
TEST REPORT

Report No.	SES/AAQ/1082/2023-24			Report Date	07.06.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A2-ATHI VILLAGE			Sample Received on	29.05.2023
Sample Collected by	SES			Test Commenced on	29.05.2023
Sample Collected Date	27.05.2023			Test Completed on	07.06.2023
Sl.No	Parameters	Results (µg/m³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	47.2	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	24.1	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	5.8	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By  Chemist		For Swasti Enviro Solutions Pvt Ltd,   Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1083/2023-24			Report Date	07.06.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A2-ATHI VILLAGE			Sample Received on	29.05.2023
Sample Collected by	SES			Test Commenced on	29.05.2023
Sample Collected Date	28.05.2023			Test Completed on	07.06.2023
Sl.No	Parameters	Results (µg/m³)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 µm)	53.1	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 µm)	26.2	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.4	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	7.2	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
					
Chemist		 Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1084/2023-24			Report Date	07.06.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A1- WITHIN THE MINE LEASE AREA JCK MINES			Sample Received on	29.05.2023
Sample Collected by	SES			Test Commenced on	29.05.2023
Sample Collected Date	27.05.2023			Test Completed on	07.06.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	52.4	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	24.2	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO_2)	3.8	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO_2)	5.8	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

TEST REPORT

Report No.	SES/AAQ/1085/2023-24			Report Date	07.06.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Sample Description	Ambient Air Quality Survey				
Sample Location	A1- WITHIN THE MINE LEASE AREA JCK MINES			Sample Received on	29.05.2023
Sample Collected by	SES			Test Commenced on	29.05.2023
Sample Collected Date	28.05.2023			Test Completed on	07.06.2023
Sl.No	Parameters	Results ($\mu\text{g}/\text{m}^3$)	Time weighted Average	NAAQS Residential, Industrial Area	Test Method
1	PM 10.0 (<10 μm)	54.5	24 Hours	100	IS :5182P23 RA2017
2	PM 2.5 (< 2.5 μm)	23.1	24 Hours	60	IS:5182P24:2019
3	Sulphur Dioxide (SO ₂)	4.3	24 Hours	80	IS :5182P2 RA2017
4	Nitrogen Dioxide (NO ₂)	6.4	24 Hours	80	IS :5182P6 RA2017
5	Carbon Monoxide (CO)	BDL(D.L - 1144)	-	2.0	Gas Analyser
BDL – Below Detectable Limit DL- Detectable Limit Opinion – The Values observed for the pollutants given above are within NAAQ standards.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			



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TEST REPORT

Report No.	SES/WA/1086/2023-24		Report Date		07.06.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Customer Reference	-		Sample Reference No.	WA/1086	
Sample Description	W1- NEAR MINE LEASE AREA JCK MINES		Sample Received on	29.05.2023	
Sample Collected by	SES		Test Commenced on	29.05.2023	
Sample Collected Date	28.05.2023		Test Completed on	07.06.2023	
Sl.No	PARAMETER	UNITS	RESULTS	REFERENCE METHOD	Desirable Limit IS-10500 R.2012
1	Odour	-	Agreeable	IS:3025/P5/RA2018	Agreeable
2	pH @ 25°C	-	7.28	IS:3025/P11/RA2017	6.5-8.5
3	Turbidity	NTU	<1.0	IS:3025/P10/RA2017	1.0
4	Electrical Conductivity	µS/cm	1018	IS:3025/P13/RA2019	---
5	Total Dissolved Solids	mg/l	612	IS:3025/P16/RA2017	500
6	Chlorides (as Cl)	mg/l	82.2	IS:3025/P32/RA2019	250
7	Sulphates (as SO ₄)	mg/l	124	IS:3025/P24/RA2019	200
8	Total Hardness (as CaCO ₃)	mg/l	431	IS:3025/P21/RA2019	200
9	Calcium Hardness (as CaCO ₃)	mg/l	208	IS:3025/P40/RA2019	---
10	Magnesium Hardness (as CaCO ₃)	mg/l	223	IS:3025/P46/RA2019	---
11	Calcium as Ca	mg/l	83.1	IS:3025/P40/RA2019	75
12	Magnesium as Mg	mg/l	53.6	IS:3025/P46/RA2019	30
13	Total Alkalinity (as CaCO ₃)	mg/l	319	IS:3025/P23/RA2019	200
14	Iron (as Fe)	mg/l	0.09	IS:3025/P53/RA2019	0.3
15	Free Residual Chlorine	mg/l	BDL (DL-0.2)	IS:3025/P26/RA2019	0.2
16	Fluorides (as F)	mg/l	0.36	IS:3025/P60/RA2019	1.5
17	Nitrates (as NO ₃)	mg/l	3.26	IS:3025/P34/RA2019	No Relaxation
18	Manganese as Mn	mg/l	BDL (DL-0.05)	APHA 22nd Edition	0.1
Remarks: The above sample meets the requirements of IS 10500 R.2012 for portability with respect to the parameters tested. BDL – Below Detectable Limit DL-Detectable Limit.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		 Authorized Signatory A. Prabhu Quality/Technical Manager			



- Note : 1. The Results relate only to this items tested
 2. Report shall not be reproduced without the approval of the laboratory.
 3. The test items will not be retained for more than 7 days from the date of issue of test report.



