

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

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

ToR Lr.No. SEIAA-TN/F.No.10524/2023/SEAC/ToR-1672/2024, dated 08.02.2024

PROPOSED QUARRY LEASE DETAILS	
SURVEY NOS	414/1, 415A/1A and 415A/2A .
VILLAGE	PALAMADAI
TALUK	TIRUNELVELI
DISTRICT	TIRUNELVELI
EXTENT	6.60.5 HA
PROPOSED PRODUCTION QUANTITY FOR FIVE YEARS	ROUGH STONE - 9,26,070 M3 GRAVEL - 1,03,074 M3
LAND	PATTA LAND

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

Category of the Project: B1 Cluster Mining, Total Cluster Area – 18.42.55 Ha
Baseline Monitoring Period – February 2024 to April 2024

APPLICANT

**Thiru.K. Ananthaperumal,
S/o. Kanniah,
160D/8, Polepettai West,
Thoothukudi District.
Pincode-628001.**

ORGANIZATION

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

MAY - 2024



AMENDMENT PAGE

SL	Page No.	Section / Clause / Para / Line (as Applicable)	Date of Amendment	Amendment Made	Reasons of amendment	Signature of Person Authorizing Amendment
1						
2						
3						
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8						
9						
10						

ACKNOWLEDGEMENT

M/s. Global Mining Solutions, Salem is very much thankful to Thiru.K. Ananthaperumal, Lessee for the confidence and trust placed on the organization for carrying out Environmental Impact Assessment (EIA) study for the proposed Rough Stone Quarry over a lease extent of 6.60.5 Ha., & Cluster extent of 18.42.5 Ha., located at Palamadai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu State and formulating the Environmental Management Plan (EMP). We also gratefully acknowledge the cooperation and assistance provided by concerned government authorities for collection of secondary information for the preparation of Draft EIA/EMP report. Our sincere thanks to the local people of Palamadai and the nearby villages for their whole hearted cooperation and constant involvement during the entire field study without which the study would not have been possible.

For: M/s. Global Mining Solutions


(M. Prabu)

Managing Director

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 Quarry over a lease extent of 6.60.5 Ha & Cluster extent of 18.42.5 Ha at Palamadai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu State.

For: M/s. Global Mining Solutions


Name: Manikandan
EIA Coordinator – Mining

UNDERTAKING

In Line with OM no. J-11013/41/2006-IA.II (1) dated 4th Aug 2009 and its Amendments, we hereby confirm that all Terms of Reference issued by Ministry of Environment, Forest and Climate Change vide Letter No.SEIAA-TN/F.No. 10524/2023/SEAC/ToR-1672/2024, dated 08.02.2024 of Draft EIA/EMP report for the proposed Stone Quarry over a lease extent of 6.60.5 Ha., & Cluster extent of 18.42.5 Ha, at Palamadai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu State for the production of 9,26,070 m³ of Rough Stone and 1,03,074 m³ of gravel from the proposed lease area and the details has been complied in the Draft EIA/EMP report is factually correct.

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

For: M/s. Global Mining Solutions


Name: Manikandan

EIA Coordinator – Mining

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU. K. ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A AND 415A/2A LOCATED AT VILLAGE - PALAMADAI, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

**QUALITY COUNCIL
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Creating an Ecosystem for Quality



**National Accreditation Board
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Certificate of Accreditation

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

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

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

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

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


Sr. Director, NABET
Date: March 31, 2023

Certificate No.
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 Stone Quarry over a lease extent of 6.60.5 Ha., & Cluster extent of 18.42.5 Ha at Palamadai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu State.

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

EIA Coordinator Name: M. Manikandan

Signature & Date

Period of involvement: February 2024 to April 2024.


Contact information:

M/s Global Mining Solutions

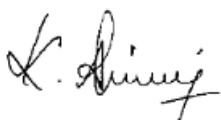





Plot No.6, SF No. 13/2, A2, VS City, RC Chettypatty,

Kottamettupatty, Omalur,

Salem, Tamil Nadu – 636 455

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. <i>Period: Feb 2024 to April 2024.</i>	

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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: Feb 2024 to April 2024.</u>	
3	SHW	Ramadoss N	Assessment of waste generated from the project, suggested waste management practices. <u>Period: Feb 2024 to April 2024.</u>	
4	SE	Sarasvathy K	Baseline SE studies. Data compilation and assessment. Impact of the project on SE status of the area. Formulation of CER plan. <u>Period: Feb 2024 to April 2024.</u>	
5	EB	Saravanan S	Baseline data collection of related to ecology of the area. <u>Period: Feb 2024 to April 2024.</u>	
6	HG	Ravinthiran N	Hydrogeological feature of the area. Ground water depth and impact of project on ground water of the area. <u>Period: Feb 2024 to April 2024.</u>	
7	AQ	Srilatha Thiruveedhula	Air quality modeling utilizing the area source model. Predication of the ground level concentration of the dust. Suggesting suitable mitigation measures. <u>Period: Feb 2024 to April 2024.</u>	

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

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3	Approved Mining Plan with Plates	
4	500-meter radius letter	
5	VAO Certificate	
6	Land Document	
7	District Survey Report	
8	Monitoring Report	
9	Lab NABL Certificate	
10	Structures located within 500m radius of the project	
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12	Affidavit	

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU. K. ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A AND 415A/2A LOCATED AT VILLAGE - PALAMADAI, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

COMPLIANCE TO TERMS OF REFERENCE

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU. K. ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A AND 415A/2A LOCATED AT VILLAGE - PALAMADAI, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

S.No	ToR Points	Reply	Pg. No
A. ToR in Addition to Standard ToR			
1	The Project Proponent, Thiru.K.Anantha Perumal has applied for Terms of Reference for the Proposed Rough stone & Gravel Quarry lease over an extent of 6.60.5 ha at S.F.Nos.414/1,415A/2A of Palamadai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.	Agreed	-
2	The project/activity is covered under "B1" of item 1(a) "Mining of mineral Projects" of the Schedule to the EIA Notification,2006	Agreed	-
3	The lease period is for 10 years. The mining plan is for the period of five years & the production should not exceed 9,26,070 m ³ of rough stone & 1,03,074 m ³ of Gravel with an ultimate depth of mining is 27m BGL, the annual peak production is 1,86,660 m ³ of rough stone & 78,474 m ³ of Gravel.	Agreed	-
1	The PP shall leave 100m safety distance for railway line and shall furnish the modified mining plan duly approved by competent authority at the time of EIA Presentation	Agreed. Will be complied.	-
2	The PP shall prepare and submit a conceptual plan for working of quarry starting from south towards north showing the initial box cut.	Agreed. Will be complied.	-

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU. K. ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A AND 415A/2A LOCATED AT VILLAGE - PALAMADAI, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

3	The PP shall submit a comprehensive study on the behavior of Gangaikondan spotted deer and the implications of the proposed activity on the eco system of the sanctuary by involving the research institutions such as ICFRC-Indian Council of Forestry Research and Education, Coimbatore (or) The Forest College and Research Institute (FC & RI), Coimbatore.	Agreed. Will be complied.	-
4	The structures within the radius of (i) 50m, (ii) 100m, (iii) 200m and (iv) 300m and upto 1km shall be enumerated with details such as dwelling house with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc.	-	Complied. Enclosed as Annexure-4
5	The study on impact of the proposed quarrying operations on the surrounding environment which includes water bodies, odai etc.	Agreed. Will be complied.	
6	The project proponent shall furnish the revised EMP based on the study carried out on impact of the dust & other environmental impacts due to proposed quarrying operations on the nearby agricultural lands for remaining life of the mine in the format prescribed by the SEAC considering the cluster situation.	There are four quarries 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 proposed quarry.	
7	In the case of existing/operation mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following: (i) Original pit dimension (ii) Quantity achieved Vs EC Approved Quantity (iii) Balance Quantity as per Mineable Reserve calculated (iv) Mined out Depth as on date Vs EC Permitted depth	Not applicable. This is a fresh quarry.	-

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	<p>(v) Details of illegal/illicit mining</p> <p>(vi) Violation in the quarry during the past working</p> <p>(vii) Quantity of material mined out outside the lining lease area</p> <p>(viii) Condition of Safety zone/benches</p> <p>(i) Revised/Modified Mining Plan showing the benches of not exceeding 6m height and ultimate depth of not exceeding 50m.</p>		
8	<p>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.</p>	-	Complied. Enclosed as Annexure-5
9	<p>The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50m, (ii) 100m, (iii) 200m and 300m (v) 500m shall be enumerated with details such as dwelling house with number of occupants, where it belongs to the owner (or) not, places of worship, industries, factories, sed, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.</p>	-	Complied. Enclosed as Annexure-4
10	<p>The PP shall submit a detailed hydrogeological report indicating the impact of proposed quarrying operations on the water bodies like lake, water tanks, etc are located within 1 km of the proposed quarry.</p>	<p>The hydrogeological study from a reputed institute is in progress; however, the final EIA submission report will be incorporated into Chapter 7.</p>	-

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11	The Project Proponent shall carry out Bio-diversity study through reputed institution and the same shall be included in the EIA report.	Complied. The biodiversity report of the study area to be incorporated at the time of final EIA submission.	108
12	The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries. Tiger reserve etc. upto a radius of 25 km from the proposed site.	Complied. The DFO letter stating that the proximity distance of RF & PF to be incorporated at the time of final EIA submission.	-
13	In case of proposed lease in an existing (or old) quarry where the benches are not formed(or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to bt constructed and existing quarry wall, by involving any one of the reputed Research and Academic institutions-CSIR Central Institute of Mining & Fuel Research/Dhanbad, NIRM/ Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Suratkal and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.	Agreed. Will be complied.	-

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14	However, in case of the fresh/virgin quarries, the project shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30m below ground level.	-	-
15	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	-	-
16	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site	Agreed. Will be complied.	-
17	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.	The details to be incorporated at the time of final EIA Submission.	-
18	If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines	Not applicable. This is a fresh quarry project.	-
19	What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	Not applicable. This is a fresh quarry project.	-
20	Quantity of minerals mined out. <ul style="list-style-type: none"> Highest production achieved in any one year. 	Not applicable. This is a fresh quarry project.	-

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	<ul style="list-style-type: none"> • Detail of approved depth of mining. • Actual depth of the mining achieved earlier. • Name of the person already mined in that leases area. • If EC and CTO already obtained, the copy of the same shall be submitted. • Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches 		
21	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	<p>Project coordinates superimposed in satellite imagery and given as Figure No – 2.1 in Chapter – 2.</p> <p>The geology and geomorphology map are provided in Figure No.3.23, 3.24 Chapter 3.</p> <p>The Lithology map and Soil map are provided under Figure No. 3.25, Chapter-3.</p> <p>The 10km Radius Index plan showing buffer zone is given in Figure No.3.1 & Figure 3.2 in Chapter – 3.</p>	127 & 128
22	The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,	This compliance is under process.	-
23	The proponent shall furnish photographs of adequate fencing, greenbelt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan	<p>There is no trees within ML area. Fencing and plantations are under process.</p> <p>Greenbelt / Plantation will be carried out in the safety zone to enhance the vegetative growth and aesthetic in the safety zone area. In the post mining stage, an area of 0.56.0 Ha will be under greenbelt and plantation.</p>	-
24	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,	<p>The geological reserves are estimated to be 29,67,300 m³ of rough stone and 1,31,880 m³ of Gravel.</p> <p>The mineable reserves are 13,22,445 m³ of Rough stone and 1,03,074 m³ of Gravel .</p>	55

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	environment and the remedial measures for the same		
25	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	185
26	The Project Proponent shall conduct the Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD/TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitoring data, it may clearly be shown whether working all intersect ground water. Necessary data and documentation in this regard may be provided.	The hydrogeological study from a reputed institute is in progress; however, the final EIA submission report will be incorporated into Chapter 7.	199
27	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 (February to April 2024).	86

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28	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 7 . Accordingly, a detailed Environment Management Plan is prepared considering air, water, noise and soil environment and the details are given in Chapter 10 .	168
29	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	Rain water harvesting Plan is given in chapter 4 .	133
30	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	197
31	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area distance from mine lease, its land use, R&R issues, if any, should be provided.	Not applicable. There is no generation of the OB & waste.	-
32	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	No proximity to Critically polluted areas.	-

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	and furnished to the effect that the proposed mining activities could be considered.		
33	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.	136
34	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.	-
35	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 300m buffer zone of the project area.	-
36	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.	177
37	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.	-
38	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	Green belt is proposed in an area of 1.43.0 Ha. Green belt development plan provided.	73

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	origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.		
39	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.	-
40	A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	A disaster management plan is prepared and the details are given in Chapter 7.	176
41	A risk assessment and Management plan shall be prepared and included in the EIA/EMP report for the complete life of the proposed quarry or till the end of the lease period	Risk assessment and its management is given in Chapter 7.	165
42	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Occupational Health Impacts of the project and preventive measures are detailed under Chapter 4.	186
43	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be	No major impact on public health will be there since the villages are located more than 1km from the lease area. Details of CER and CSR are discussed under Chapter No. 8	-

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	detailed along with budgetary allocations.		
44	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	119
45	Details of litigation pending against the project, if any, with direction /order passed by any Court of law against the Project should be given.	No litigation is pending	-
46	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	Benefits of the project is given in Chapter 8	178
47	If any quarrying operations were carried out in the proposed quarrying site for which now EC is sought, the project proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF & CC, Regional Office, Chennai or the concerned DEE/TNPCB.	Not applicable. This is a fresh quarry project.	-
48	The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	-	-
49	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	Agreed	-

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	of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986		
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 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 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.,	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 quarries proposed in the cluster area.	-
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 EIA.	-
6	The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific	Environmental policy for the cluster will be framed by the cluster management committee and the policy will be in accordance with EPA	-

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	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.	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 land chemical features	Complied. The details are given in Chapter 3 of the Draft EIA report.	108
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, droughts, floods, etc. will be very marginal.	-
c	Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people	Considering that the quantum of production is less, only 2 excavator, 6 tippers will be engaged. These equipments will be properly and regularly maintained. Besides, regular vehicular emission tests will be done for the transport vehicles to ensure minimal impact due to	176

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		carbon emissions. To further mediate the carbon emissions, a good greenbelt and plantation plan has been planned wherein 1800 number of plants will be planted in and around the lease area.	
d	Possibilities of water contamination and impact on aquatic ecosystem health	The total water requirement is 8 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 land around the project site. It may be affect 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 effect of	-

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		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 is not envisaged.	-
h	Sediment geochemistry in the surface streams	Palamadai Pond is located at a distance of 2.12 km SE and Thamirabarani River located at a distance of 3.42km S, 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 Complinance Annexure-B	-
14	Impact on soil flora & vegetation around the project site.	Complied. The details are given in Chapter 3.	108
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.	108
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.	108
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.	180
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.	108
Forests			

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19	The project proponent shall detailed study on impact of mining on Reserve Forests free ranging wildlife.	There is Thalaiyuthu RF & Melapattam RF Located at a distance of 2.83km(W) & 3.94km(S) respectively and no other reserved forest located in the buffer zone. The fauna commonly found in the core and buffer zone is given in Chapter 3.	108
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.	108
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 Thalaiyuthu RF & Melapattam RF Located at a distance of 2.83km(W) & 3.94km(S) respectively and no other reserved forest located in the buffer zone. There is no, National Parks, Corridors and Wildlife pathways.	-

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.	The hydrogeological study from a reputed institute is in progress; however, the final EIA submission report will be incorporated into Chapter 7.	199
24	Erosion Control measures.	There is no waste generation (OB) in this quarry has been envisaged. However, there may be erosion	139

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		due to 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.	108
26	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	Not applicable.	-
27	The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.	Complied. The details are incorporated in Chapter 2.	81
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.	108
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.	108
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.	140

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.	138
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.	138
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.	138 & 177
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.	177
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.	177
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.	165
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	Complied. The details are described in Chapter 7.	176

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	disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.		
Others			
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.22-65/2017-1A.11I 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.	Nil	-
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.	-

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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.	Complied. All the documents 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).	Complied. Project coordinates superimposed in satellite imagery and given as Figure 2.3 in Chapter II. The geology and geomorphology map is provided as Figures 2.23 & 3.24 in Chapter-III. The Lithology map and Soil map are provided as Figure 3.25 in Chapter-III. The 10km Radius Index plan showing buffer zone is given 3.1 as in Chapter-III.	88 127
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.	88
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	The proposed quarry is small scale magnitude operation and controlled by lessee individually by engaging optimum statutory personals.	172

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	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.	Based on magnitude of the operation the PP has framed Environmental Policy and the same is incorporated in Chapter 10.	
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 Chapter 7.	165
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.	108
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.	108

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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 for representative of the State Forest Department to assist the Expert Appraisal Committees.	Not Applicable. There is no forest land in the lease area.	-
13	Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.	Not Applicable. 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.	108
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	No wildlife sanctuary or national parks or any areas of ecological importance is found in the 10km area.	-

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	required, should be worked out with cost implications and submitted.		
17	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.	Not Applicable. Nil within 10 km radius.	-
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 bufferzone 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.	108
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	Not Applicable	-

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	furnished to the effect that the proposed mining activities could be considered.		
20	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).	Not Applicable	-
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 programme of linedepartments 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 shilling of village(s) including their R&R and socio- economic aspects should be discussed in the Report.	Not applicable. No habitation within 300 meter 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	Baseline data for meteorology, ambient air quality, Water quality, noise level, soil and flora & fauna are collected during Pre Monsoon season (February 2024 to April 2024) and detailed in Chapter-3.	105

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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.	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.	150
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 8 KLD which will be sourced from outside agencies. Negligible sewage will be generated, for which a septic tank with soak pit will be set up. The water balance diagram is shown in Chapter 4	137
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.	170

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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.	108
28	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-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.	Ground water table of the project surrounding area is 62 m (BGL and proposed ultimate pit level is 27m BGL. So, the proposed mine working will not intersect the ground water table.	-
29	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.	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.	108
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	In the lease area, safety barrier 10 m 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.	-

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	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 Roads Congress(IRC).	This is a small quarry and the production is very less. 6 Nos. of 5/10MT tippers will be used for transport. The trips will be minimum. Hence no major impact on transport is expected.	-
33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	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 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 4.11 of Chapter-4.	186

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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 40 people directly & indirectly. Local people will be hired for unskilled labour. Through CSR, nearby schools, villages 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.	180
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.	82
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.	180

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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 40 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.	-
	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.	-

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	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.	-
	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	Yes, Complied.	-

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	maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.		
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CHAPTER 1

INTRODUCTION

1.1 PURPOSE OF THE REPORT

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

Thiru.K. Ananthaperumal, has obtained Precise Area communication letter from the District Collector, Tirunelveli District, to quarry out 9,26,070 m³ of Rough Stone and 1,03,074 m³ of gravel over an extent of 6.60.5 Ha., located at the Survey No. 414/1, 415A/1A and 415A/2A of Palamadai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu State. 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	Name and address	G.O. No. and Date	Village and Taluk	S.F.No.	Extent (in Ha)	Period of lease
Existing Quarries						
1	Thiru.P.K.S.Ahamad Meeran, S/o.Mohamed Sultan, 18, Puthu Amman Kovil Street, Sindhupundhurai, Tirunelveli Taluk and District.	Rc. No.M2/ 214/2023, dated. 20.09.2023	Gangaikondan Part-2 Village, Tirunelveli Taluk	1665/1B	2.10.5	06.10.2020 to 05.10.2025
2	Thiru.C.Rasheed Ali, S/o.Chinna Sheik Rowther, 9/100, Mela Pallivasal Street, Mela Thalaiyuthu, Sankar	Rc. No.M2/ 214/2023, dated. 20.09.2023	Gangaikondan Part-2 Village, Tirunelveli Taluk	1662/1A(P) (0.38.0) & 1663/1A (1.21.5)	1.59.5	21.01.2022 to 20.01.2032