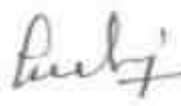
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TEST REPORT

Report No.	SES/WA/1087/2023-24		Report Date		07.06.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Customer Reference	-		Sample Reference No.	WA/1087	
Sample Description	W2-ATHI VILLAGE		Sample Received on	29.05.2023	
Sample Collected by	SES		Test Commenced on	29.05.2023	
Sample Collected Date	28.05.2023		Test Completed on	07.06.2023	
Sl.No	PARAMETER	UNITS	RESULTS	REFERENCE METHOD	Desirable Limit IS-10500 R.2012
1	Odour	-	Agreeable	IS:3025/P5/RA2018	Agreeable
2	pH @ 25°C	-	7.81	IS:3025/P11/RA2017	6.5-8.5
3	Turbidity	NTU	<1	IS:3025/P10/RA2017	1.0
4	Electrical Conductivity	µS/cm	389.4	IS:3025/P13/RA2019	---
5	Total Dissolved Solids	mg/l	236	IS:3025/P16/RA2017	500
6	Chlorides (as Cl)	mg/l	34.2	IS:3025/P32/RA2019	250
7	Sulphates (as SO ₄)	mg/l	13.6	IS:3025/P24/RA2019	200
8	Total Hardness (as CaCO ₃)	mg/l	171	IS:3025/P21/RA2019	200
9	Calcium Hardness (as CaCO ₃)	mg/l	108	IS:3025/P40/RA2019	---
10	Magnesium Hardness (as CaCO ₃)	mg/l	62.7	IS:3025/P46/RA2019	---
11	Calcium as Ca	mg/l	43.1	IS:3025/P40/RA2019	75
12	Magnesium as Mg	mg/l	15.1	IS:3025/P46/RA2019	30
13	Total Alkalinity (as CaCO ₃)	mg/l	147	IS:3025/P23/RA2019	200
14	Iron (as Fe)	mg/l	0.08	IS:3025/P53/RA2019	0.3
15	Free Residual Chlorine	mg/l	BDL (DL-0.2)	IS:3025/P26/RA2019	0.2
16	Fluorides (as F)	mg/l	0.13	IS:3025/P60/RA2019	1.5
17	Nitrates (as NO ₃)	mg/l	BDL(D.L-1.0)	IS:3025/P34/RA2019	No Relaxation
18	Manganese as Mn	mg/l	BDL (DL-0.05)	APHA 22nd Edition	0.1
Remarks: The above sample meets the requirements of IS 10500 R.2012 for portability with respect to the parameters tested. BDL – Below Detectable Limit DL-Detectable Limit.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		 Authorized Signatory A. Prabhu Quality/Technical Manager			



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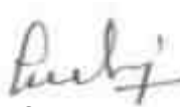
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TEST REPORT

Report No.	SES/WA/1088/2023-24		Report Date		07.06.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Customer Reference	-		Sample Reference No.		WA/1088
Sample Description	W3-KILNETHAPAKKAM VILLAGE		Sample Received on		29.05.2023
Sample Collected by	SES		Test Commenced on		29.05.2023
Sample Collected Date	28.05.2023		Test Completed on		07.06.2023
Sl.No	PARAMETER	UNITS	RESULTS	REFERENCE METHOD	Desirable Limit IS-10500 R.2012
1	Odour	-	Agreeable	IS:3025/P5/RA2018	Agreeable
2	pH @ 25°C	-	6.89	IS:3025/P11/RA2017	6.5-8.5
3	Turbidity	NTU	<1	IS:3025/P10/RA2017	1.0
4	Electrical Conductivity	µS/cm	710.5	IS:3025/P13/RA2019	---
5	Total Dissolved Solids	mg/l	430	IS:3025/P16/RA2017	500
6	Chlorides (as Cl)	mg/l	134	IS:3025/P32/RA2019	250
7	Sulphates (as SO ₄)	mg/l	72.6	IS:3025/P24/RA2019	200
8	Total Hardness (as CaCO ₃)	mg/l	235	IS:3025/P21/RA2019	200
9	Calcium Hardness (as CaCO ₃)	mg/l	142	IS:3025/P40/RA2019	---
10	Magnesium Hardness (as CaCO ₃)	mg/l	93.0	IS:3025/P46/RA2019	---
11	Calcium as Ca	mg/l	56.8	IS:3025/P40/RA2019	75
12	Magnesium as Mg	mg/l	22.3	IS:3025/P46/RA2019	30
13	Total Alkalinity (as CaCO ₃)	mg/l	160	IS:3025/P23/RA2019	200
14	Iron (as Fe)	mg/l	0.05	IS:3025/P53/RA2019	0.3
15	Free Residual Chlorine	mg/l	BDL (DL-0.2)	IS:3025/P26/RA2019	0.2
16	Fluorides (as F)	mg/l	0.21	IS:3025/P60/RA2019	1.5
17	Nitrates (as NO ₃)	mg/l	3.5	IS:3025/P34/RA2019	No Relaxation
18	Manganese as Mn	mg/l	BDL (DL-0.05)	APHA 22nd Edition	0.1
Remarks: The above sample meets the requirements of IS 10500 R.2012 for portability with respect to the parameters tested. BDL – Below Detectable Limit DL-Detectable Limit.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A. Prabhu Quality/Technical Manager			

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TEST REPORT

Report No.	SES/WA/1089/2023-24		Report Date		07.06.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Customer Reference	-		Sample Reference No.		WA/1089
Sample Description	W4-VADA ALAPIRANTHAN PUDUR VILLAGE		Sample Received on		29.05.2023
Sample Collected by	SES		Test Commenced on		29.05.2023
Sample Collected Date	28.05.2023		Test Completed on		07.06.2023
Sl.No	PARAMETER	UNITS	RESULTS	REFERENCE METHOD	Desirable Limit IS-10500 R.2012
1	Odour	-	Agreeable	IS:3025/P5/RA2018	Agreeable
2	pH @ 25°C	-	7.34	IS:3025/P11/RA2017	6.5-8.5
3	Turbidity	NTU	<1	IS:3025/P10/RA2017	1.0
4	Electrical Conductivity	µS/cm	1656	IS:3025/P13/RA2019	---
5	Total Dissolved Solids	mg/l	995	IS:3025/P16/RA2017	500
6	Chlorides (as Cl)	mg/l	342	IS:3025/P32/RA2019	250
7	Sulphates (as SO ₄)	mg/l	208	IS:3025/P24/RA2019	200
8	Total Hardness (as CaCO ₃)	mg/l	349	IS:3025/P21/RA2019	200
9	Calcium Hardness (as CaCO ₃)	mg/l	161	IS:3025/P40/RA2019	---
10	Magnesium Hardness (as CaCO ₃)	mg/l	188	IS:3025/P46/RA2019	---
11	Calcium as Ca	mg/l	64.3	IS:3025/P40/RA2019	75
12	Magnesium as Mg	mg/l	45.2	IS:3025/P46/RA2019	30
13	Total Alkalinity (as CaCO ₃)	mg/l	326	IS:3025/P23/RA2019	200
14	Iron (as Fe)	mg/l	0.15	IS:3025/P53/RA2019	0.3
15	Free Residual Chlorine	mg/l	BDL (DL-0.04)	IS:3025/P26/RA2019	0.2
16	Fluorides (as F)	mg/l	0.39	IS:3025/P60/RA2019	1.5
17	Nitrates (as NO ₃)	mg/l	2.08	IS:3025/P34/RA2019	No Relaxation
18	Manganese as Mn	mg/l	BDL (DL-0.05)	APHA 22nd Edition	0.1
Remarks: The above sample meets the requirements of IS 10500 R.2012 for portability with respect to the parameters tested. BDL – Below Detectable Limit DL-Detectable Limit.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A. Prabhu Quality/Technical Manager			

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Swasti Enviro Solutions Pvt Ltd

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Ashok Nagar,
Chennai-600 083.
aprabhu.ses@gmail.com
www.swastienvirosolutions.com

TEST REPORT

Report No.	SES/WA/1090/2023-24		Report Date		07.06.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Customer Reference	-		Sample Reference No.		WA/1090
Sample Description	W5-ANAPPATHUR VILLAGE		Sample Received on		29.05.2023
Sample Collected by	SES		Test Commenced on		29.05.2023
Sample Collected Date	28.05.2023		Test Completed on		07.06.2023
Sl.No	PARAMETER	UNITS	RESULTS	REFERENCE METHOD	Desirable Limit IS-10500 R.2012
1	Odour	-	Agreeable	IS:3025/P5/RA2018	Agreeable
2	pH @ 25°C	-	7.29	IS:3025/P11/RA2017	6.5-8.5
3	Turbidity	NTU	<1	IS:3025/P10/RA2017	1.0
4	Electrical Conductivity	µS/cm	985.7	IS:3025/P13/RA2019	---
5	Total Dissolved Solids	mg/l	596	IS:3025/P16/RA2017	500
6	Chlorides (as Cl)	mg/l	117	IS:3025/P32/RA2019	250
7	Sulphates (as SO ₄)	mg/l	114	IS:3025/P24/RA2019	200
8	Total Hardness (as CaCO ₃)	mg/l	408	IS:3025/P21/RA2019	200
9	Calcium Hardness (as CaCO ₃)	mg/l	186	IS:3025/P40/RA2019	---
10	Magnesium Hardness (as CaCO ₃)	mg/l	221	IS:3025/P46/RA2019	---
11	Calcium as Ca	mg/l	74.5	IS:3025/P40/RA2019	75
12	Magnesium as Mg	mg/l	53.2	IS:3025/P46/RA2019	30
13	Total Alkalinity (as CaCO ₃)	mg/l	254	IS:3025/P23/RA2019	200
14	Iron (as Fe)	mg/l	0.12	IS:3025/P53/RA2019	0.3
15	Free Residual Chlorine	mg/l	BDL (DL-0.2)	IS:3025/P26/RA2019	0.2
16	Fluorides (as F)	mg/l	0.24	IS:3025/P60/RA2019	1.5
17	Nitrates (as NO ₃)	mg/l	2.93	IS:3025/P34/RA2019	No Relaxation
18	Manganese as Mn	mg/l	BDL (DL-0.05)	APHA 22nd Edition	0.1
Remarks: The above sample meets the requirements of IS 10500 R.2012 for portability with respect to the parameters tested. BDL – Below Detectable Limit DL-Detectable Limit.					
*** End of Report ***					
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A. Prabhu Quality/Technical Manager			