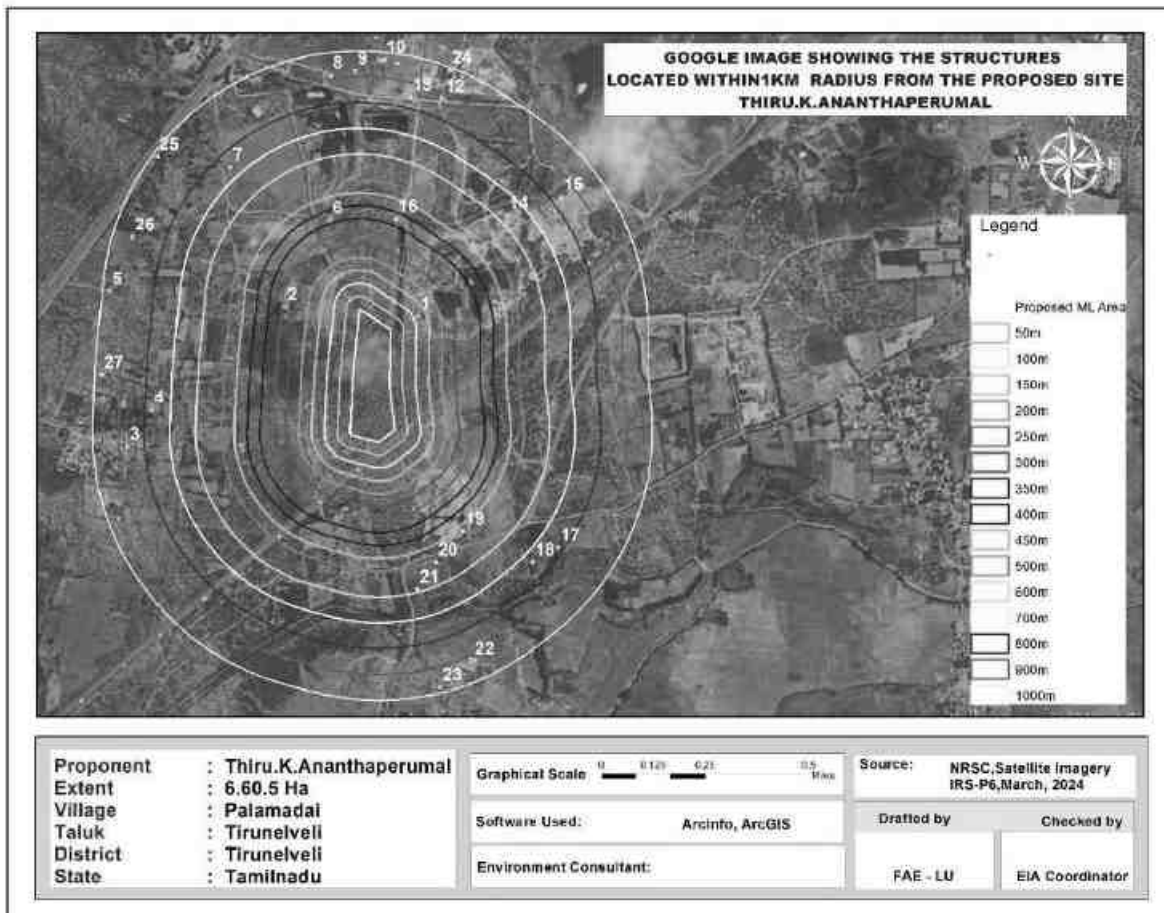
DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU. K. ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A AND 415A/2A LOCATED AT VILLAGE - PALAMADAI, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

	Nagar, Tirunelveli - 627357					
Extent: 3.70.0 Ha						
Abandoned Quarries:						
1	Thiru.Navaskhan, Sankar Nagar	Rc. No.M2/214/2023, dated. 20.09.2023	Gangaikondan (V),Tirunelveli Taluk,	1633, etc.	2.89.0	Abandoned quarry
2	Thiru.P.K.S.Ahamed Meeran, Tirunelveli.	Rc. No.M2/214/2023, dated. 20.09.2023	Gangaikondan (V),Tirunelveli	1671/1B, etc.	2.14.0	Abandoned quarry
Proposed Quarries						
S.No	Name and address	Village & Taluk	S.F.No.	Extent (in Ha)	Remarks	
1	P.Arumugasundar, S/o.Paramasivan, 34, Maravar Colony Street, Rajavallipuram, Palayamkottai, Tirunelveli - 627359	Palamadai Village, Tirunelveli Taluk	402/1 & 402/2	2.60.50	Proposed quarry	
2	Thiru.N.Mohammed Saleem Badhusa, S/o.Navaskhan, 1/19, Muthunagar, Sankarnagar, Tirunelveli District - 627357.	Naranammalpuram Part-1 Village, Tirunelveli Taluk	812(P)	1.95.0	Proposed quarry	
3	Thiru.K.Ananthaperumal, S/o.Kanniah, 160D/8, Polepettai West, Thoothukudi District.	Palamadai Village, Tirunelveli Taluk	414/1, 415A/1A & 415A/2A	6.60.5	Instant proposal	
4	Thiru.N.Mohideen Sheik Shahith, S/o.Navaskhan, 1/19, Muthu Nagar, Sankar Nagar, Tirunelveli - 627 357.	Naranammalpuram Part-1 Village, Tirunelveli Taluk	807	1.94.50	Proposed quarry	
5	Thiru.A.Kothar Mydeen, S/o.Ahamed Meeran, Thenkulam, Tirunelveli.	Gangaikondan Village, Tirunelveli Taluk	1660/4	1.62.0	Proposed quarry	
Total Extent: 18.42.5 Ha						

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU. K. ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A AND 415A/2A LOCATED AT VILLAGE - PALAMADAI, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

As per EIA notification, 2006 and its subsequent amendments the proposed Thiru.K.Ananthaperumal Rough Stone & Gravel Quarry, cluster is falls under Schedule 1(a) Mining of Minerals. It is further classified under Category B1 due to the overall extent of cluster area is 18.42.55 Ha which is >5 Ha. Satellite image of Quarries in Cluster is shown in Fig 1.1.

Figure1.1 Satellite Image showing cluster quarries



The ToR for preparation of EIA/EMP was approved vide letter No.SEIAA-TN/F.No.10524/SEAC/2023/SEAC/ToR-1672/2024, dated 08.02.2024. This report has been prepared in line with the approved TOR for production of maximum excavation of 9,26,070 m³ of Rough Stone and 1,03,074 m³ 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. No. 414/1, 415A/1A and 415A/2A located in Palamadai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu State. As per EIA notification, 2006 and its subsequent amendments the project comes under Schedule 1 (a) under Category B1 (Lease area >5 to 250 Ha). The proposed project details are given below.

(a) Proposed project details

Sl. No.	Description	Status/Remarks
1.	Sector	Non-coal mining
2.	Category of the project	B1
3.	Proposed mineral	Rough Stone & Gravel quarry
4.	Type of Lease	Proposed quarry
5.	Extent of the lease	6.60.5 Ha
6.	Proposed depth of mining	27m BGL
7.	Method of mining	Opencast Semi-mechanized
8.	Proposed lease period	10 Years
9.	Proposed Environmental Clearance	5 Years
10.	Proposed production quantity for five years	9,26,070 m ³ of Rough Stone 1.03,074 m ³ of Gravel

(b) Profile of the project proponent

The proposed lessee Thiru.K.AnanthaPerumal is an individual with sound experience in the identification of quarry, operation and marketing in the field of Rough Stone and gravel quarry. The proposed land is It is owned patta land, Please refer Annexure no -I, the applicant owned this land through government tender.

(c) Project proponent details

Name of the proponent : Thiru.K.Ananthaperumal

Status of the Proponent : Individual

Address : Thiru.K.Ananthaperumal,
S/o.Kanniah,
160D/8, Polepettai West,
Thoothukudi District.
Pincode-628001.

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 jackhammer drilling, slurry blasting, excavation, loading and transportation.

1.4 SIZE AND LOCATION OF THE PROJECT

(a) Size of the project

Table1.2 Proposed project details		
Sl. No.	Feature	Description
1	Type of land	Owned Patta land
2	Extent of lease area	6.60.5 Ha
3	Type of lease	Proposed quarry
4	Geological Resource	Rough Stone - 29,67,300 m ³ Gravel - 1,31,880 m ³
5	Mineable Resource	Rough Stone - 13,22,445 m ³ Gravel - 1,03,074 m ³
6	Proposed production quantity for five years	Rough Stone - 9,26,070 m ³ Gravel - 1,03,074 m ³
6	Proposed depth of mining	27m BGL

(b) Location of the project

The proposed project site is located in Palamadai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu State and its Latitude 08°48'10.57"N to 08°48'27.47"N and Longitude 77°45'06.01"E to 77°45'11.28"E. with Survey of India Topo Sheet No58-H/13.

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 stone. 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.10524/2023/SEAC/ToR-1672/2024, dated 08.02.2024 in accordance with the provisions of EIA Notification 2006 and its subsequent amendments. This EIA study includes both Core and Buffer zone i.e., the lease area and 10km radius of the project area respectively. This EIA report prepared based on the data generated from the summer season 2024 (February 2024 to April 2024) and all individual components of environment are described in detail. An in-depth analysis of available information has been made for working out an effective Environmental Management Plan.

1.7 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 February 2024 to April 2024 by M/s. Shrient Analytical & Research Labs Private Limited, Chennai and the data generated by the FAE of the M/s. Global Mining Solutions, Salem. The study evaluates the prevailing baseline environmental conditions. The objectives of the present study are given below.

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

1.8 STATUS OF LITIGATIONS

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

a. Precise Area Communication:

The Project Proponent has obtained Precise Area Communication from the Joint Director/Assistant Director (i/c), Department of Geology and Mining, Tirunelveli vide Roc.No.M2/214/2023 dated 19.09.2023. The letter copy enclosed as **Annexure – 2.**

b. Mining Plan Approval Letter:

The project proponent has prepared mining plan under rule 41 & 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 and the same has been approved by the Joint Director/Assistant Director (i/c), Dept. of Geology & Mining, Tirunelveli vide Rc.No.M2/214/2023 dated 20.09.2023. The approval letter along with approved plan is enclosed as **Annexure – 3.**

c. 500m radius quarry features:

The project proponent has obtained an official letter from the Joint Director/Assistant Director (i/c), Department of Geology and Mining, Tirunelveli vide Rc.No.M2/214/2023 dated 20.09.2023. The letter copy enclosed as **Annexure – 4.**

d. Project Proponent undertaking affidavit:

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

e. Land document of the proposed lease area:

It is a Patta land registered in the name of Thiru.Mohammed Hakkim and Applicant vide Patta nos.1098, 1105 and 1111, the applicant has obtained consent from the Pattadar. The copy of the land documents is enclosed as **Annexure -6.**

CHAPTER 2

PROJECT DESCRIPTION

2.1 TYPE OF PROJECT

The type of the project is opencast semi-mechanized mining method to excavate Rough Stone within the proposed Mine Lease area with drilling, blasting, loading and transportation. This project is located at S.F. No. 414/1, 415A/1A and 415A/2A over an extent of 6.60.5 Ha in Palamadai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu State.

As per EIA notification, 2006 and its subsequent amendments the project comes under Schedule 1 (a) under Category B1 (Lease area >5 to 250 Ha), considering cluster situation and the total cluster area is 18.42.5 Ha. The details of mines located in the cluster area is certified by Joint Director/Assistant Director (i/c), Department of Geology and Mining, Tirunelveli vide Roc.No.M2/214/2023 dated 19.09.2023.

Cluster Mines Details						
Sl. No	Name and address	G.O. No. and Date	Village and Taluk	S.F.No.	Extent (in Ha)	Period of lease
Existing Quarries						
1	Thiru.P.K.S.Ahamad Meeran, S/o.Mohamed Sultan, 18, Puthu Amman Kovil Street, Sindhupundhurai, Tirunelveli Taluk and District.	Rc. No.M2/214/2023, dated. 20.09.2023	Gangaikondan Part-2 Village, Tirunelveli Taluk	1665/1B	2.10.5	06.10.2020 to 05.10.2025
2	Thiru.C.Rasheed Ali, S/o.Chinna Sheik Rowther, 9/100, Mela Pallivasal Street, Mela Thalaisyuthu, Sankar Nagar, Tirunelveli - 627357	Rc. No.M2/214/2023, dated. 20.09.2023	Gangaikondan Part-2 Village, Tirunelveli Taluk	1662/1A(P) (0.38.0) & 1663/1A (1.21.5)	1.59.5	21.01.2022 to 20.01.2032
Extent: 3.70.0 Ha						

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU. K. ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A AND 415A/2A LOCATED AT VILLAGE - PALAMADAI, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

Abandoned Quarries:						
1	Thiru.Navaskhan, Sankar Nagar	Rc. No.M2/ 214/2023, dated. 20.09.2023	Gangaikondan (V),Tirunelveli Taluk,	1633, etc.	2.89. 0	Abandone d quarry
2	Thiru.P.K.S.Ahamed Meeran, Tirunelveli.	Rc. No.M2/ 214/2023, dated. 20.09.2023	Gangaikondan (V),Tirunelveli	1671/1B, etc.	2.14. 0	Abandone d quarry
Proposed Quarries						
S.No	Name and address	Village & Taluk	S.F.No.	Extent (in Ha)	Remarks	
1	P.Arumugasundar, S/o.Paramasivan, 34, Maravar Colony Street, Rajavallipuram, Palayamkottai, Tirunelveli - 627359	Palamadai Village, Tirunelveli Taluk	402/1 & 402/2	2.60.50	Proposed quarry	
2	Thiru.N.Mohammed Saleem Badhusha, S/o.Navaskhan, 1/19, Muthunagar, Sankarnagar, Tirunelveli District - 627357.	Naranammalpur am Part-1 Village, Tirunelveli Taluk	812(P)	1.95.0	Proposed quarry	
3	Thiru.K.Ananthaperum al, S/o.Kanniah, 160D/8, Polepettai West, Thoothukudi District.	Palamadai Village, Tirunelveli Taluk	414/1, 415A/1A & 415A/2A	6.60.5	Instant proposal	
4	Thiru.N.Mohideen Sheik Shahith, S/o.Navaskhan, 1/19, Muthu Nagar, Sankar Nagar, Tirunelveli - 627 357.	Naranammalpur am Part-1 Village, Tirunelveli Taluk	807	1.94.50	Proposed quarry	
5	Thiru.A.Kothar Mydeen, S/o.Ahamed Meeran, Thenkulam, Tirunelveli.	Gangaikondan Village, Tirunelveli Taluk	1660/4	1.62.0	Proposed quarry	
Total Extent: 18.42.5 Ha						

The proposed production is 9,26,070 m³ of Rough Stone and 1,03,074 m³ 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 quarry of Thiru.K.Ananthaperumal.

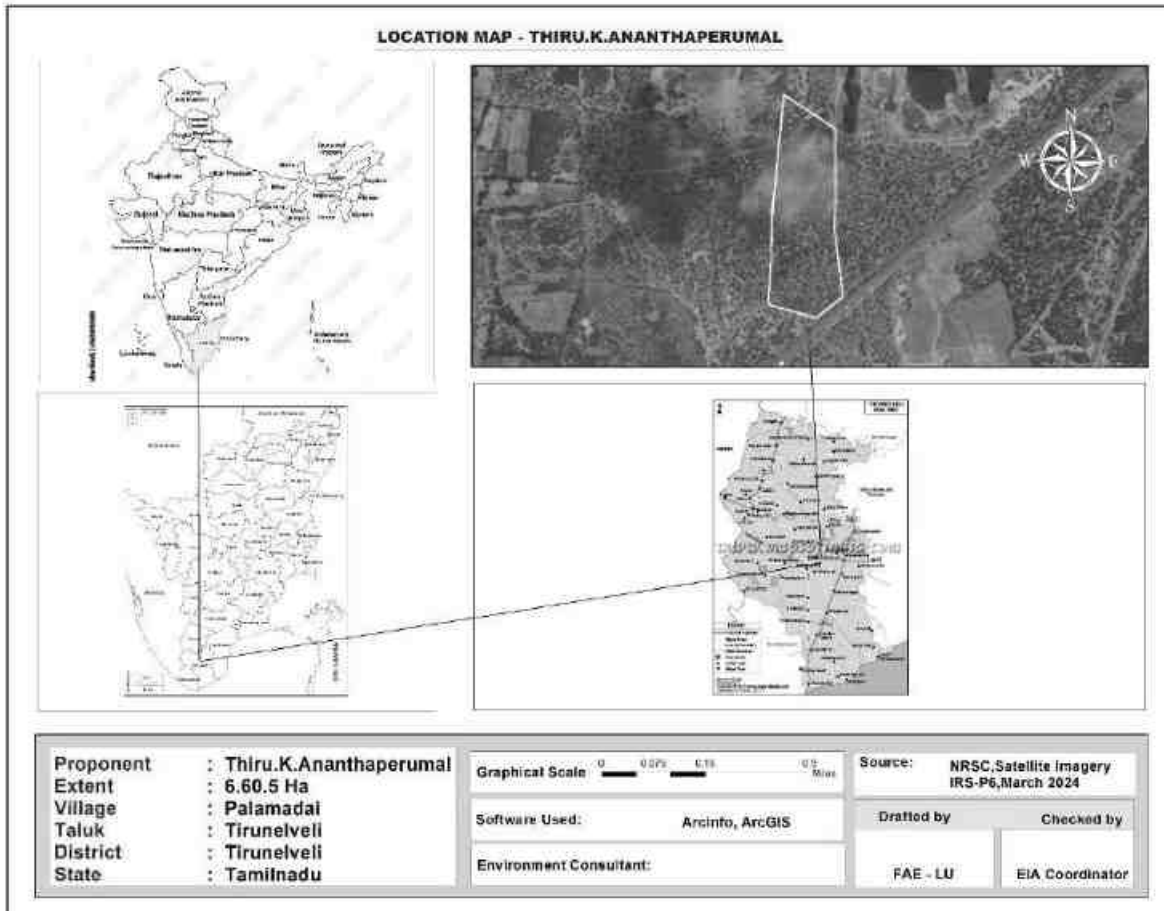
Table 2.1 Salient features of the project		
S.No.	Type of Detail	Description
1	Sector	1(a) Non coal mining
2	Fresh/Existing project	New Project
3	Category	B1
4	Nature of mineral	Minor mineral
5	Life of the mine	10 years
6	Production Quantity for five years	Rough Stone - 9,26,070 m ³ Gravel - 1.03,074 m ³
7	Waste generation and management	Nil
8	Bench height and width	Proposed bench height & width is 5.0m respectively and number of proposed benches is 6 Nos.
9	Ultimate pit depth	27m BGL
10	End use	The excavated Rough Stone and Gravel is used for construction industries for Government & Public sector projects besides catering domestic housing and infrastructure projects in and around the district.

2.3 LOCATION

This project site is located in Palamadai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu State. The Nearest Railway line is Tirunelveli - Thoothukudi line which is about 69m on southeastern side of the area. The National Highway (NH-44) Salem – Kanniyakumari is about 1.0Km on western side of the area. The State Highway (SH-75) Palayamkottai – Aruppukkottai is about 6.5Km on southeastern side of the area. The general location is given in Figure 2.7. The specific location is given in Figure 2.8.