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TEST REPORT

Report No.	SES/SA/1091/2023-24		Report Date	07.06.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State			
Customer Reference	-		Sample Reference No.	SA/1091
Sample Description	S1- WITHIN THE MINE LEASE AREA JCK MINES		Sample Received on	29.05.2023
Sample Collected by	SES		Test Commenced on	29.05.2023
Sample Collected Date	28.05.2023		Test Completed on	07.06.2023
Sl.No	PARAMETER	UNITS	RESULTS	REFERENCE METHOD
1	pH at 25 °C	-	7.95	IS : 2720 (Part -26)
2	Electrical Conductivity	µmhos/cm	184.9	IS : 14767 : 2000
3	Dry matter content	%	97.6	IS : 15106 2002
4	Water Content	%	2.4	IS : 15106 2002
5	Organic Matter	%	0.15	IS : 2720 (Part – 22)
6	Soil texture	-	Sandy Loam	USEPA – Soil.sci soi.AM.J.Vol 65 may – June 2001
7	Grain Size Distribution	%	55.64	
8	i. Sand	%	28.95	
9	ii. Silt	%	15.41	
10	iii. Clay	%		
10	Phosphorous as P	mg/kg	4.5	IS 10158 – 1982 (RA 2003)
11	Sodium as Na	mg/kg	476	USEPA 3050 B
12	Potassium as K	mg/kg	720	USEPA 3050 B
13	Total Nitrogen	mg/kg	53.0	IS 14684 - 1999
14	Total Sulphur	%	BDL(D.L.0.02)	FAO 2007
15	Water Holding Capacity	%	3.3	SES/SOP/15
16	Porosity	%	16.4	SES/SOP/16
Remarks: BDL – Below Detectable Limit DL-Detectable Limit.				
*** End of Report ***				
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,		
				
Chemist		Authorized Signatory A. Prabhu Quality/Technical Manager		



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TEST REPORT

Report No.	SES/SA/1092/2023-24		Report Date	07.06.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State			
Customer Reference	-		Sample Reference No.	SA/1092
Sample Description	S1- WITHIN THE MINE LEASE AREA SUDHAKARAN		Sample Received on	29.05.2023
Sample Collected by	SES		Test Commenced on	29.05.2023
Sample Collected Date	28.05.2023		Test Completed on	07.06.2023
Sl.No	PARAMETER	UNITS	RESULTS	REFERENCE METHOD
1	pH at 25 °C	-	7.25	IS : 2720 (Part -26)
2	Electrical Conductivity	µmhos/cm	156.7	IS : 14767 : 2000
3	Dry matter content	%	96.5	IS : 15106 2002
4	Water Content	%	3.5	IS : 15106 2002
5	Organic Matter	%	0.22	IS : 2720 (Part – 22)
6	Soil texture	-	Clay	USEPA – Soil.sci soi.AM.J.Vol 65 may – June 2001
7	Grain Size Distribution i. Sand	%	32.57	
8	ii. Silt	%	26.44	
9	iii. Clay	%	40.99	
10	Phosphorous as P	mg/kg	3.2	IS 10158 – 1982 (RA 2003)
11	Sodium as Na	mg/kg	540	USEPA 3050 B
12	Potassium as K	mg/kg	910	USEPA 3050 B
13	Total Nitrogen	mg/kg	68.0	IS 14684 - 1999
14	Total Sulphur	%	BDL(D.L.0.02)	FAO 2007
15	Water Holding Capacity	%	3.7	SES/SOP/15
16	Porosity	%	18.6	SES/SOP/16
Remarks: BDL – Below Detectable Limit DL-Detectable Limit.				
*** End of Report ***				
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,		
				
Chemist		Authorized Signatory A. Prabhu Quality/Technical Manager		



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TEST REPORT

Report No.	SES/SA/1093/2023-24		Report Date	07.06.2023
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State			
Customer Reference	-		Sample Reference No.	SA/1093
Sample Description	S1- WITHIN THE MINE LEASE AREA SUDHAKARAN		Sample Received on	29.05.2023
Sample Collected by	SES		Test Commenced on	29.05.2023
Sample Collected Date	28.05.2023		Test Completed on	07.06.2023
Sl.No	PARAMETER	UNITS	RESULTS	REFERENCE METHOD
1	pH at 25 °C	-	7.67	IS : 2720 (Part -26)
2	Electrical Conductivity	µmhos/cm	110.2	IS : 14767 : 2000
3	Dry matter content	%	98.3	IS : 15106 2002
4	Water Content	%	1.7	IS : 15106 2002
5	Organic Matter	%	0.32	IS : 2720 (Part – 22)
6	Soil texture	-	SILT LOAM	USEPA – Soil.sci soi.AM.J.Vol 65 may – June 2001
7	Grain Size Distribution i. Sand	%	36.58	
8	ii. Silt	%	52.47	
9	iii. Clay	%	10.95	
10	Phosphorous as P	mg/kg	2.7	IS 10158 – 1982 (RA 2003)
11	Sodium as Na	mg/kg	386	USEPA 3050 B
12	Potassium as K	mg/kg	562	USEPA 3050 B
13	Total Nitrogen	mg/kg	102	IS 14684 - 1999
14	Total Sulphur	%	BDL(D.L.0.02)	FAO 2007
15	Water Holding Capacity	%	3.5	SES/SOP/15
16	Porosity	%	16.9	SES/SOP/16
Remarks: BDL – Below Detectable Limit DL-Detectable Limit.				
*** End of Report ***				
Analyzed By		For Swasti Enviro Solutions Pvt Ltd,		
				
Chemist		Authorized Signatory A. Prabhu Quality/Technical Manager		

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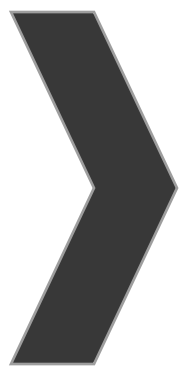
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TEST REPORT

Report No.	SES/NM/1094/2023-24		Report Date	08.06.2023	
Customer Name & Address	Proposed Rough Stone and Gravel Quarry of Tvl.JCK Mines at S.F. Nos. 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9 over an extent of 1.55.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State				
Customer Reference	-	Reference No.	NM/1094		
Description	Ambient Noise Monitoring	Monitoring Date	02.06.2023		
Monitored by	SES	Data Received On	03.06.2023		
Sl.No.	Locations	DAY EQUIVALENT	NIGHT EQUIVALENT	DAY & NIGHT EQUIVALENT	
1	N1- WITHIN THE MINE LEASE AREA JCK MINES	45.0	47.3	46.2	
2	N2-ATHI VILLAGE	37.7	38.1	39.0	
3	N3-KILNETHAPAKKAM VILLAGE	43.6	45.8	44.8	
4	N4-VADA ALAPIRANTHAN PUDUR VILLAGE	45.0	47.3	46.2	
5	N5-ANAPPATHUR VILLAGE	37.7	38.1	39.0	
Unit		dB(A)			
Reference Method		IS 9989-1981 (Reaff.2014)			
*** End of Report ***					
Verified By		For Swasti Enviro Solutions Pvt Ltd,			
 Chemist		  Authorized Signatory A.Prabhu Quality/Technical Manager			

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ANNEXURE-10



National Accreditation Board for
Testing and Calibration Laboratories

CERTIFICATE OF ACCREDITATION

SWASTI ENVIRO SOLUTIONS PVT LTD

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

PLOT NO.J 86, BHARATHI STREET, PARI NAGAR, JAFFERKHANPET, CHENNAI, TAMIL NADU, INDIA

in the field of

TESTING

Certificate Number: TC-10448

Issue Date: 29/03/2022

Valid Until: 28/03/2024

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.

(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Name of Legal Identity : SWASTI ENVIRO SOLUTIONS PVT LTD

Signed for and on behalf of NABL



N. Venkateswaran
Chief Executive Officer



National Accreditation Board for Testing and Calibration Laboratories

SCOPE OF ACCREDITATION

Laboratory Name :

SWASTI ENVIRO SOLUTIONS PVT LTD, PLOT NO.J 86, BHARATHI STREET, PARI NAGAR,
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Accreditation Standard