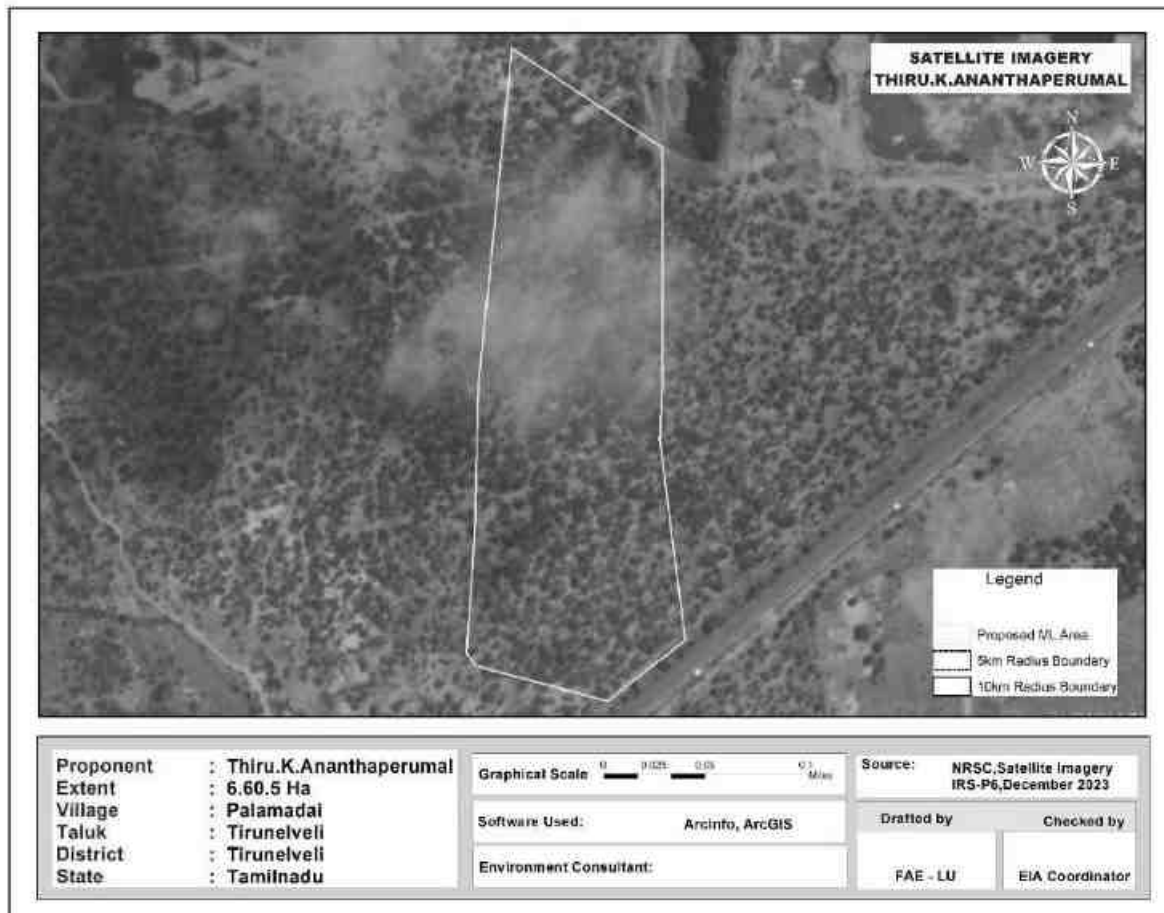
DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU. K. ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A AND 415A/2A LOCATED AT VILLAGE - PALAMADAI, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

FIGURE 2.1 LOCATION MAP



DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU. K. ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A AND 415A/2A LOCATED AT VILLAGE - PALAMADAI, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

FIGURE 2.2 MAP OF THE PROJECT AREA



As shown in the map above, the project is approachable from Gangaikondan – Thalaiyuthu road on Northwestern side of the area. The State Highway (SH-75) Palayamkottai – Aruppukkottai is about 6.5Km on southeastern side of the area and The National Highway (NH-44) Salem – Kanniyakumari is about 1.0Km on western side of the area.

2.4 PROJECT BOUNDARY AND PROJECT SITE LAYOUT:

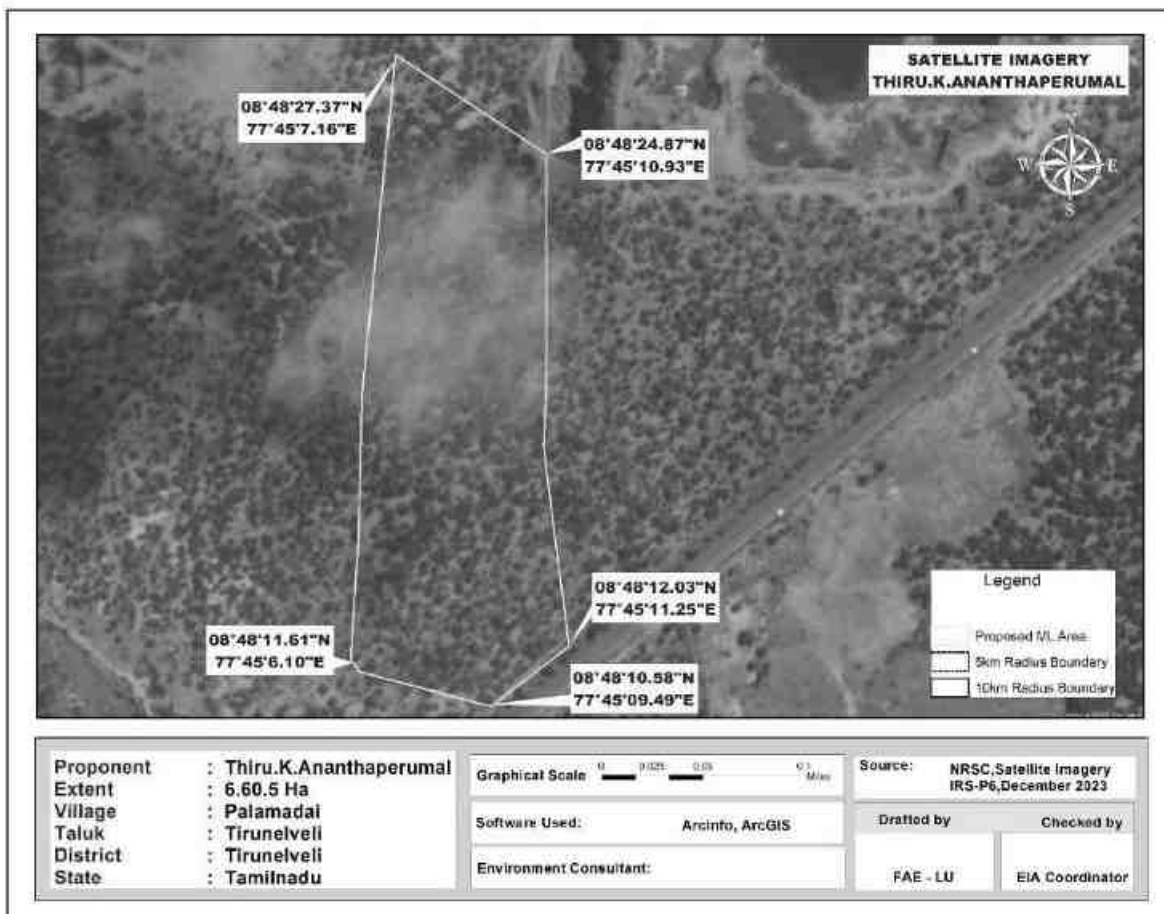
The lease area has 4 corners and the latitude and longitude values are given below.

Table 2.2 Co-Ordinates of the Project Site			
Corners	Co-Ordinates		Distance between the corners
	Latitude	Longitude	
1	08°48'11.61"N	77°45'06.12"E	1-2 = 8.0 m

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU. K. ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A AND 415A/2A LOCATED AT VILLAGE - PALAMADAI, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

2	08°48'11.84"N	77°45' 06.01"E	2-3 = 68.8 m
3	08°48'14.08"N	77°45' 06.12"E	3-4 = 90.6 m
4	08°48'17.02"N	77°45' 06.10"E	4-5 = 90.2 m
5	08°48'19.95"N	77°45' 06.30"E	5- 6 = 232.6 m
6	08° 48'27.17"N	77°45'07.11"E	6 -7 = 141.6 m
7	08°48'24.91"N	77°45'10.96"E	7- 8 = 226.6 m
8	08°48' 17.54"N	77°45'0.87"E	8-9 = 170.8 m
9	08° 48'12.00"N	77°45'11.28"E	9-10 = 5.0 m
10	08°48'11.97"N	77°45'11.12"E	10-11 = 66.0 m
11	08° 48'10.57"N	77°45'09.49""E	11'1 = 108.0 m

FIGURE 2.3 GOOGLE IMAGE SHOWING PROJECT SITE



DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU. K. ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A AND 415A/2A LOCATED AT VILLAGE - PALAMADAI, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

FIGURE 2.4 SURFACE PLAN OF THE PROJECT AREA

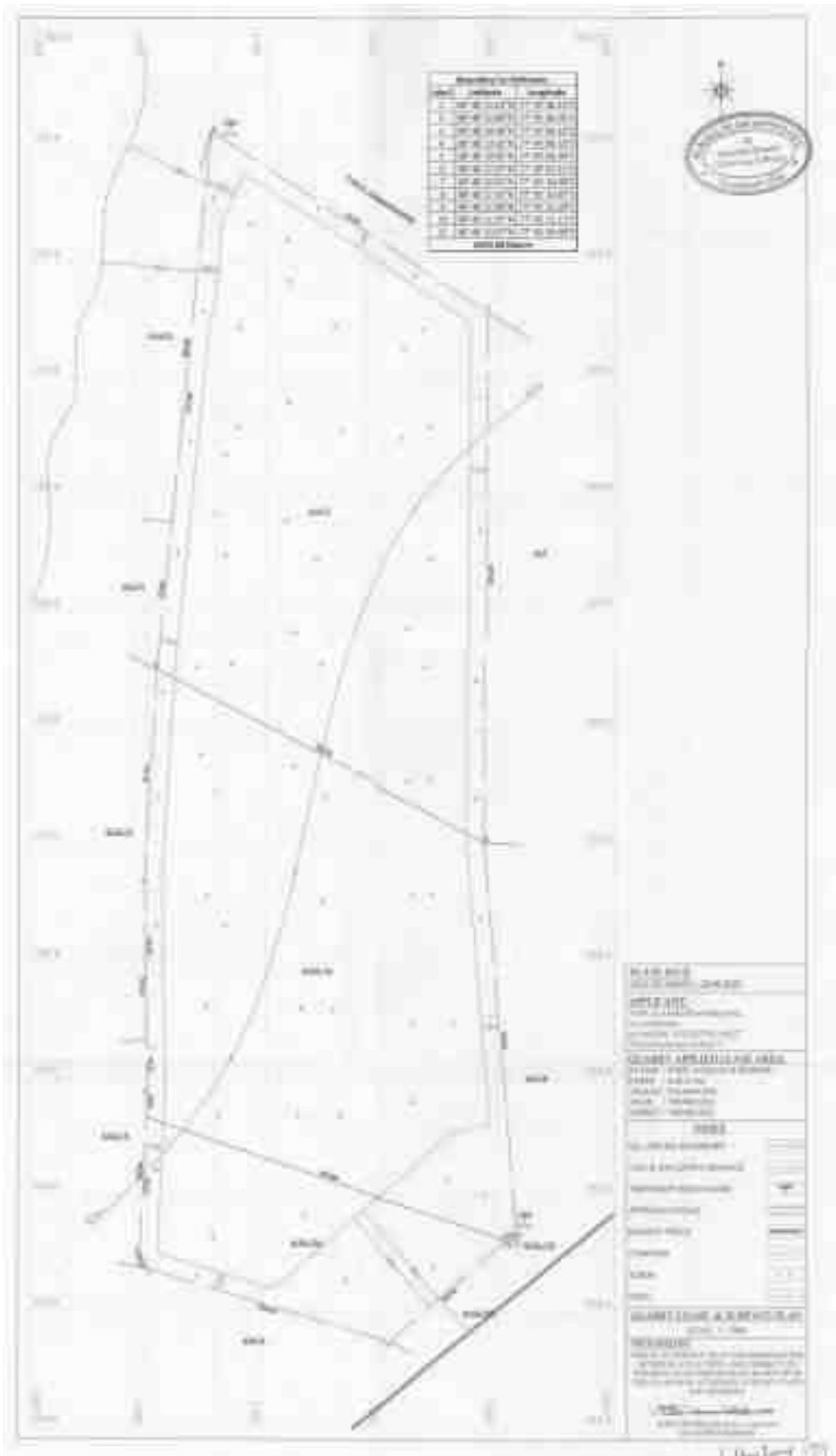


FIGURE 2.9 SITE PHOTOS



Site Connectivity

Sr.No	Salient Features	Description
1	Nearest Roadway	<ul style="list-style-type: none"> • There is an existing road from the area leads to Gangaikondan – Thalaiyuthu road on Northwestern side of the area. • The Nearest Railway line is Tirunelveli - Thoothukudi line which is about 69m on southeastern side of the area. • The National Highway (NH-44) Salem – Kanniyakumari is about 1.0Km on western side of the area. • The State Highway (SH-75) Palayamkottai – Aruppukkottai is about 6.5Km on southeastern side of the area.
2	Nearest Village	Pappankulam: 1.2km – NE Gangaikondan: 1.7km – NW Palamadai: 1.2km – SE Pandarkulam: 2.0km - SW
3	Nearest Railway	Tirunelveli - Thoothukudi line which is about 69m on southeastern side of the area.
4	Nearest Airport	Tuticorin – 31.46km – ESE

2.5 GEOLOGY AND TOPOGRAPHY

a. Topography

The mine lease area of 6.60.5 Ha is covered in the Survey of India Toposheet 58-H/13 and is bounded by Latitude 08°48'10.57"N to 08°48'27.47"N and Longitude 77°45'06.01"E to 77°45'11.28"E. No major river is found nearby the lease applied area. Water table is found at a depth of 62m in summer and 59m 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.

The elevation of the proposed quarry is 97m (maximum) from MSL. There is no forest land in the mine lease area. The project site is dry land which is not fit for any cropping.

b. Regional Geology

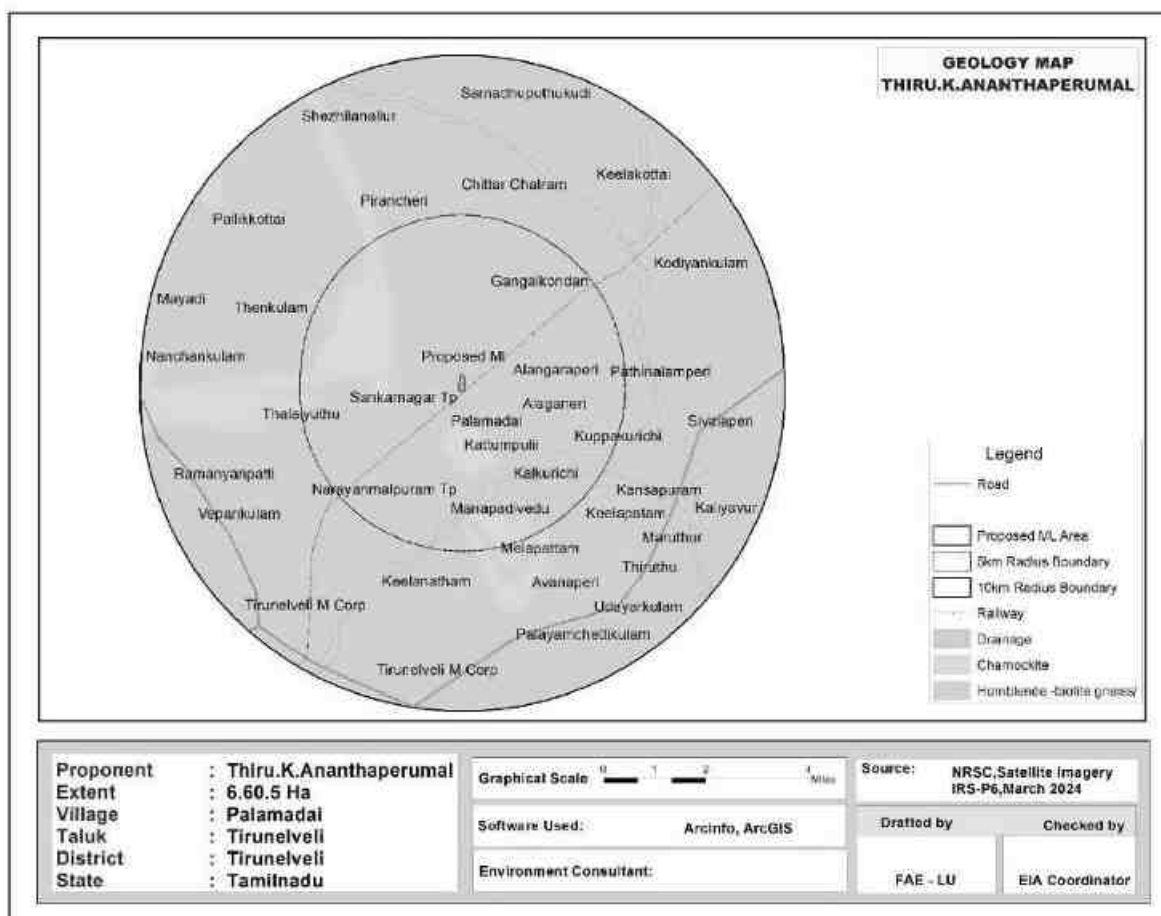
Geologically Tirunelveli District is mostly underlain by the Archaean crystalline and metamorphic complex. The geology of the district is complicated due to recurring tectonic and magmatic activities occurred during. Pre-Cambrian period. The famous Sittampundi Anorthosite Complex which is known for its complex geology and occurrences of Platinum Group of Elements is situated in this district. Hornblende Biotite Gneisses are the oldest rocks in four taluks of the district. It is very fissile and present widely in plains. The gneisses are highly weathered upto 30 m at some places.

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

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU. K. ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A AND 415A/2A LOCATED AT VILLAGE - PALAMADAI, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

Several faults and shears are occurring mostly with north east-southwest trend. They are expected to influence the course of groundwater movement, its storage and developmental potentials in the district. Regional Geology map for the 10 Km radius from the proposed project site is given as Figure 2.4.

FIGURE 2.6 REGIONAL GEOLOGY MAP OF THE 10 Km RADIUS FROM PROJECT AREA



c. Local Geology

d. Geological Resources

The area is underlain by the wide range of metamorphic rocks of peninsular gneissic complex. These rocks are extensively weathered and overlain by the recent valley

fills and alluvium at places. The geological formations found in the district are Archaean rocks like Gneisses, Granites, Charnockites basic granulites and calc-gneisses. The younger formations are Quartz veins and pegmatite.

The rock type noticed in the area for lease is Charnockite which contains mostly Quartz and Feldspar with some ferromagnesian minerals. The Charnockite is part of peninsular Gneisses, a high grade metamorphic rock. The strike of the Charnockite formation is N45°E – S45°W with dipping towards SE60°.

The general geological succession of the area is given as under.

↑	AGE	ROCK TYPE
	Recent	- Gravelly soil Unconformity
	Archaean	- Dolerite dyke Charnockite. Peninsular Gneissic complex and Calc Gneiss

Table 2.3 Geological resources in the lease area

Section	Topography	Bench	Length (m)	Width (m)	Dept (m)	Volume (m ³)	Gravel Formation (m ³)	Geological Resources of Rough stone (m ³)
XY-AB	Below Ground level	I	471	140	2	131880	131880	
		II	471	140	45	2967300		2967300
Total							131880	2967300

Available Geological Resources of Rough stone 131880 m³ and Gravel 2967300 m³.

FIGURE - 2.7 GEOLOGY MAP OF PROJECT AREA

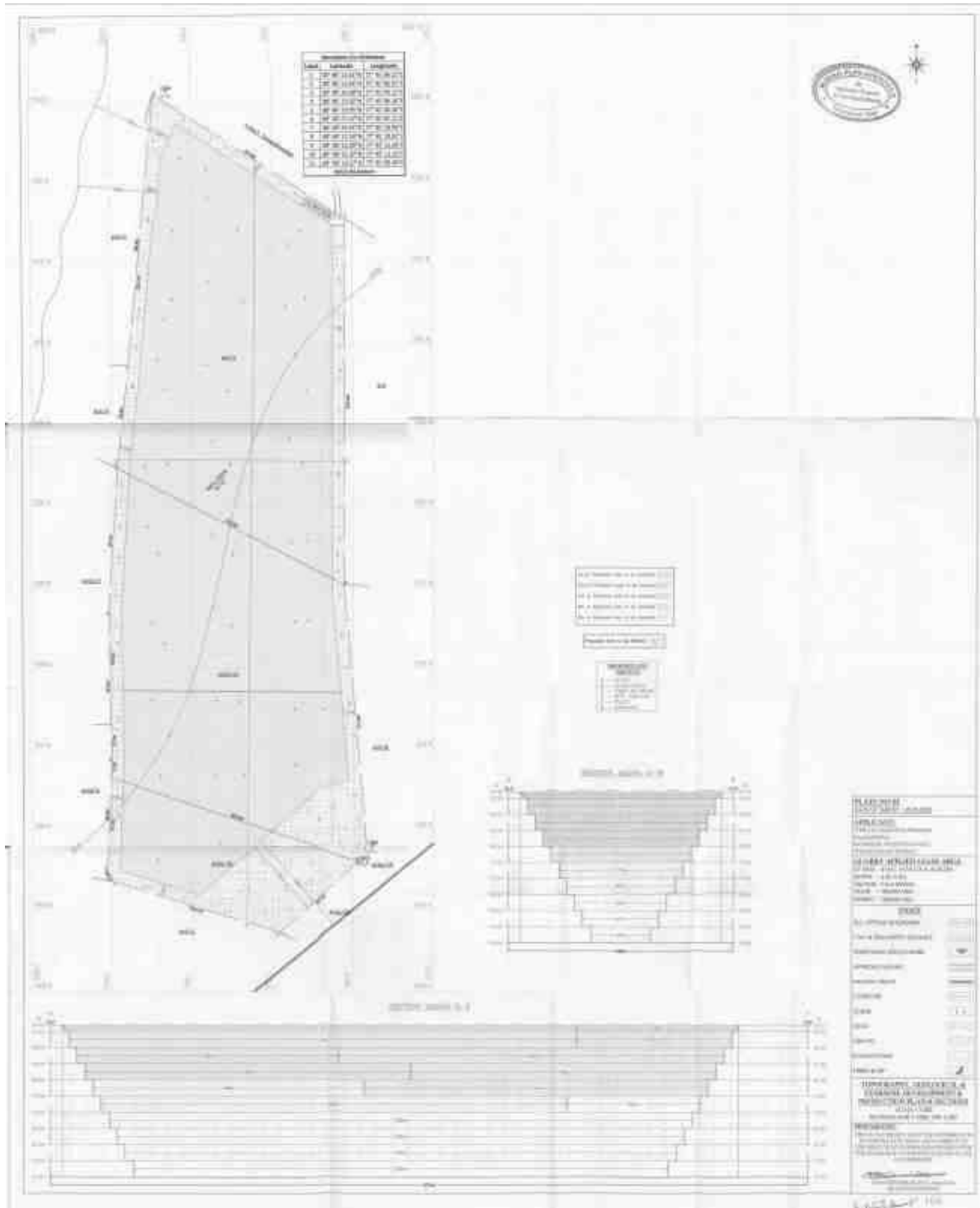


FIGURE - 2.8 GEOLOGY CROSS SECTION

2.6 AVAILABLE MINEABLE RESERVES

Mineable reserve is getting restricted due to the formation of benches, leaving the statutory safety distance in the inner boundary, mineral lock up in the benches itself, ultimate depth of mining, bench slope adopted etc. So, the mineable reserve is estimated after reducing the rough stone blocked in the safety distance, benches and existing pit. The Rough stone reserves are given below.

Table 2.4 Mineable Resources in the Lease Area								
Section n	Topography	Bench	Length (m)	Width (m)	Depth (m)	Volume m ³	Gravel in m ³	Mineable Reserve of Rough stone in m ³
XY-AB	Blow ground level	I	419	123	2	103074	103074	
		II	413	117	5	241605		241605
		III	403	107	5	215605		215605
		IV	393	97	5	190605		190605
		V	383	87	5	166605		166605
		VI	373	77	5	143605		143605
		VII	363	67	5	121605		121605
		VIII	353	57	5	100605		100605
		IX	343	47	5	80605		80605
		X	333	37	5	61605		61605
Total							103074	1322445

2.7 NEED FOR THE PROJECT

The construction industry is growing at a very faster rate so there is an increasing demand for Rough Stone. 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.

2.8 SIZE OR MAGNITUDE OF OPERATION

The proposed production is Rough stone 9,26,070 m³ and Gravel 1.03,074 m³ 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 owned 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	5.15.5
2	Infrastructure	Nil	0.01.0
3	Roads	Nil	0.01.0
4	Green Belt	Nil	1.43.0
5	Unutilized	6.60.5	Nil
	Total	6.60.5	6.60.5

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	5.15.5
2	Green Belt	1.43.0
3	Remaining area	0.02.0
	Total	6.60.5

2.11 METHOD OF MINING

Opencast Semi-mechanized method of semi mechanized mining with 5.0 m height 5.0m width and overall, 80° slope of the bench. It is proposed to excavate Rough Stone - 9,26,070 m³ and Gravel - 1.03,074 m³ for Five years. No wastage is envisaged as the entire material available is Rough Stone and Gravel only.

2.12 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.

2.13 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.

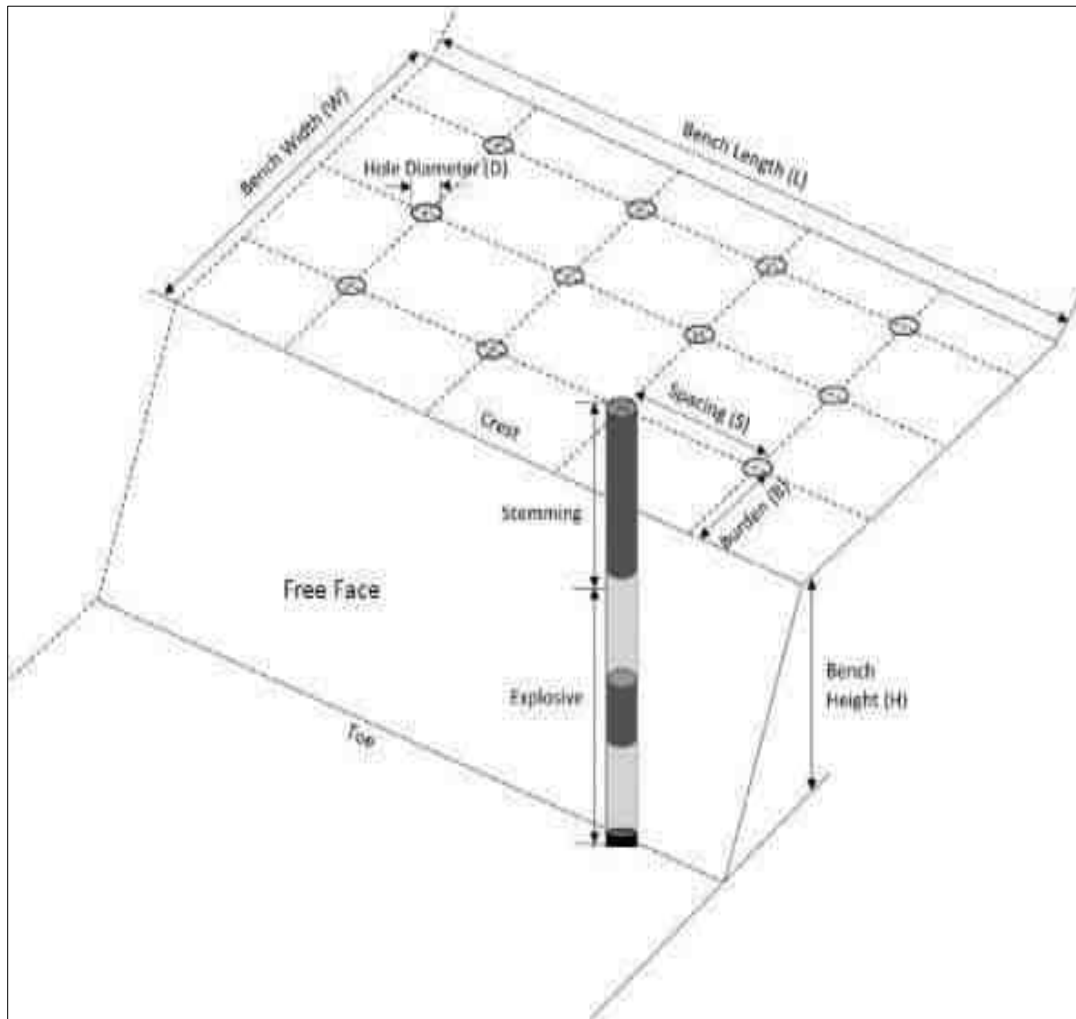
2.14 DEVELOPMENT OF MINING FACES

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 March 2025.

2.15 DRILLING & BLASTING

Drilling will be done upto maximum depth of 27m BGL (BGL and drilling diameter will be 32 mm. Jackhammer will be used for drilling with water spray. Powder factor of explosives for breaking such hard rock shall be in the order of 3 Tonnes per Kg of explosives. Small dia 32 mm slurry explosive is proposed to be used for shattering and heaving effect for removal of Rough Stone. The proposed blasting pattern is given as Figure 2.1.

FIGURE 2.9 BLASTING PATTERN

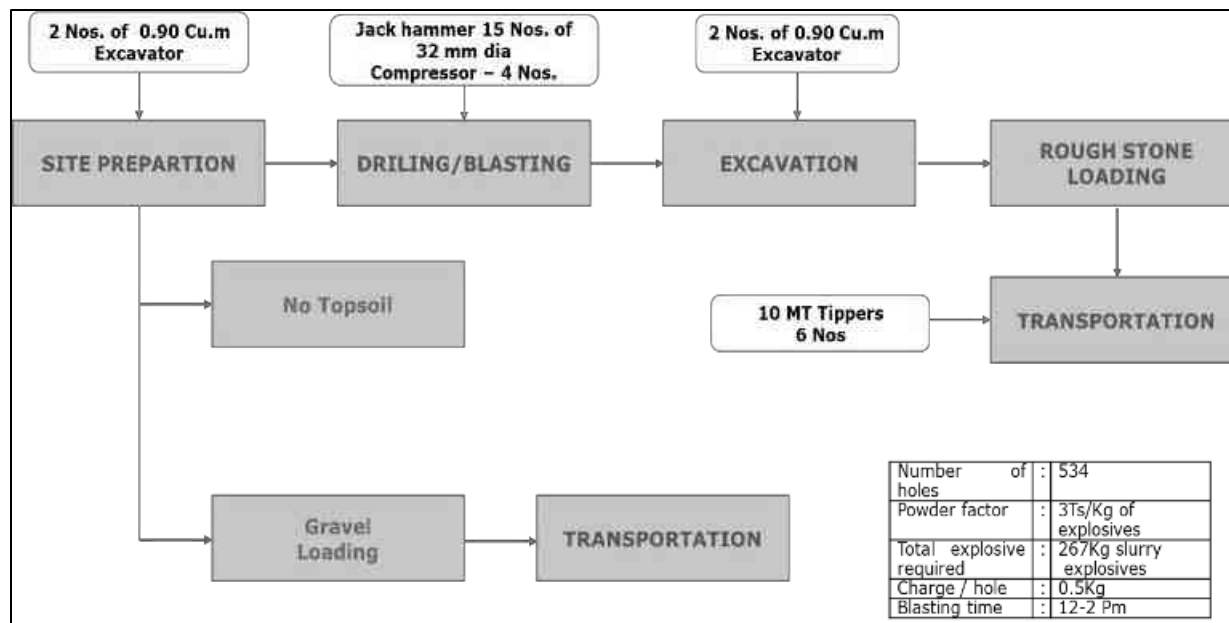


2.16 LOADING & TRANSPORTATION OF ROUGH STONE

Hydraulic excavator will be used for lifting and loading of the rough stone. This excavator in combination with Tippers (5/10Ts) capacity of 6 nos will be used.

2.17 PROCESS FLOW CHART FOR MINING OF DECORATIVE STONE

FIGURE 2.10 FLOW CHART OF THE QUARRY OPERATION



2.18 LAYOUT

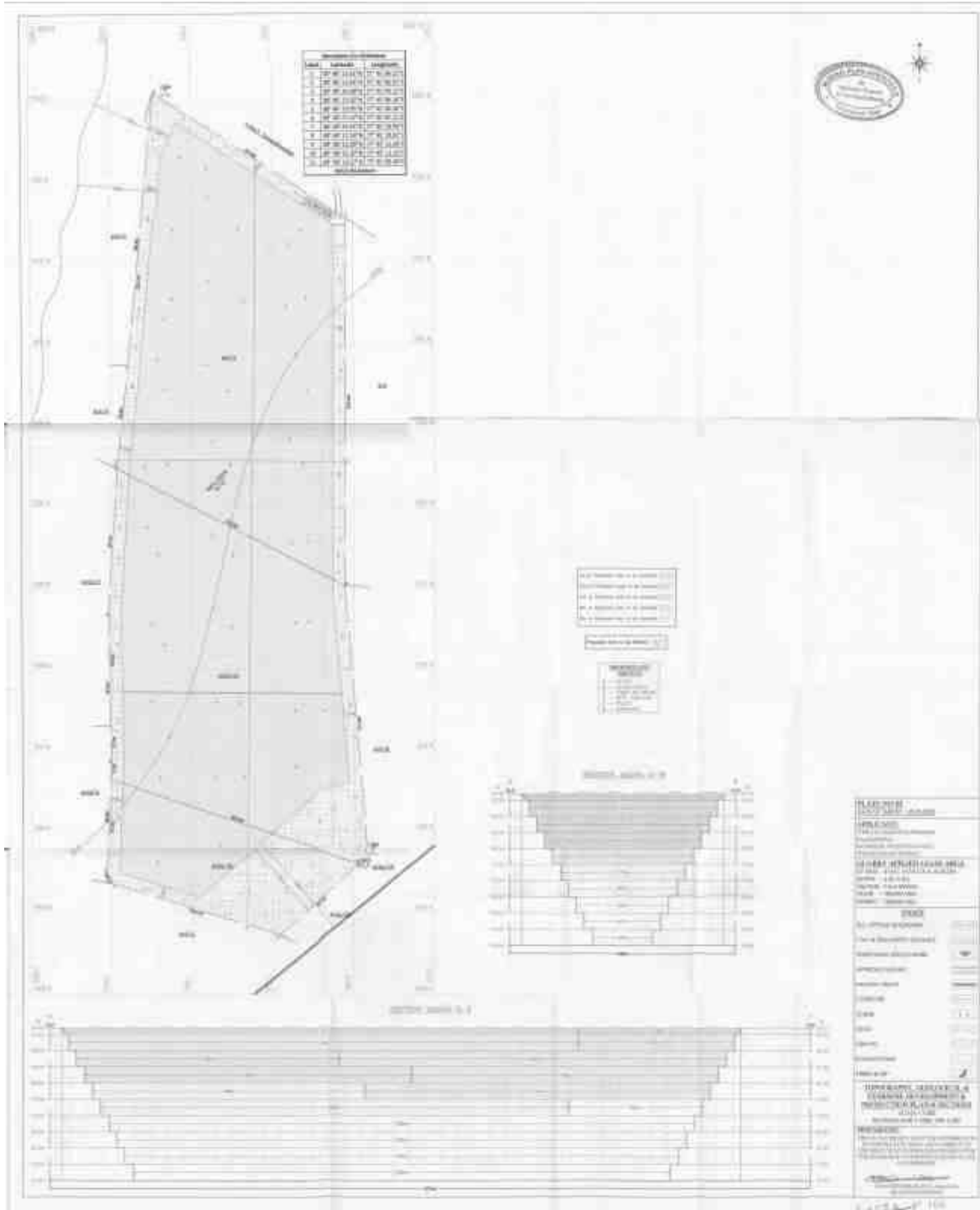
Layout of the proposed quarry working has been shown in development Plan/Sections (Figure 2.11) Coloring has been done distinctly for easy identification of year wise excavation programme.

2.19 MACHINERY DETAILS

Table 2.7 Machineries involved in the project				
S.No.	Particulars	Size capacity	Motive Power	Nos
1.	Jack hammer (32mm dia hole)	1.2m - 6.0m	Compressed air	15
2.	Compressor	1 psi	Diesel drive	4
3.	Excavator with Bucket and Rock Breaker	0.90 m ³	Diesel drive	2
4.	Tippers	5/10 Ts	Diesel drive	6

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FIGURE 2.11 PROJECT LAYOUT PLAN AND SECTIONS



2.20 PROPOSED SCHEDULE FOR IMPLEMENTATION

Year wise Production of Rough stone and Gravel from the area will be upto maximum capacity. The recovery factor is up to 100% hence no waste expected to be generated. All excavated quantity is saleable. The summary of proposed development and production during the mine plan period is given in Table 2.10.

Table 2.8 Summary of production For 5 Years								
Year	section	Bench	length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Gravel in m ³	Mineable Reserves of Rough stone in m ³
I	XY-AB	I	58	109	2	12644	12644	
		II	56	103	5	28840		28840
	XY-CD	I	163	142	2	46292	46292	
		II	163	136	5	110840		110840
Total							58936	139680
II	XY-CD	I	19	142	2	5396	5396	
		II	17	136	5	11560		11560
		III	173	123	5	106395		106395
	XY-AB	III	49	90	5	22050		22050
Total							5396	140005
III	XY-AB	IV	43	77	5	16555		16555
	XY-CD	IV	167	110	5	91850		91850
		V	66	97	5	32010		32010
Total								140415
IV	XY-CD	V	94	97	5	45590		45590
		VI	154	84	5	64680		64680
		VII	30	71	5	10650		10650
	XY-AB	V	36	64	5	11520		11520
		VI	30	51	5	7650		7650
Total								140090
V	XY-CD	VII	117	71	5	41535		41535
		VIII	141	58	5	40890		40890
		IX	134	45	5	30150		30150
		X	127	32	5	20320		20320
	XY-AB	VII	23	38	5	4370		4370
		VIII	17	25	5	2125		2125
		IX	10	12	5	600		600
Total								139990
Grand Total							64332	700180

2.21 CONCEPTUAL PERIOD

During conceptual stage the mined-out area will be converted into water reservoir and safety zone as well as upper benches will be used for plantation at the conceptual period. It will also serve the purpose as socio economic and corporate social responsibility of the lessee by way of supplying water for irrigation purpose or at will of the local people. This will help in ground water recharging as well. The conceptual plan and section of mine lease area is given in Figure 2.14. Ultimate extent and size of the quarry at the conceptual stage is given below as Table 2.11 and Land Use pattern is given as Table 2.12. The conceptual plan is given as Figure 2.14.