ISO/IEC 17025:2017

Certificate Number

TC-10448

Page No

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Validity

29/03/2022 to 28/03/2024

Last Amended on

10/05/2023

S.No	Discipline / Group	Materials or Products tested	Component, parameter or characteristic tested / Specific Test Performed / Tests or type of tests performed	Test Method Specification against which tests are performed and / or the techniques / equipment used
Permanent Facility				
1	CHEMICAL- ATMOSPHERIC POLLUTION	Ambient Air Monitoring	Ammonia (as NH ₃)	SOP A06, Issue No: 01, Issue date: June 2015
2	CHEMICAL- ATMOSPHERIC POLLUTION	Ambient Air Monitoring	Nitrogen dioxide (as NO ₂)	IS 5182 (Part 06)
3	CHEMICAL- ATMOSPHERIC POLLUTION	Ambient Air Monitoring	Particulate Matter less than 10 micron size (PM ₁₀)	IS 5182 (Part 23)
4	CHEMICAL- ATMOSPHERIC POLLUTION	Ambient Air Monitoring	Particulate Matter less than 2.5 micron size (PM _{2.5})	SOP A02, Issue No.01, Issue Date: June 2018
5	CHEMICAL- ATMOSPHERIC POLLUTION	Ambient Air Monitoring	Sulphur Dioxide (as SO ₂)	IS 5182 (Part 02)
6	CHEMICAL- ATMOSPHERIC POLLUTION	Stack Emission Monitoring	Carbon Dioxide (as CO ₂)	IS 13270
7	CHEMICAL- ATMOSPHERIC POLLUTION	Stack Emission Monitoring	Carbon Monoxide (as CO)	IS 13270
8	CHEMICAL- ATMOSPHERIC POLLUTION	Stack Emission Monitoring	Oxygen (as O ₂)	IS 13270
9	CHEMICAL- ATMOSPHERIC POLLUTION	Stack Emission Monitoring	Sulphur Dioxide as SO ₂	IS 11255 (Part 02)
10	CHEMICAL- ATMOSPHERIC POLLUTION	Work Environment and Indoor Air Quality	Ammonia (as NH ₃)	NIOSH 4th Edition Method No:6015
11	CHEMICAL- ATMOSPHERIC POLLUTION	Work Environment and Indoor Air Quality	Nitrogen dioxide (as NO ₂)	NIOSH 4th edition Method No: 6014
12	CHEMICAL- ATMOSPHERIC POLLUTION	Work Environment and Indoor Air Quality	Respirable Aerosol mass	NIOSH 4th Edition Method No. 0600
13	CHEMICAL- ATMOSPHERIC POLLUTION	Work Environment and Indoor Air Quality	Total Aerosol mass	NIOSH 4th Edition Method No: 0500
14	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Ammonical Nitrogen	IS 3025 (Part 34)
15	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	pH at 25°C	IS 3025 (Part 11)
16	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Calcium as Ca	IS 3025 (Part 40)
17	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Chemical Oxygen Demand (COD)	IS 3025 (Part 58)
18	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Dissolved Oxygen	IS 3025 (Part 38,4)



National Accreditation Board for Testing and Calibration Laboratories

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Accreditation Standard

ISO/IEC 17025:2017

Certificate Number

TC-10448

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Validity

29/03/2022 to 28/03/2024

Last Amended on

10/05/2023

S.No	Discipline / Group	Materials or Products tested	Component, parameter or characteristic tested / Specific Test Performed / Tests or type of tests performed	Test Method Specification against which tests are performed and / or the techniques / equipment used
19	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Electrical Conductivity	IS 3025 (Part 14)
20	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Free Ammonia as NH ₃	IS 3025 (Part 34)
21	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Hexavalent Chromium as Cr ₆	IS 3025 (Part 52)
22	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Iron as Fe	IS 3025 (Part 53)
23	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Magnesium hardness as CaCO ₃	APHA 23rd Edn. 3500 Mg B
24	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Nitrate as NO ₃	IS 3025 (Part 34)
25	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Phosphate as PO ₄	IS 3025 (Part 31)
26	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Temperature	IS 3025 (Part 9)
27	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Total Dissolved Solids (TDS)	IS 3025 (Part 16)
28	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Total Residual chlorine as Cl	IS 3025 (Part 26)
29	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Total Suspended Solids	IS 3025 (Part 17)
30	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Turbidity	IS 3025 (Part 10)
31	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Acidity as CaCO ₃	IS 3025 (Part 22)
32	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Biological Oxygen Demand (BOD) @ 27°C for 3 days	IS 3025 (Part 44)
33	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Copper as Cu	IS 3025 (Part 42)
34	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Fluoride as F	APHA 23rd Edn. 4500 F- B,D
35	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Magnesium as Mg	IS 3025 (Part 46)
36	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Oil & Grease	IS 3025 (Part 39)
37	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Acidity as CaCO ₃	APHA 23rd Edn. - 2310 B



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Last Amended on

10/05/2023

S.No	Discipline / Group	Materials or Products tested	Component, parameter or characteristic tested / Specific Test Performed / Tests or type of tests performed	Test Method Specification against which tests are performed and / or the techniques / equipment used
38	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Boron as B	APHA 23rd Edn. - 4500 - B/B
39	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Boron as B	IS 3025 (Part 57)
40	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Calcium Hardness as CaCO ₃	APHA 23rd Edn. 3500 Ca B
41	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Chloride as Cl	APHA 23rd Edn - 4500 Cl- B
42	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Chloride as Cl	IS 3025 (Part 32)
43	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Colour	APHA 23rd Edn. - 2120 B
44	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Colour	IS 3025 (Part 4) (Pt- Co) visual comparison method
45	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Hexavalent Chromium as Cr ₆	APHA 23rd Edn.- 3500 Cr-B
46	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Potassium as K	APHA 23rd Edn. -3500 - K-B
47	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Potassium as K	IS 3025 (Part 45)
48	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Silica as Si	APHA 23rd Edn. -4500 SiO ₂ -C
49	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Sodium as Na	APHA 23rd Edn. -3500 - K-B
50	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Sodium as Na	IS 3025 (Part 45)
51	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Sulphates as SO ₄	APHA 23rd Edn. 4500 SO ₄ 2 E
52	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Sulphates as SO ₄	IS 3025 (Part 24)
53	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Temperature	APHA 23rd Edn. - 2550 B
54	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Total / carbonate & non-carbonate hardness as CaCO ₃	APHA 23rd Edn. -2340 A,C&2320 B
55	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Total / carbonate & non-carbonate hardness as CaCO ₃	IS 3025 (Part 21)
56	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Total Dissolved Solids (TDS)	APHA 23rd Edn. - 2540 C