TABLE 2.9 Ultimate Pit Dimension			
Pit No.	Length (max) (m)	Width (Avg) (m)	Depth (max) (m)
I	419	123	27 (BGL) (Proposed Depth)

TABLE 2.10 Land Use at Mine Closure Stage		
S. No.	Land Use	Area in use during the quarrying period (Ha)
1	Area left for water body	5.15.5
2	Green Belt	1.43.0
3	Remaining area	0.02.0
Total		6.60.5

FIGURE 2.12 CONCEPTUAL PLAN



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

S.No.	Year	Species	No. of trees	Spacing	Survival
1	I	Pongamia pinnata, Syzigium cumini, Albizia lebbeck, Thespesia populnea, Bauhinia racemose, Cassia siamea, Azadirachta indica	1500	3m x 3m	85%
2	II		300		
3	III		-		
4	IV		-		
5	V		-		
Total			1800		

2.22 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.

2.23 PROJECT REQUIREMENTS

TABLE 2.11 Project Requirements		
S.No.	Nature of requirement	Description
1	Water requirement	Total water requirement of 8 KLD which will be procured from the outside agencies. Out of 1 KLD, drinking water requirement is 3.0 KLD, Green belt development is 2.0 KLD and for dust suppression is 3.0 KLD.
2	Power requirement	No electricity is needed for mining operations.
3	Manpower requirement	Total Manpower 40 Nos. Permanent employee – 30, Temporary employee – 10
4	Financial requirement	The total Project Cost as per EMP will be INR 132.33 Lakhs including Operational cost, Fixed Asset cost and EMP cost
5	Funds for Socio economic development	INR 5.0 Lakhs is allocated.

2.24 Project Cost

The budget of the project is given below.

TABLE 2.12 Budget of the Project		
S.No.	Details	Cost (in INR)
FIXED ASSET COST		
1	Land cost	39,63,000
2	First aid room and accessories	1,00,000
3	Labour Shed	1,00,000
4	Sanitary Facility	1,00,000
TOTAL		42,63,000
OPERATIONAL COST		
1	Machineries	80,00,000
2	Fencing cost	2,50,000
TOTAL		82,50,000
EMP COST		
1	Air Quality Sampling	196100
2	Water Quality Sampling	266100
3	Noise Monitoring	50000
4	Sanitary Arrangements	35000
5	Safety kids	160000
6	Afforestation	420000
TOTAL		11,27,200/-

CHAPTER 3

DESCRIPTION OF THE ENVIRONMENT

3.1. DESCRIPTION OF THE STUDY AREA

The project area is located in Palamadai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu State over an extent of 6.60.5 Ha. The project area is considered as Core zone and the area in the surrounding 10km radius is considered as Buffer Zone. The baseline environmental monitoring was conducted by Shrient Analytical & Research Labs Private Limited, Chennai it is an NABL and MOEF recognized laboratory for various components of environment, viz. Air, Noise, Water, Land was carried out during Summer Season i.e. February 2024 to April 2024 in the study area covering 10 km radial distance from the rough stone mine. Other environmental data on flora and fauna, land-use pattern, forest etc. were also generated through field surveys and secondary information collected from different State Govt. departments. Sampling methods and analysis. Socio-economic survey was conducted, through interaction with the people, sarpanch and medical officers by floating questionnaires and collection of information are supported by census data for demographic structures, amenities, and infrastructure availability within the study area. Baseline values for various environmental components are discussed in this Chapter.

The components included are:

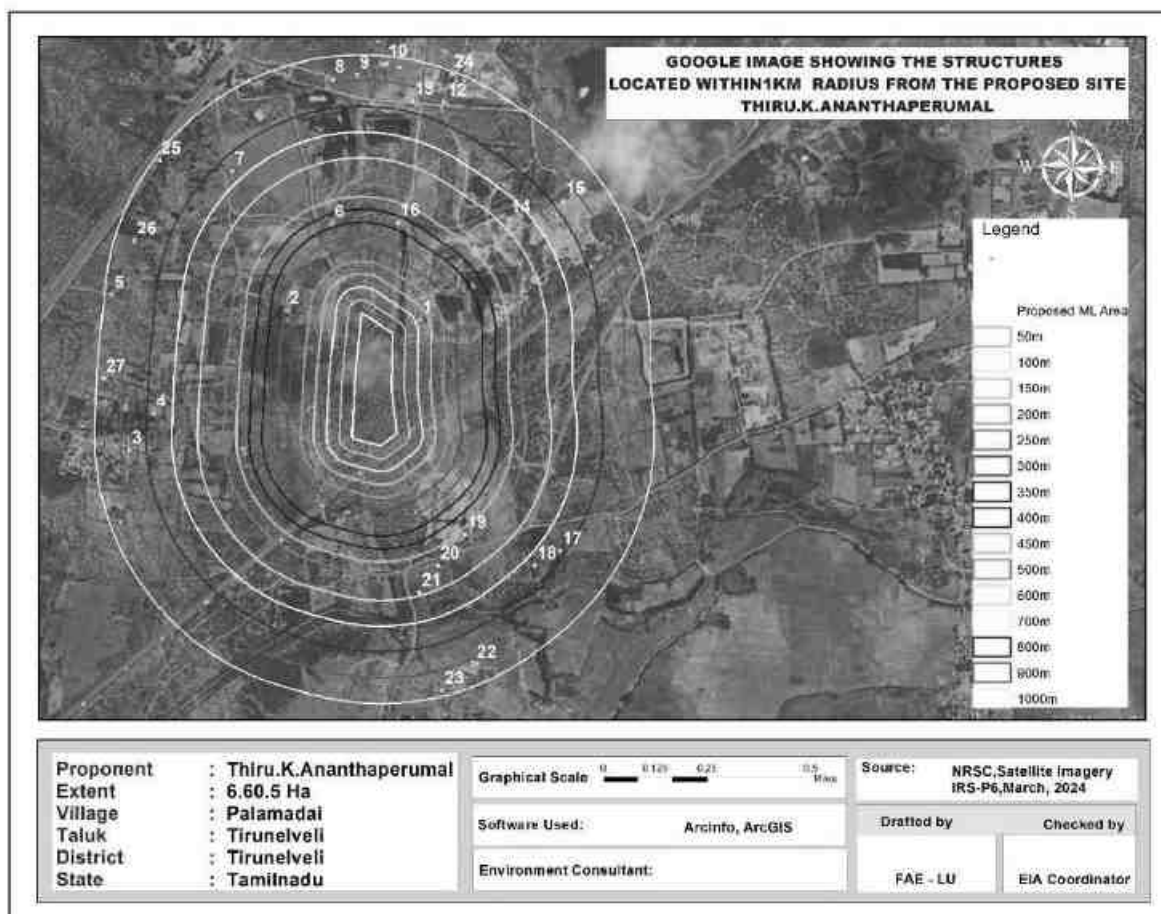
- ✚ Meteorological environment
- ✚ Air environment
- ✚ Water environment
- ✚ Noise environment
- ✚ Soil environment
- ✚ Biological environment
- ✚ Land use
- ✚ Socio economic environment
- ✚ Hydrogeology

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3.2. ENUMERATION OF THE STRUCTURES LOCATED WITHIN 300 M RADIUS FROM THE PROPOSED QUARRY SITE

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

FIG 3.1 GOOGLE MAP SHOWING 50M INTERVAL FOR 300M RADIUS FROM THE LEASE AREA



3.3. DESCRIPTION OF ENVIRONMENT IN THE STUDY AREA

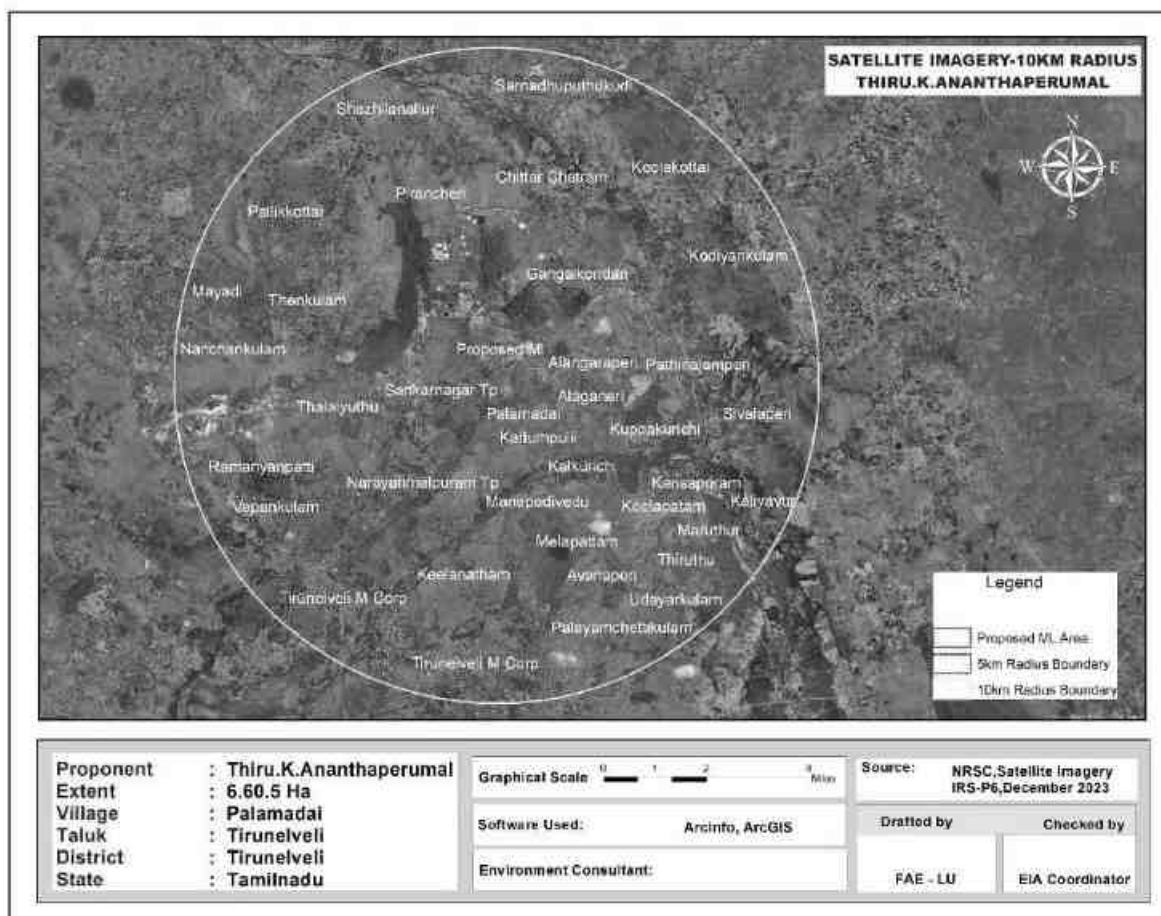
Table 3.1 Description of the lease area				
S.No.	Areas	Distance from project site		
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	Nil within 15km radius		
2	Areas which are important or sensitive for ecological reasons			
A	Wetlands, water courses or other water bodies,	Water bodies	Distance (Km)	Direction
		Palamadai Pond	2.12	SE
		Thalaiyuthu Kulam	4.52	S
		Gangaikondan Kulam	5.02	NE
		Alagankulam Pond	5.42	SW
		Molni Pond	7.38	SE
		Indira Kulam (South Pond)	8.57	NE
		Seeniyappa Kulam	8.61	SW
		Pallamadai Kulam	8.76	NW
		Kandiyapperi Pond	9.17	SW
		Elanthakulam	10	S
		Thamirabarani River	3.42	S
Chittar River	5.75	E		
B	Coastal zone, biospheres,	Nil within 10km radius		
C	Mountains, forests	Thalaiyuthu RF-2.83km(W) Melapattam RF-3.94km(S)		
3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, overwintering, migration	Nil within 15km radius		

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU. K. ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A AND 415A/2A LOCATED AT VILLAGE - PALAMADAI, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

4	Inland, coastal, marine or underground waters	Nil within 15km radius
5	State, National boundaries	Nil within 15km radius
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	Nil within 15km radius
7	Defense installations	Nil within 15km radius
8	Densely populated or built-up area	Palamadai – 1.2 km in SE
9	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	Palamadai – 1.2 km in SE
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.

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU. K. ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A AND 415A/2A LOCATED AT VILLAGE - PALAMADAI, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

FIGURE - 3.2.A SATELLITE MAP OF THE PROJECT AREA (10 KM RADIUS)



3.4. METEOROLOGICAL ENVIRONMENT

3.4.1 Meteorological conditions prevailing in the buffer zone is given below

Climate

The climate of Tirunelveli District is tropical. The period from the weather is pleasant during the period from November to January. Temperature of the area is reported to be 18°C to a maximum of 42°C during summer.

Rainfall

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

Rainfall received from 2017 to 2021 is given below.

Table 3.2 Rainfall data					
Actual Rainfall in mm					Normal rainfall in mm
2017	2018	2019	2020	2021	
1251.3	799.2	1071.9	1034.5	1592.2	985

Relative Humidity

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

Seismic information

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

FIG 3.3 SEISMIC MAP OF INDIA

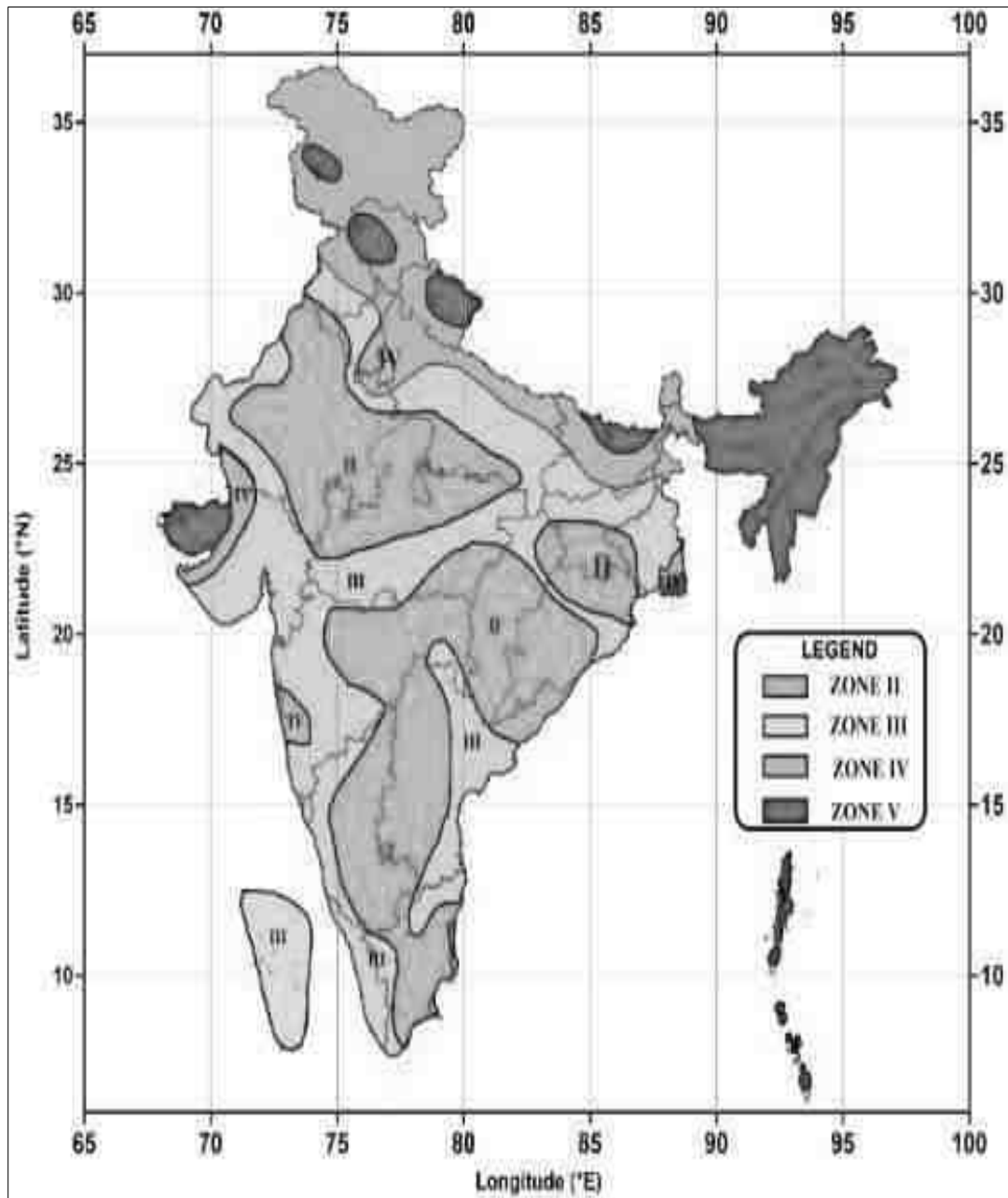
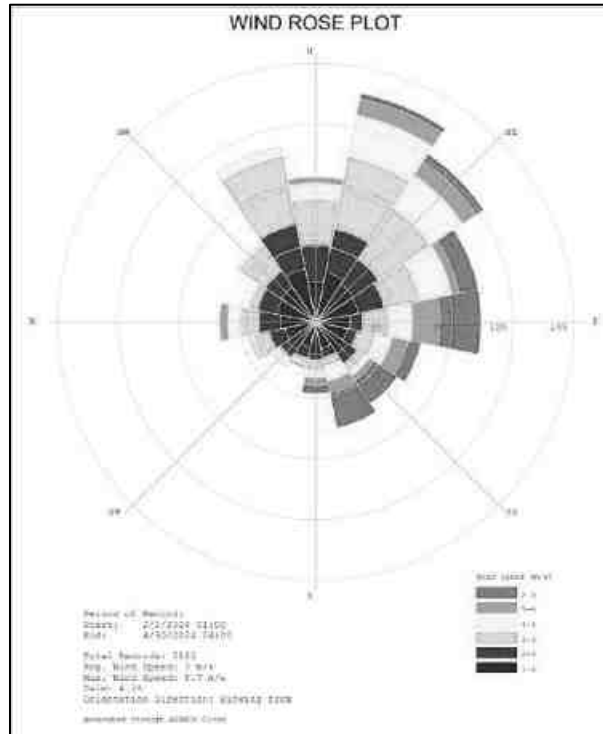
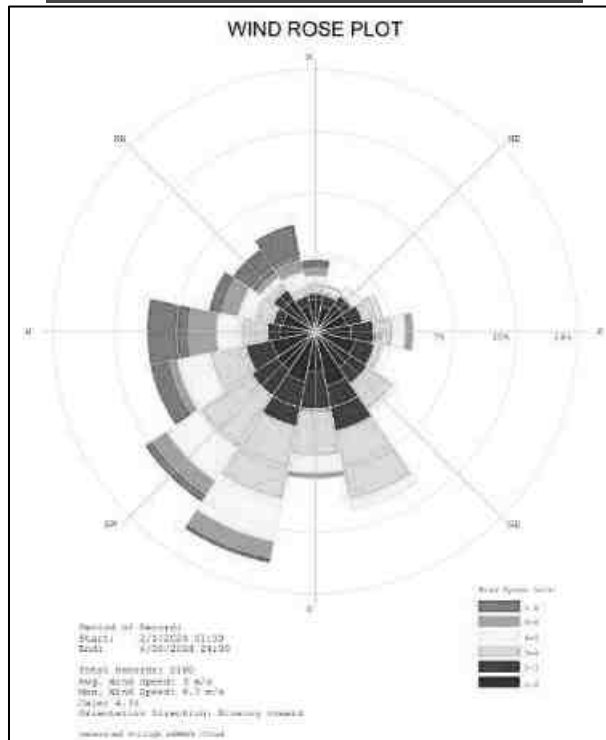


FIG 3.4 WIND ROSE PLOT DURING FEBRUARY TO APRIL 2024
WINDROSE FLOWING FROM



WINDROSE FLOWING TOWARDS



Meteorological data of the project area

The meteorological data collected in the study area from February 2024 to April 2024 which includes Temperature, Wind speed, Wind direction and Relative humidity. The predominant wind blow from West. The temperature of the area is reported to be 18⁰C to a maximum of 42⁰C during summer.

AMBIENT AIR MONITORING DATA

Ambient air quality monitoring has been carried out in 6 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 study area represents mostly rural environment with stone mining quarries & crushers.

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

The levels of Respirable Particulate Matter (PM10), Fine Particulates (PM2.5), Sulphur Dioxide (SO2) and Oxides of Nitrogen (NOx) were monitored for establishing the baseline status. PM10 were sampled with the help of Respirable Dust Samplers on filter papers and SO2 & NOx were absorbed in the respective absorption media in the impingers attached to RD samplers and analyzed Spectro-photometrically. PM2.5 was monitored with the help of Fine Particulate Samplers. The monitoring locations for ambient air study are given in Table – 3.3 and Figure 3.5 below.

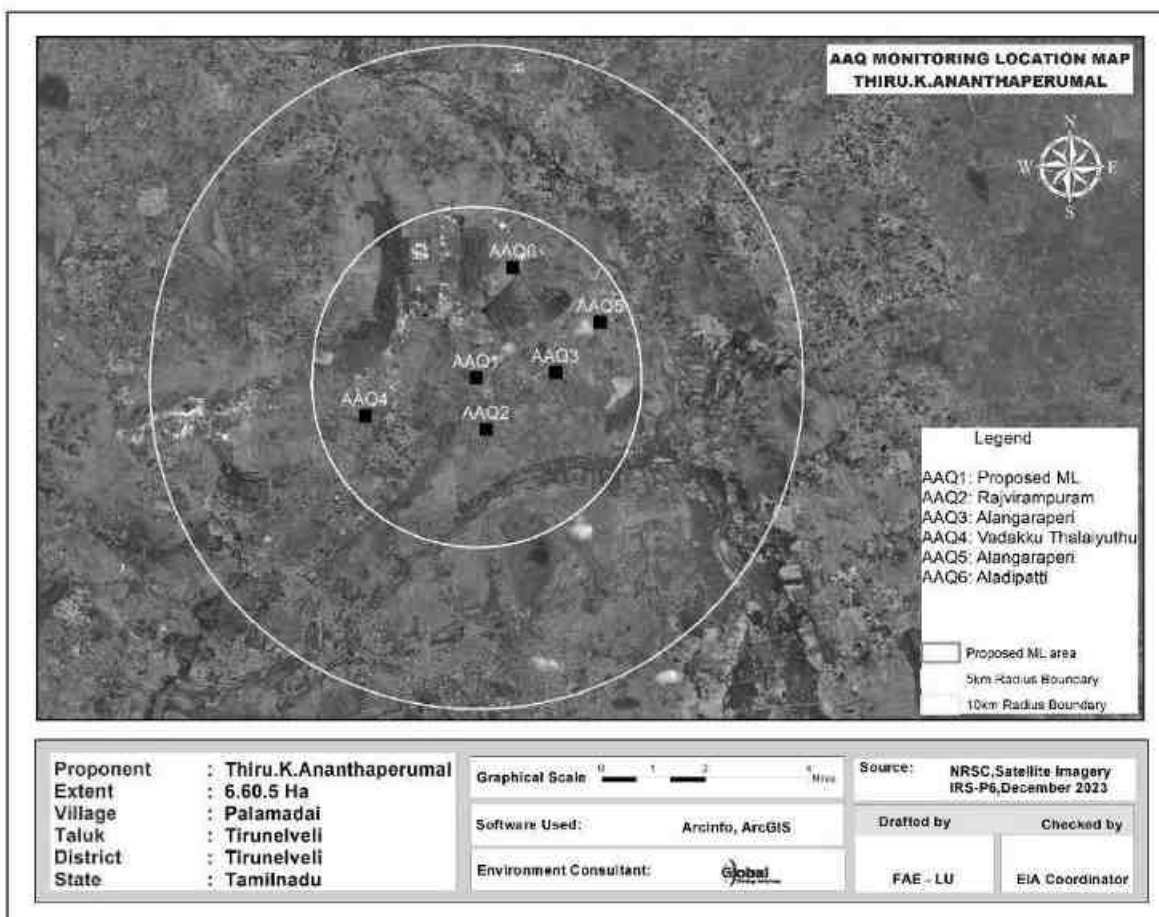
TABLE 3.3: DETAILS OF AMBIENT AIR QUALITY MONITORING LOCATIONS				
S. No.	Station Code	Locations	Distance & Direction	Coordinates
1	AAQ 1	Project site	Core Zone	08°48'10.57"N 77°45'06.01"E
2	AAQ 2	Rajvirampuram	1.61 Km, S	08°47'26.42"N 77°45'17.36"E
3	AAQ 3	Alangaraperi	2.45 Km, E	08°48'28.3"N 77°4'28.1"E

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TABLE 3.3: DETAILS OF AMBIENT AIR QUALITY MONITORING LOCATIONS

S. No.	Station Code	Locations	Distance & Direction	Coordinates
4	AAQ 4	Vadakku Thalaiyuthu	3.6 Km, W	08°47'41.46"N 77°43'16.12"E
5	AAQ 5	Pathinalamperi	4.2 Km, NE	08°49'13.62"N 77°47'13.33"E
6	AAQ6	Aladipatti	3.6 Km, N	08°50'9.62"N 77°45'46.25"E

FIG 3.5 AMBIENT AIR MONITORING LOCATIONS



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

Table.3.4 Results of Air sampling Analysis in 6 locations

Station ID	Min	Max	Avg.
Particulate matter PM_{-2.5} (µg/m³)			
AAQ-1	23.8	29.6	26.8
AAQ-2	16.6	23.1	19.85
AAQ-3	20.7	26.5	21.95
AAQ-4	23.1	31.5	27.3
AAQ-5	21.3	25.8	23.55
AAQ-6	19.4	25.3	22.35
CPCB NAAQS 2009 for PM_{2.5} - 60 µg/m³			
Particulate matter PM₋₁₀ (µg/m³)			
AAQ-1	57.3	67.2	62.25
AAQ-2	36.1	49.9	43
AAQ-3	46.3	56.7	51.5
AAQ-4	49.2	67.1	58.5
AAQ-5	44.5	53.3	48.9
AAQ-6	42.5	55.7	49.1
CPCB NAAQS 2009 for PM₁₀ - 100 µg/m³			
Sulphur Di-oxide as SO₂ (µg/m³)			
AAQ-1	3.5	4.9	4.2
AAQ-2	3.1	5.6	4.35
AAQ-3	3.2	4.9	4.05
AAQ-4	5.5	10.4	7.95
AAQ-5	3.1	5.4	4.25
AAQ-6	3.1	4.4	3.75
CPCB NAAQS 2009 for SO₂ - 80 µg/m³			
Oxide of Nitrogen as NO₂ (µg/m³)			
AAQ-1	7.2	9.5	8.35
AAQ-2	6.2	8.5	7.35
AAQ-3	6.7	8.9	7.8
AAQ-4	8.1	12.7	10.4
AAQ-5	6.9	9.2	8.05
AAQ-6	7.1	8.7	7.9
CPCB NAAQS 2009 for NO₂ - 80 µg/m³			

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

FIG 3.6 AMBIENT AIR QUALITY DATA A1 - MINE LEASE AREA

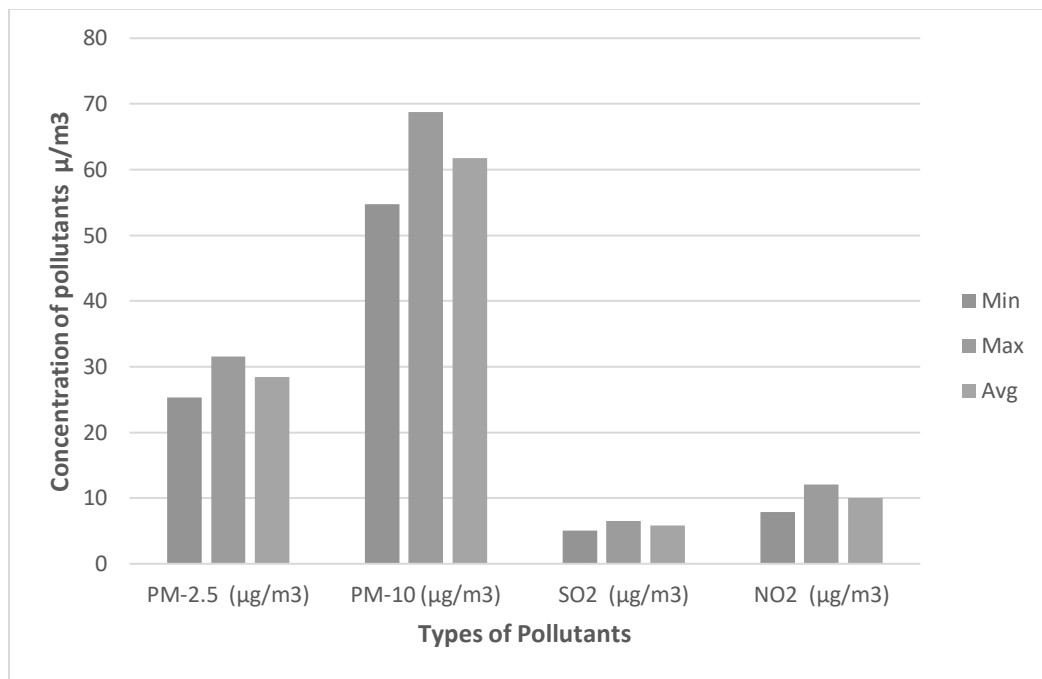


FIG 3.7 AMBIENT AIR QUALITY DATA A2 - RAJVIRAMPURAM VILLAGE

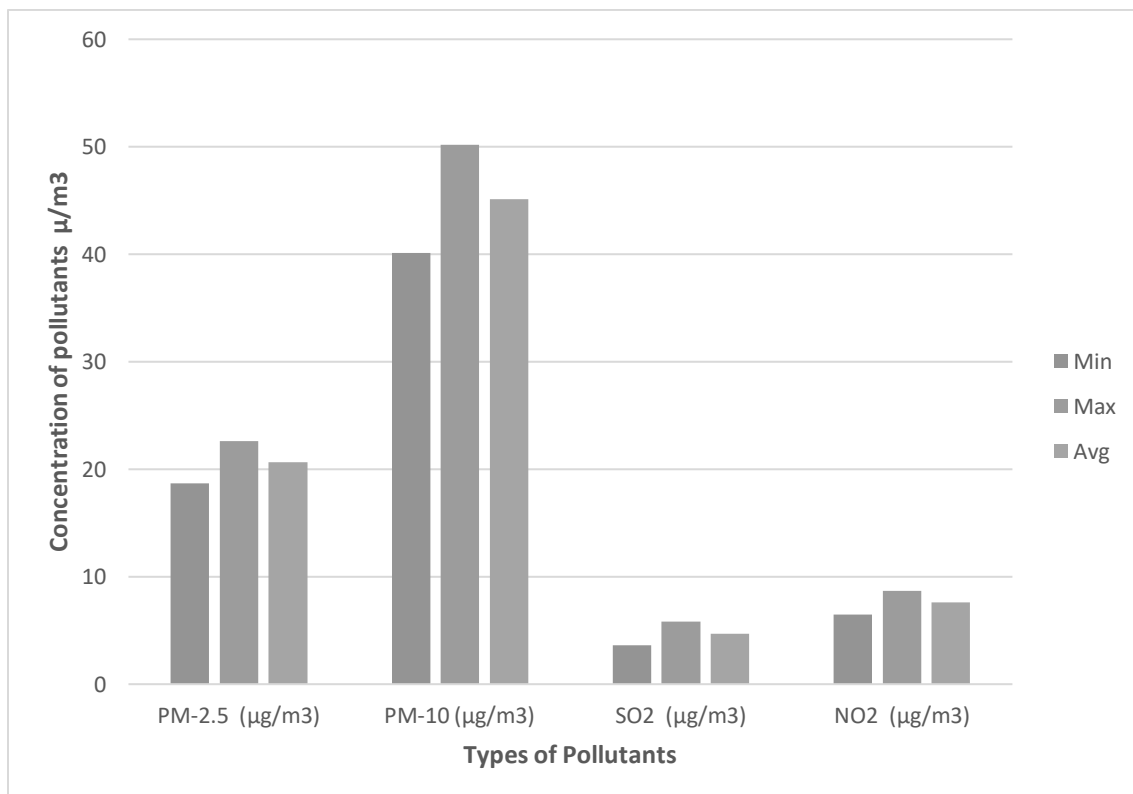


FIG 3.8 AMBIENT AIR QUALITY DATA A3 - ALANGARAPERI VILLAGE

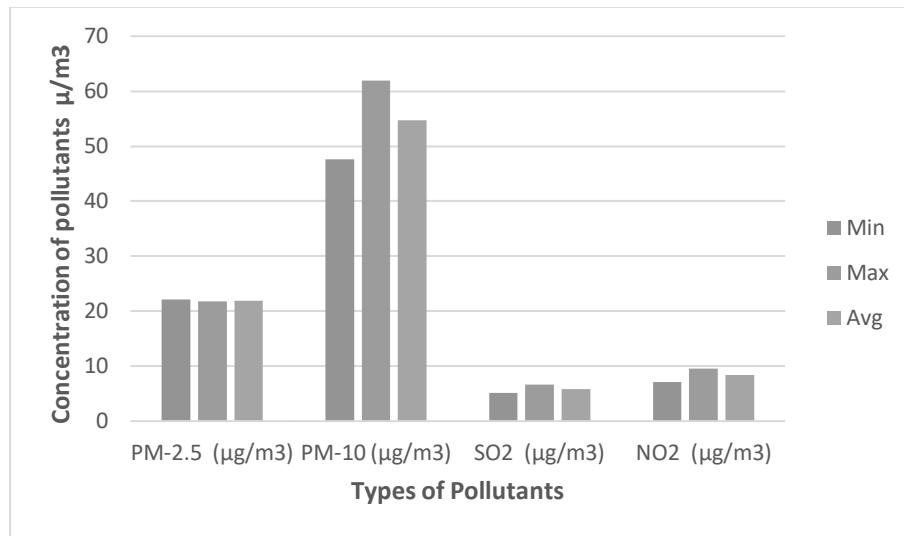


FIG 3.9 AMBIENT AIR QUALITY DATA A4 - VADAKKU THALAIYUTHU VILLAGE

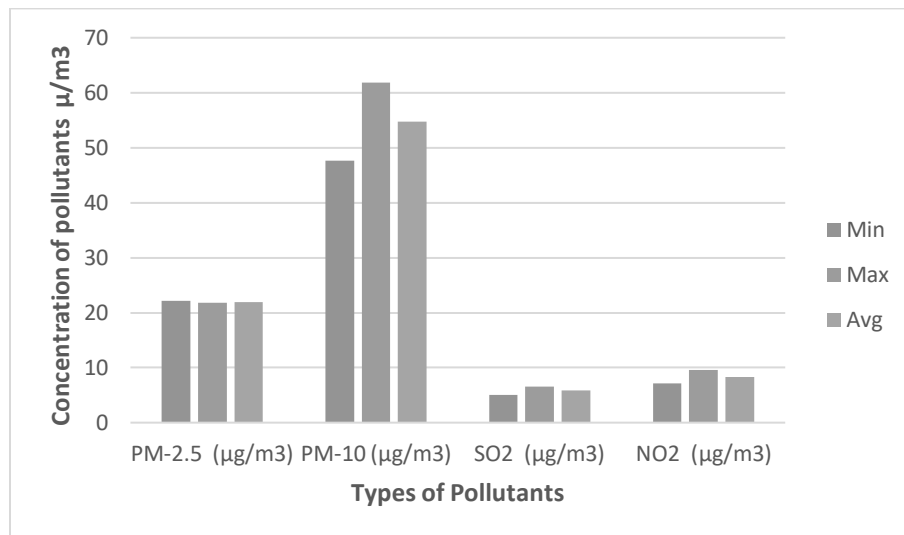


FIG 3.10 AMBIENT AIR QUALITY DATA A5 - PATHINALAMPERI VILLAGE

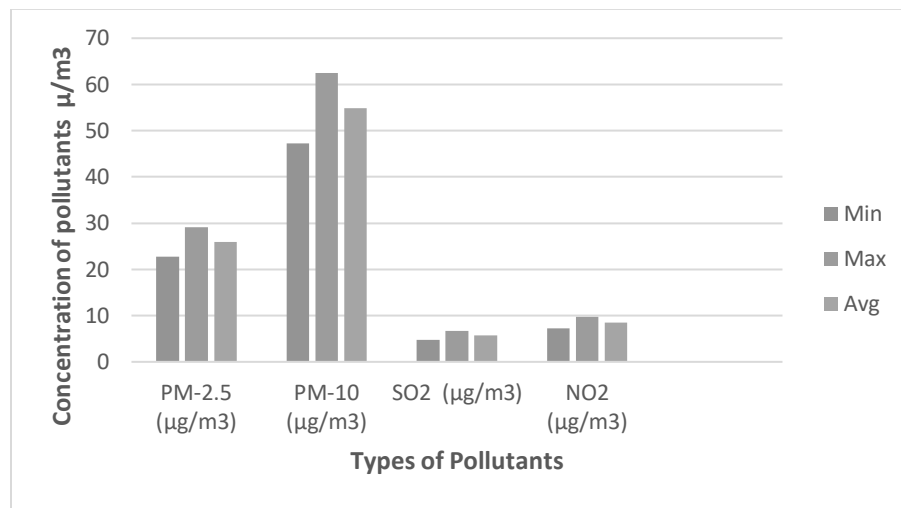
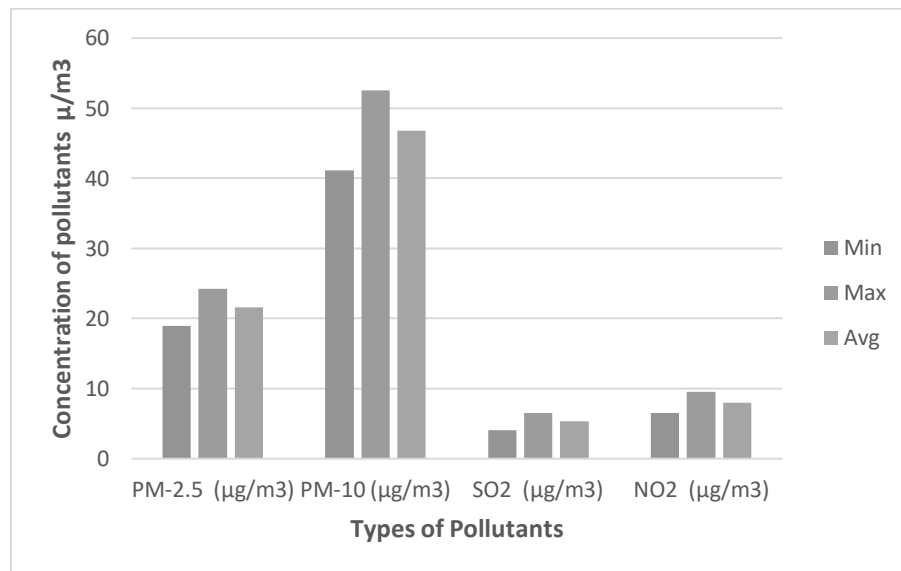


FIG 3.10 .a AMBIENT AIR QUALITY DATA A5 - ALADIPATTI VILLAGE



From the above results, it is observed that the ambient air quality with respect to PM₁₀, PM_{2.5}, SO₂, and NO₂ at all the monitoring locations was within the permissible limits specified by CPCB.