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Certificate Number TC-10448

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57	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Total Kjeldahl Nitrogen	APHA 23rd Edn. - 4500 - Norg - A, B
58	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Total Kjeldahl Nitrogen	IS 3025 (Part 34)
59	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Total Suspended Solids	APHA 23rd Edn. - 2540 D
60	CHEMICAL- POLLUTION & ENVIRONMENT	Waste Water (Raw & Treated Liquid Effluents and Sewage)	Total/Phenolphthalein/Carbonate/Hydroxide/Bicarbonate alkalinity as CaCO ₃	IS 3025 (Part 23)
61	CHEMICAL- RESIDUES IN WATER	Drinking Water	Boron as B	APHA 23rd Edn. - 4500 - B/B
62	CHEMICAL- RESIDUES IN WATER	Drinking Water	Boron as B	IS 3025 (Part 57)
63	CHEMICAL- RESIDUES IN WATER	Drinking Water	Iron as Fe	IS 3025 (Part 53)
64	CHEMICAL- RESIDUES IN WATER	Drinking Water	Magnesium as Mg	IS 3025 (Part 46)
65	CHEMICAL- RESIDUES IN WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Boron as B	APHA 23rd Edn. - 4500 - B/B
66	CHEMICAL- RESIDUES IN WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Boron as B	IS 3025 (Part 57)
67	CHEMICAL- RESIDUES IN WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Copper as Cu	IS 3025 (Part 42)
68	CHEMICAL- RESIDUES IN WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Fluoride as F	APHA 23rd Edn. 4500 F D
69	CHEMICAL- RESIDUES IN WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Fluoride as F	IS 3025 (Part 60,5)
70	CHEMICAL- WATER	Construction Water	Chloride as Cl	APHA 23rd Edn - 4500 Cl- B
71	CHEMICAL- WATER	Construction Water	Chloride as Cl	IS 3025 (Part 32)
72	CHEMICAL- WATER	Construction Water	Fixed Residue	IS 3025 (Part 18)
73	CHEMICAL- WATER	Construction Water	pH at 25°C	IS 3025 (Part 11)
74	CHEMICAL- WATER	Construction Water	Sulphates as SO ₄	APHA 23rd Edn. 4500 SO ₄ 2 E
75	CHEMICAL- WATER	Construction Water	Sulphates as SO ₄	IS 3025 (Part 24)
76	CHEMICAL- WATER	Construction Water	Suspended Solids	IS 3025 (Part 17)
77	CHEMICAL- WATER	Construction Water	Volatile Residue	IS 3025 (Part 18)
78	CHEMICAL- WATER	Drinking Water	Calcium as Ca	APHA 23rd Edn. - 3500 Ca B



National Accreditation Board for Testing and Calibration Laboratories

SCOPE OF ACCREDITATION

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JAFFERKHANPET, CHENNAI, TAMIL NADU, INDIA

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79	CHEMICAL- WATER	Drinking Water	Calcium as Ca	IS 3025 (Part 40)
80	CHEMICAL- WATER	Drinking Water	Chloride as Cl	APHA 23rd Edn. - 4500 Cl- B
81	CHEMICAL- WATER	Drinking Water	Chloride as Cl	IS 3025 (Part 32)
82	CHEMICAL- WATER	Drinking Water	Colour	APHA 23rd Edn. - 2120 B
83	CHEMICAL- WATER	Drinking Water	Colour	IS 3025 (Part 4)
84	CHEMICAL- WATER	Drinking Water	Copper as Cu	IS 3025 (Part 42)
85	CHEMICAL- WATER	Drinking Water	Electrical Conductivity	IS 3025 (Part 14)
86	CHEMICAL- WATER	Drinking Water	Fluoride as F	APHA 23rd Edn 4500 F- B,D
87	CHEMICAL- WATER	Drinking Water	Hexavalent Chromium as Cr6	APHA 23rd Edn.- 3500 Cr-B
88	CHEMICAL- WATER	Drinking Water	Hexavalent Chromium as Cr6	IS 3025 (Part 52)
89	CHEMICAL- WATER	Drinking Water	Magnesium hardness as CaCO3	APHA 23rd Edn 3500 Mg B
90	CHEMICAL- WATER	Drinking Water	Nitrate as NO3	IS 3025 (Part 34)
91	CHEMICAL- WATER	Drinking Water	Silica	APHA 23rd Edn. -4500 SiO2-C
92	CHEMICAL- WATER	Drinking Water	Silica	IS 3025 (Part 35)
93	CHEMICAL- WATER	Drinking Water	Sulphates as SO4	IS 3025 (Part 24)
94	CHEMICAL- WATER	Drinking Water	Total Acidity as CaCO3	APHA 23rd Edn. - 2310 B
95	CHEMICAL- WATER	Drinking Water	Total Acidity as CaCO3	IS 3025 (Part 22)
96	CHEMICAL- WATER	Drinking Water	Total Alkalinity as CaCO3	IS 3025 (Part 23)
97	CHEMICAL- WATER	Drinking Water	Total Dissolved Solids (TDS)	APHA 23rd Edn. - 2540 C
98	CHEMICAL- WATER	Drinking Water	Total Dissolved Solids (TDS)	IS 3025 (Part 16)
99	CHEMICAL- WATER	Drinking Water	Total hardness as CaCO3	APHA 23rd Edn. -2340 A,C&2320 B
100	CHEMICAL- WATER	Drinking Water	Total hardness as CaCO3	IS 3025 (Part 21)
101	CHEMICAL- WATER	Drinking Water	Total Phosphate as P	IS 3025 (Part 31)
102	CHEMICAL- WATER	Drinking Water	Total Residual chlorine as Cl	IS 3025 (Part 26)
103	CHEMICAL- WATER	Drinking Water	Total Suspended Solids	APHA 23rd Edn. - 2540 D
104	CHEMICAL- WATER	Drinking Water	Total Suspended Solids	IS 3025 (Part 17)
105	CHEMICAL- WATER	Drinking Water	Turbidity	IS 3025 (Part 10)
106	CHEMICAL- WATER	Drinking Water,	Calcium hardness as CaCO3	APHA 23rd Edition 3500 Ca B
107	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Hexavalent Chromium as Cr6	APHA 23rd Edn.- 3500 Cr-B