3.5. WATER ENVIRONMENT

Assessment of baseline data on water environment includes:

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

3.5.1 Surface Water

There is Thamirabarani River is located at a distance of 3.42 km in south direction of lease area. The Palamadai Pond is situated at a distance of 2.12 m in southeastern direction. The rainfall over the area is moderate, the rainwater storage in open wells, trenches is in practice over the area and the stored water acts as source of freshwater. The prevailing status of surface water quality has been assessed during the study period. Surface water quality locations and results are provided in Table 3-14 and Figure 3.11.

3.5.2 Ground Water

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

3.5.3 Sampling Locations

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

The monitoring locations were selected based on:

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

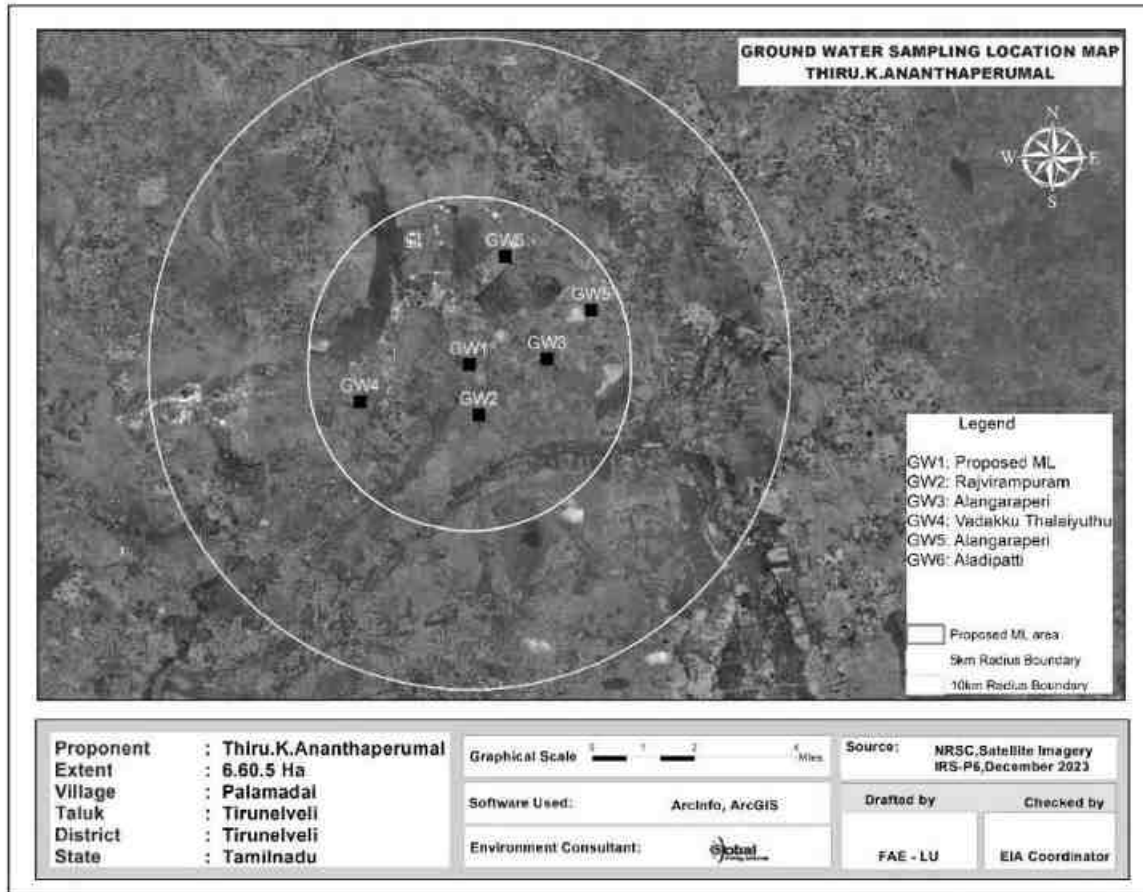
Water bodies nearby

Table 3.5 Water Sampling Locations

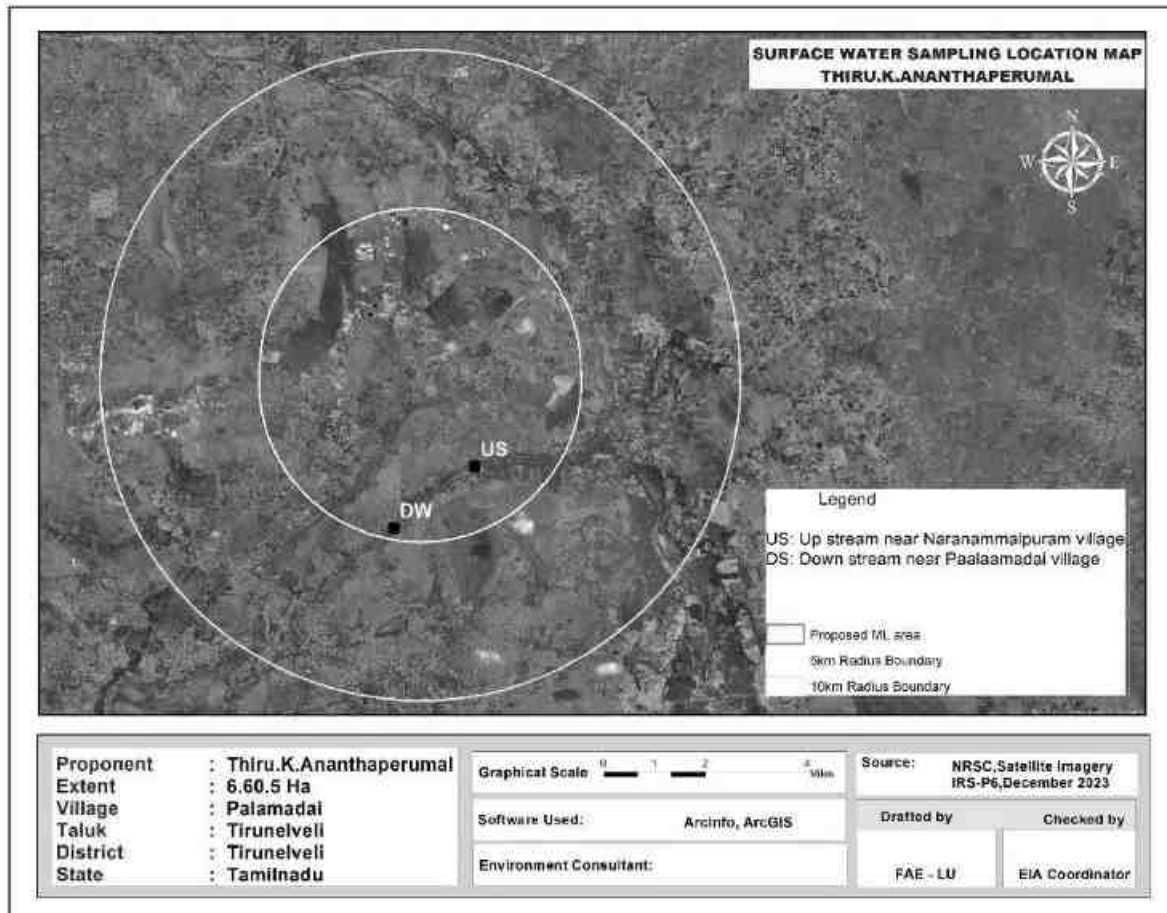
S.NO	Location Code	Monitoring Locations	Latitude and longitude
Surface Water			
1	SW1	Naranammalpuram village (Up- stream)	08°45'44.11"N 77°44'39.01"E
2	SW2	Paalaamadai village (Downstream)	08°46'53.2"N 77°46'10.34"E
Ground Water			
1	GW1	Project site	08°48'10.57"N 77°45'06.01"E
2	GW2	Rajvirampuram	08°47'26.42"N 77°45'17.36"E
3	GW3	Alangaraperi	08°48'28.3"N 77°4'28.1"E
4	GW4	Vadakku Thalaiyuthu	08°47'41.46"N 77°43'16.12"
5	GW5	Pathinalamperi	08°49'13.62"N 77°47'13.33"E
6	GW6	Aladipatti	08°50'9.62"N 77°45'46.25"E

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FIG 3.11 GROUND & SURFACE WATER SAMPLING LOCATIONS



DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU. K. ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A AND 415A/2A LOCATED AT VILLAGE - PALAMADAI, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.



DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU. K. ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A AND 415A/2A LOCATED AT VILLAGE - PALAMADAI, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

Table 3.6 Surface Water Analysis Results

Sr.No	Parameter	Unit	SW1	SW2	Surface water standards (IS 2296 Class-A)
1	Odour	-	Agreeable	Agreeable	-
2	Turbidity	NTU	<1.0	<1.0	1
3	pH at 25 °C	-	7.66	7.51	6.5-8.5
4	Electrical Conductivity	µs/cm	249.9	260.4	-
5	Total Dissolved Solids	mg/l	150	156	500
6	Total hardness as CaCO ₃	mg/l	79.2	81.2	-
7	Calcium as Ca	mg/l	18.2	19.0	300
8	Magnesium as Mg	mg/l	8.1	8.08	-
9	Calcium as CaCO ₃	mg/l	45.5	47.5	-
10	Magnesium as CaCO ₃	mg/l	33.7	33.7	-
11	Total alkalinity as CaCO ₃	mg/l	76.8	76.8	-
12	Chloride as Cl ⁻	mg/l	26.4	25.4	-
13	Free Residual chlorine as Cl ⁻	mg/l	BDL (D.L - 0.2)	BDL (D.L - 0.2)	250
14	Sulphates as SO ₄ ²⁻	mg/l	27.4	34.7	400
15	Iron as Fe	mg/l	0.07	0.06	1.0
16	Nitrate as NO ₃	mg/l	1.26	2.11	20
17	Fluoride as F	mg/l	0.18	0.32	1.5
18	Manganese as Mn	mg/l	BDL (D.L - 0.05)	BDL (D.L - 0.05)	0.5
19	COD	mg/l	BDL (D.L - 2.0)	BDL (D.L - 2.0)	
20	BOD	mg/l	BDL (D.L - 4.0)	BDL (D.L - 4.0)	
21	TSS	mg/l	BDL (D.L - 2.0)	BDL (D.L - 2.0)	
22	DO	mg/l	6.2	6.4	

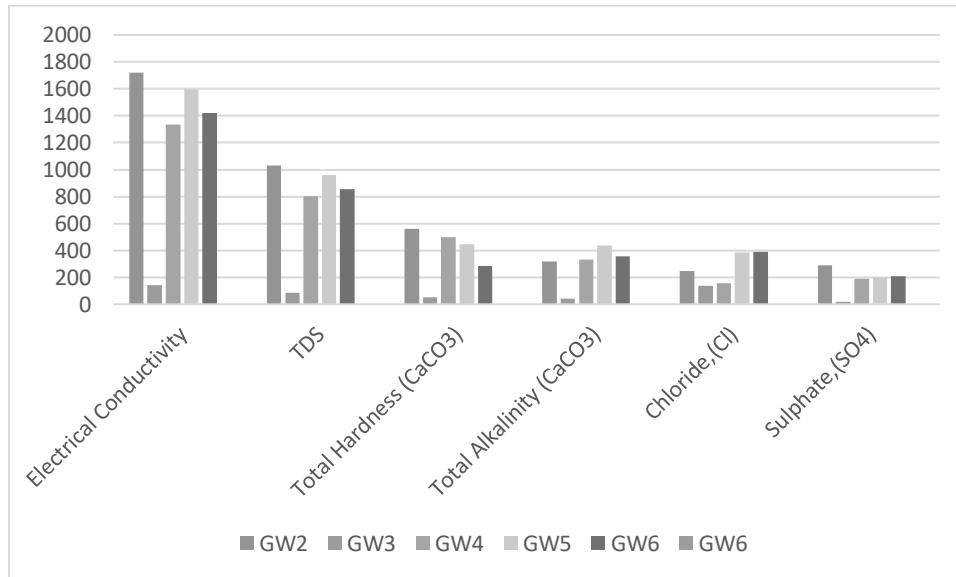
The samples were analyzed by Shrient Analytical & Research Labs Private Limited, Chennai and the results are summarized below.

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU. K. ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A AND 415A/2A LOCATED AT VILLAGE - PALAMADAI, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

Table 3.7 Results of Ground Water sampling Analysis in 6 locations									Specification/Limit (As per IS:10500: 2012)	
Sr · N o	Parameter	Test Paramet er	Unit	GW1	GW2	GW3	GW4	GW5	Desirabl e	Permissib le
1	Odour	-	AGREEABLE	AGREEABLE	Agreeable	AGREEABLE	AGREEABLE	AGREEABLE	Agreeabl e	Agreeable
2	Taste	NTU	<1	<1	<1.0	<1	<1	<1	Agreeabl e	Agreeable
3	pH	-	7.15	6.75	7.24	7.22	7.54	7.68	6.5 - 8.5	No Relaxation
4	Turbidity	µs/cm	1624	1720	144.1	1335	1597	1421	1	5
5	TDS	mg/l	975	1032	86.0	802	960	855	500	2000
6	Fluoride,(F)	mg/l	453	560	51.5	497	446	283	1	1.5
7	Total Alkalinity, (CaCO3)	mg/l	102	114	14.3	87.1	97.6	78.4	200	600
8	Total Hardness, (CaCO3)	mg/l	47.8	65.8	3.80	67.0	48.5	20.9	200	600
9	Calcium,(Ca)	mg/l	254	286	35.6	218	244	196	75	200
10	Calcium as CaCO3	mg/l	199	274	15.8	279	202	87.1		
11	Free Residual chlorine as Cl-	mg/l	452	316	40.4	333	439	356		
12	Chloride,(Cl)	mg/l	249	269	17.6	232	242	244	250	1000
13	Magnesium,(Mg)	mg/l	BDL (D.L - 0.2)	BDL (D.L - 0.2)	BDL (D.L - 0.2)	BDL (D.L - 0.2)	BDL (D.L - 0.2)	BDL (D.L - 0.2)	30	100
14	Nitrate, (NO3)	mg/l	201	290	20.1	190	198	209	45	No Relaxation
15	Sulphate, (SO4)	mg/l	0.09	0.05	BDL (D.L - 0.01)	0.08	0.06	0.04	200	400
16	Iron,(Fe)	mg/l	3.25	4.56	BDL (D.L - 1.0)	3.56	3.72	3.59	1	No Relaxation
17	Manganese, (Mn)	mg/l	0.32	0.51	BDL (D.L - 0.1)	0.49	0.41	0.57	0.1	0.3
18	Conductivity	mg/l	BDL (D.L - 0.05)	BDL (D.L - 0.05)	BDL (D.L - 0.05)	BDL (D.L - 0.05)	BDL (D.L - 0.05)	BDL (D.L - 0.05)	Not Specified	Not Specified

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

FIG 3.12 VALUES OF FEW COMMON PARAMETERS IN WATER ANALYSIS



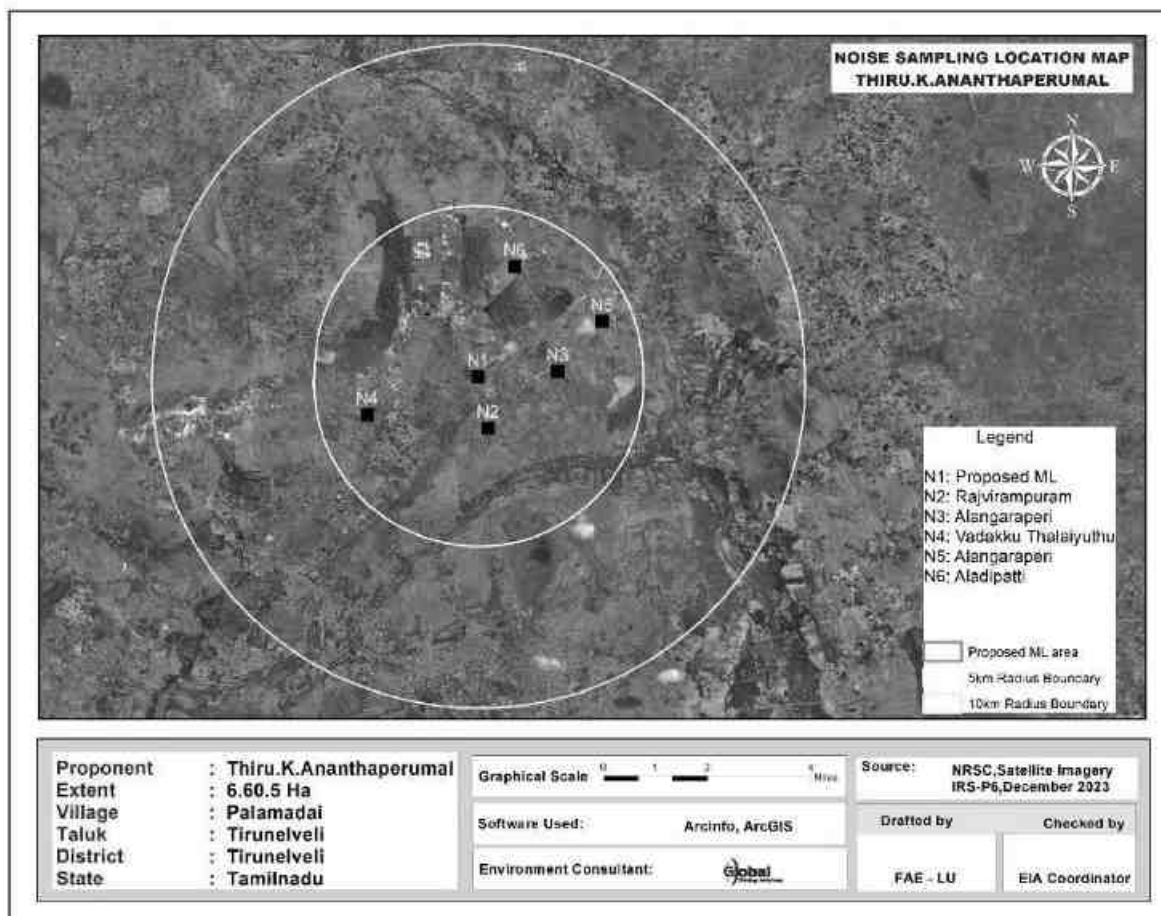
All the values were found to be within the permissible limits.

3.6. NOISE MONITORING

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

The noise monitoring locations are given in Fig 3.12

FIG 3.13 NOISE MONITORING LOCATIONS

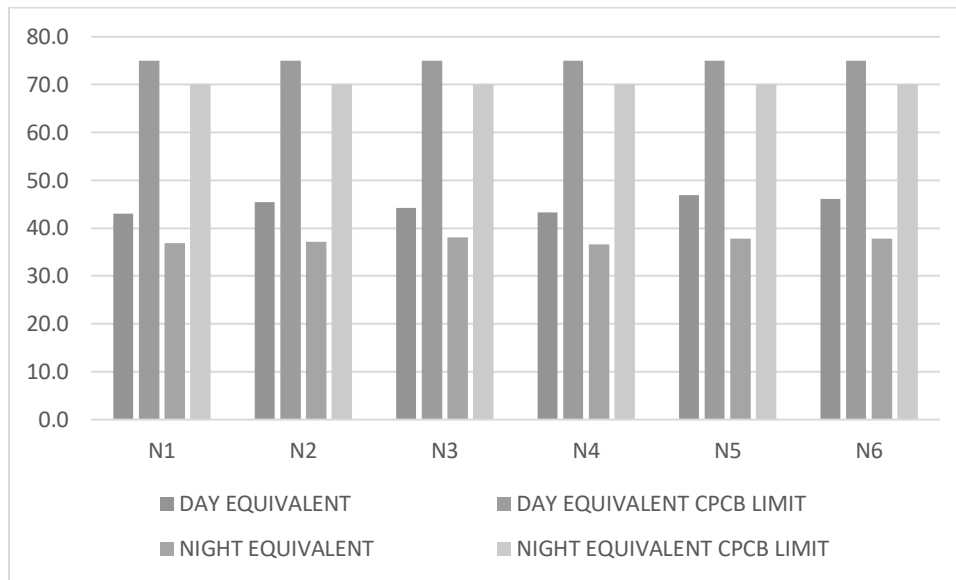


The results are given in Table below.