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S.No	Discipline / Group	Materials or Products tested	Component, parameter or characteristic tested / Specific Test Performed / Tests or type of tests performed	Test Method Specification against which tests are performed and / or the techniques / equipment used
108	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Hexavalent Chromium as Cr6	IS 3025 (Part 52)
109	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Ammonical Nitrogen	IS 3025 (Part 34)
110	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Calcium as Ca	APHA 23rd Edn. - 3500 Ca B
111	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Calcium as Ca	IS 3025 (Part 40)
112	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Calcium hardness as CaCO3	APHA 23rd Edn. 3500 Ca B
113	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Chloride as Cl	APHA 23rd Edn. - 4500 Cl- B
114	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Chloride as Cl	IS 3025 (Part 32)
115	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Dissolved Oxygen	IS 3025 (Part 38,4)
116	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Electrical Conductivity	IS 3025 (Part 14)
117	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Free Ammonia as NH3	IS 3025 (Part 34)
118	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Iron as Fe	IS 3025 (Part 53)
119	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Magnesium as Mg	APHA 23rd Edn. 3500 Mg B
120	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Magnesium as Mg	IS 3025 (Part 46,6)
121	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Magnesium hardness as CaCO3	APHA 23rd Edn. 3500 Mg B
122	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Nitrate Nitrogen as NO3	IS 3025 (Part 34)
123	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	pH at 25°C	IS 3025 (Part 11)
124	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Potassium as K	APHA 23rd Edn. -3500 - K-B
125	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Potassium as K	IS 3025 (Part 45)
126	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Silica as Si	APHA 23rd Edn. -4500 SiO2-C



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127	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Silica as Si	IS 3025 (Part 35)
128	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Sodium as Na	APHA 23rd Edn. -3500 - K-B
129	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Sodium as Na	IS 3025 (Part 45)
130	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Sulphates as SO ₄	IS 3025 (Part 24)
131	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Total / carbonate & non-carbonate hardness as CaCO ₃	APHA 23rd Edn. -2340 A,C&2320 B
132	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Total / carbonate & non-carbonate hardness as CaCO ₃	IS 3025 (Part 21)
133	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Total Acidity as CaCO ₃	APHA 23rd Edn. - 2310 B
134	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Total Acidity as CaCO ₃	IS 3025 (Part 22)
135	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Total Dissolved Solids (TDS)	APHA 23rd Edn. - 2540 C
136	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Total Dissolved Solids (TDS)	IS 3025 (Part 16)
137	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Total Phosphate as P	IS 3025 (Part 31)
138	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Total Residual chlorine as Cl	IS 3025 (Part 26)
139	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Total Suspended Solids	APHA 23rd Edn. - 2540 D
140	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Total/Phenolphthalein/Carbonate/Hydroxide/Bicarbonate alkalinity as CaCO ₃	IS 3025 (Part 23)
141	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Total Suspended Solids	IS 3025 (Part 17)
142	CHEMICAL- WATER	Well Water, Borewell Water, Surface Water, Packaged Drinking water	Turbidity	IS 3025 (Part 10)



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Site Facility				
1	CHEMICAL- ATMOSPHERIC POLLUTION	Stack Emission Monitoring	Oxides of Nitrogen (as NOx)	IS 11255 (Part 7)
2	CHEMICAL- ATMOSPHERIC POLLUTION	Stack Emission Monitoring	Particulate Matter	IS 11255 (Part 01)