Table 3.8 Noise monitoring results					
S. No	Location	Day equivalent	Night equivalent	Day equivalent limits by CPCB	Night equivalent limits by CPCB
1	Project site	43.1	36.8	75	70
2	Rajvirampuram	45.5	37.2		
3	Alangaraperi	44.3	38.1		
4	Vadakku Thalaiyuthu	44.4	36.6		
5	Pathinalamperi	46.9	37.8		
6	Aladipatti	46.1	37.8		

The results are plotted as below.

FIG 3.14 DAY AND NIGHT EQUIVALENT VALUES IN 5 LOCATIONS



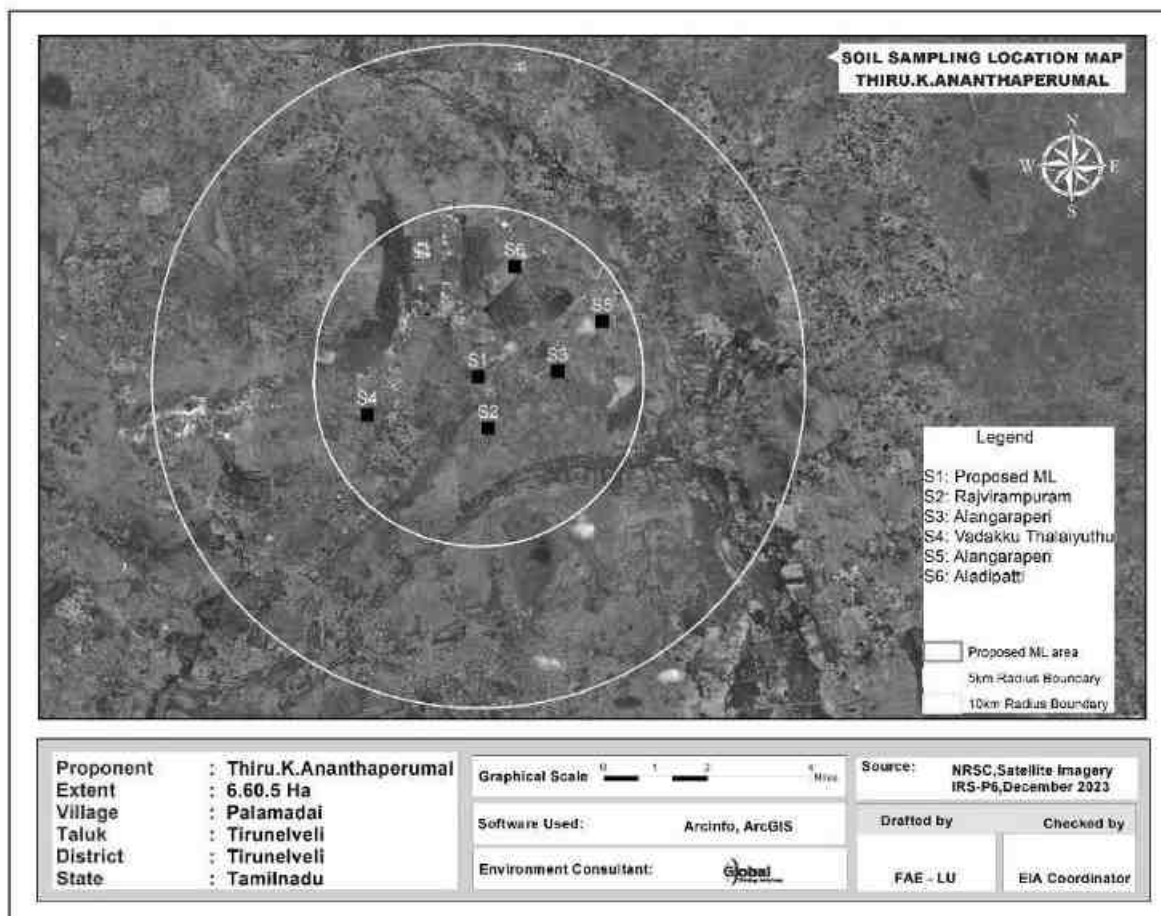
All the values are found to be within CPCB norms.

3.7. SOIL SAMPLING ANALYSIS

Soil samples have been collected from the mine lease area and 6 other locations from Rajvirampuram, Alangaraperi, Vadakku Thalaiyuthu, Pathinalamperi and Alandipatti Villages. The locations are shown in figure below.

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FIG 3.14 SOIL SAMPLING LOCATIONS



The results are summarized in the table below.

S. No	Parameter	Unit	S1	S2	S3	S4	S5	S6
1	pH at 25 °C	-	6.67	7.55	7.24	7.43	7.96	7.24
2	Electrical Conductivity	µmhos /cm	312.8	52.47	76.54	110.4	110.6	50.13
3	Dry matter content	%	98.94	94.32	97.93	95.41	98.44	92.81
4	Water Content	%	1.06	5.68	2.07	4.59	1.56	7.19
5	Organic Matter	%	0.94	1.72	1.62	2.14	1.21	0.76
6	Soil texture	-	LOAM	LOAM	CLAY LOAM	SILT LOAM	Sandy Clay loam	Clay loam
7	Grain Size Distribution	%	45.95	42.06	28.41	27.22	44.38	29.46

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU. K. ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A AND 415A/2A LOCATED AT VILLAGE - PALAMADAI, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

	Sand	i.							
8	Silt	ii	%	45.09	38.37	33.08	53.54	27.65	40.68
9	Clay	ii	%	8.97	19.57	38.51	19.24	27.97	29.86
10	Phosphorous as P		mg/kg	1.58	2.66	2.13	3.21	0.97	1.56
11	Sodium as Na		mg/kg	905	434	373	264	388	512
12	Potassium as K		mg/kg	775	642	507	527	632	723
13	Nitrogen and Nitrogenous Compounds		mg/kg	275	475	453	635	292	163
14	Total Soluble Sulphate		%	BDL(D.L .0.02)	BDL(D.L .0.02)	BDL(D.L .0.02)	BDL(D.L .0.02)	BDL(D.L .0.02)	BDL(D.L .0.02)
15	Porosity		%	23.6	25.4	27.1	22.2	20.9	22.7
16	Water Holding Capacity		Inches /foot	3.5	3.6	3.1	3.7	3.5	3.2

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:

Core Zone

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

Table 3.10 Flora in Core Zone

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

Buffer zone

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

Table 3.11 Flora in Buffer zone

S.No.	Scientific name	Vernacular/English name	Type of flora
1	Azadirachta indica	Neem	Trees
2	Carica papaya	Papaya	
3	Mangifera indica	Mango	
4	Acacia leucophloea	Velamaram	
5	Acacia nilotica	Karu- velamaram	
6	Moringa oleifera	Murungai	
7	Tamarindus indica	Puli	
8	Tectona grandis	Theku	
9	Manilkara zapota	Sappota	
10	Musa paradisiaca	Valzhlai	
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	
21	Acalypha indica	Kuppaimeni	Climbers
22	Coccinia grandis	Kovai	
23	Cissus quadrangularis	Pirandai	
24	Jasminum angustifolium	malli	
25	Ziziphus oenopia	Ilandai	Grasses
26	Cymbopogon	Kanam	

27	Cyperus rotundus	Kora grass	
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.

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

3.9. LAND USE

Remote Sensing Satellite Data Used for the Study

For Land-use and land cover study, sensing satellite data of Geo EYE has been used as per **Figure No. 1**. A land use map showing 10 Km radial distance. The geographical coordinates of the project is Latitude 08°48'10.57"N to 08°48'27.47"N and Longitude 77°45'06.01"E to 77°45'11.28"E.

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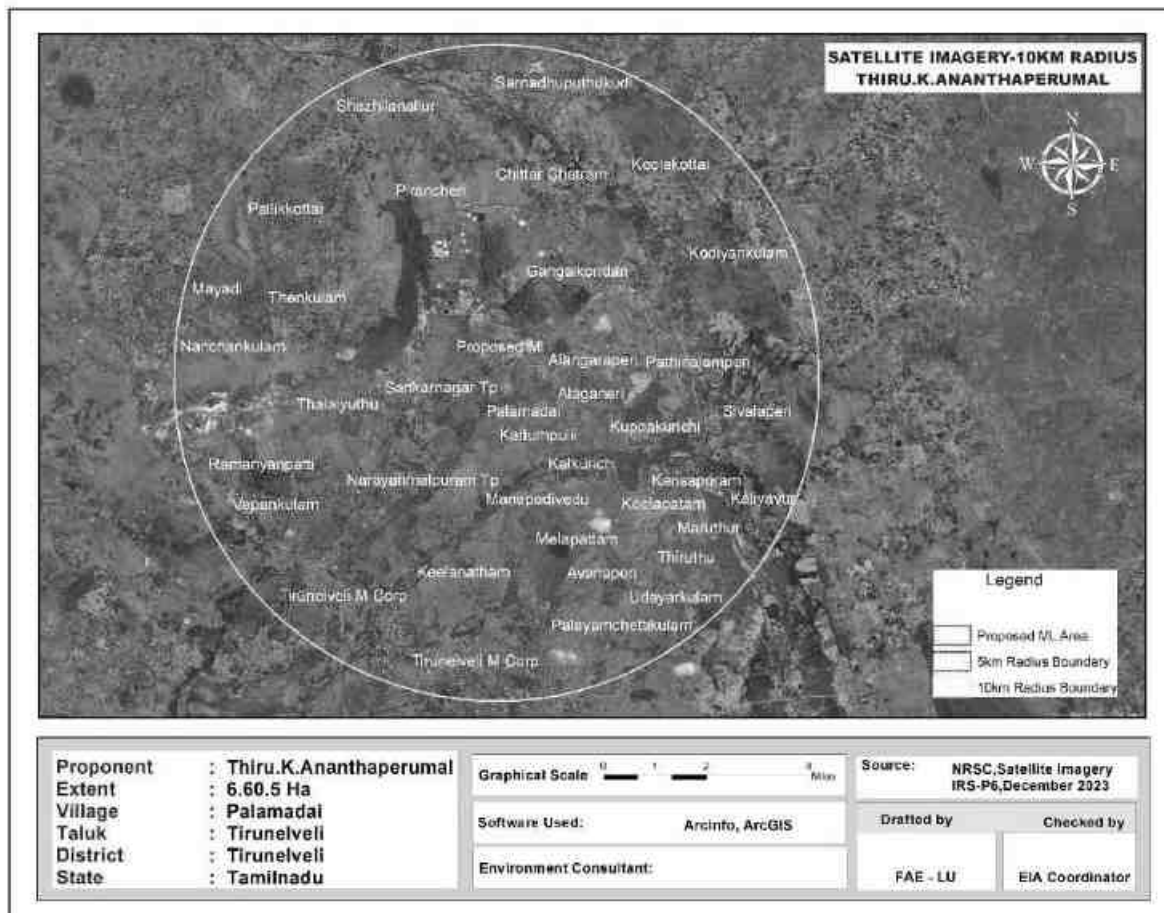


Figure No. 3.16: Remote Sensing Satellite Image

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

Delineation of scrub land is also possible since land with scrub could be easily distinguished from crop vegetation and separated. This may be an arduous task during monsoon since the entire area would be witnessed with sudden sprout of lush

natural vegetation, mostly *prosopis*, with first onset of precipitation.

Methodology Adopted for the Land Use Study

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

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

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

Using the image elements such as color, tone, texture, size, shape and associated elements various landuse units are delineated following the categorization and nomenclature adopted for the national level landuse classification system as recommended by National Remote Sensing Centre (NRSC), Department of Space, Government of India. Some of the landuse units that are identified in the study area are listed in **Table No. 1** given below.

Field Verification:

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

for ground verification. In addition to these, traverse routes were planned with reference to SOI topographical maps to verify interpreted LU/LC classes in such a manner that all the different classes are covered by at least 5 sampling areas, evenly distributed in the area. Ground truth details involving LU/LC classes and other ancillary information about crop growth stage, exposed soils, landform, nature and type of land degradation are recorded and the different land use classes are taken the Land use map.

Table No.3.14: Major Landuse Units of the Study Area

Sr. No.	1ST LEVEL CLASSIFICATION	2ND LEVEL CLASSIFICATION
1	Built-Up Or Habitation	Residential
		Commercial / Industrial
2	Agriculture	Crop / Fallow Land
		Plantation
3	Water Bodies	Reservoir / Lake / Pond
		River
4	Vegetation Cover	Scrub
		Open Vegetation
		Close Vegetation
		Mangroves
5	Waste Land	Open Without Scrub
		Open With Scrub
6	Others	Mudflow
		Salt Pan
		Brick Manufacturing

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

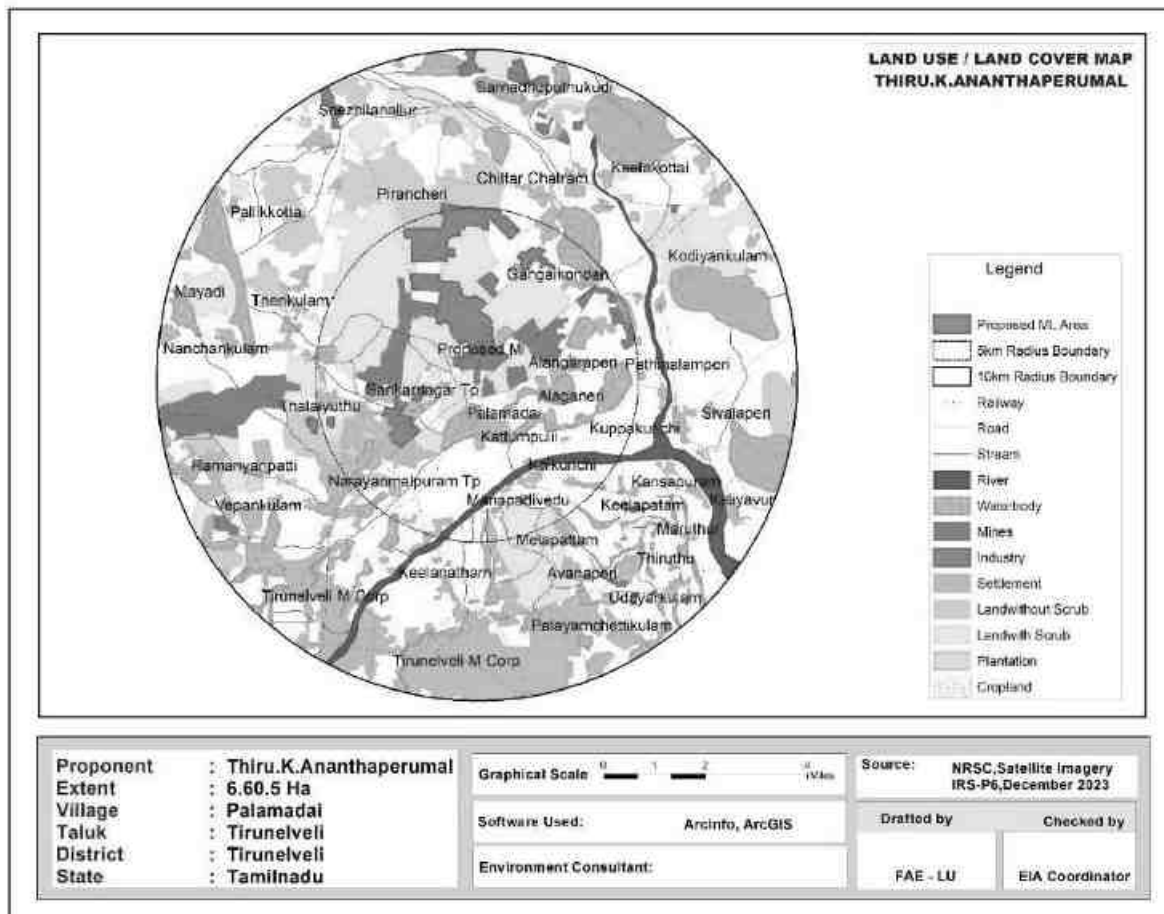
The existing land use pattern and land cover distribution of the whole acquired block, have been studied from the satellite imagery and subsequent ground checking during the field surveys.

It mainly comprises of agricultural land with bi-annual crops of Kharif (Kharif: Jowar, Bajra, Cotton, etc. Season: July to October) and Rabi (Rabi: Wheat, Rai etc. Season: December to March). The presence of the agricultural land is followed by few dense

settlements Namakkal M village natural or man-made pond etc. The shortage of rainfall, availability of ground water at deeper level and other climatic condition do not support good agricultural productivity inspite of having enough land. There is no demarcated forest land within the study area, however, some scattered forest is found throughout the 10 km radius, especially along the periphery of the villages.

The general landuse pattern of the core and buffer may be broadly classified into four major types – Buildup or habitation, Agriculture, Water Bodies, Waste land and Other categories. Under buildup or habitation category covered villages, town and infrastructure. Under agriculture category considered crop land/fallow land and plantation. Under the water body categories Reservoir/ lake, pond, River and stream. Under wasteland category considered landwith scrub and land without scrub is interpreted. Lastly other category's covered Mines area and forest are interpreted under this category. These categories are delineated from the selected satellite image using image elements such as color, tone, texture, size, shape and associated elements. The delineated landuse units are transformed into a spatial database in GIS environment. The map thus generated in GIS as shown in **Figure No. 2** is estimated for area and representation of each category in the study area. The total area of LULC in the study area is calculated as **326** sq. km and spatial distribution of various LULC categories within buffer area are discussed below. The 5km and 10km radius landuse map is shown above. The details are given below.

FIG 3.17 LAND USE/LAND COVER MAP OF THE STUDY AREA



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

Built-up / Settlements

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

Interpretation of settlement from the satellite image is based upon the image elements such as color, tone, texture and association. It is delineated by their typical

red color. Association with linear features such as roads reaffirmed the presence of delineation of settlements. The spatial extent of settlement is estimated as 48.38 sq. km representing 14.84 % of the study area and Industrial + Commercial area covers 9.47 sq. km with 2.9%.

Agricultural Land

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

Crop and Fallow land are interpreted using their image elements such as light to green, smooth to medium tone, they are the second most predominant landuse category delineated in the buffer area. As explained earlier, cultivation mostly depends upon river, canal and rainfall and majority of the land parcels are tilled and ready for cultivation with even a scanty Canal. Hence, cropland is the predominant category estimated at 144.5 Sq.km representing 44.33 % of the buffer area, plantation area covers 0.71 sq km with 0.22 %.

Wasteland

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

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

land with scrub an area of 46.71 sq.km representing 14.33 % of the total core and buffer area.

Land without scrub, on the other hand is interpreted using brown to white color, medium tone and medium texture and is generally restricted around land covered with scrub and fallow land. They occur as small patches and very minimal area covering 18.44 sq.km representing 5.66 % of the buffer area.

Water bodies

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

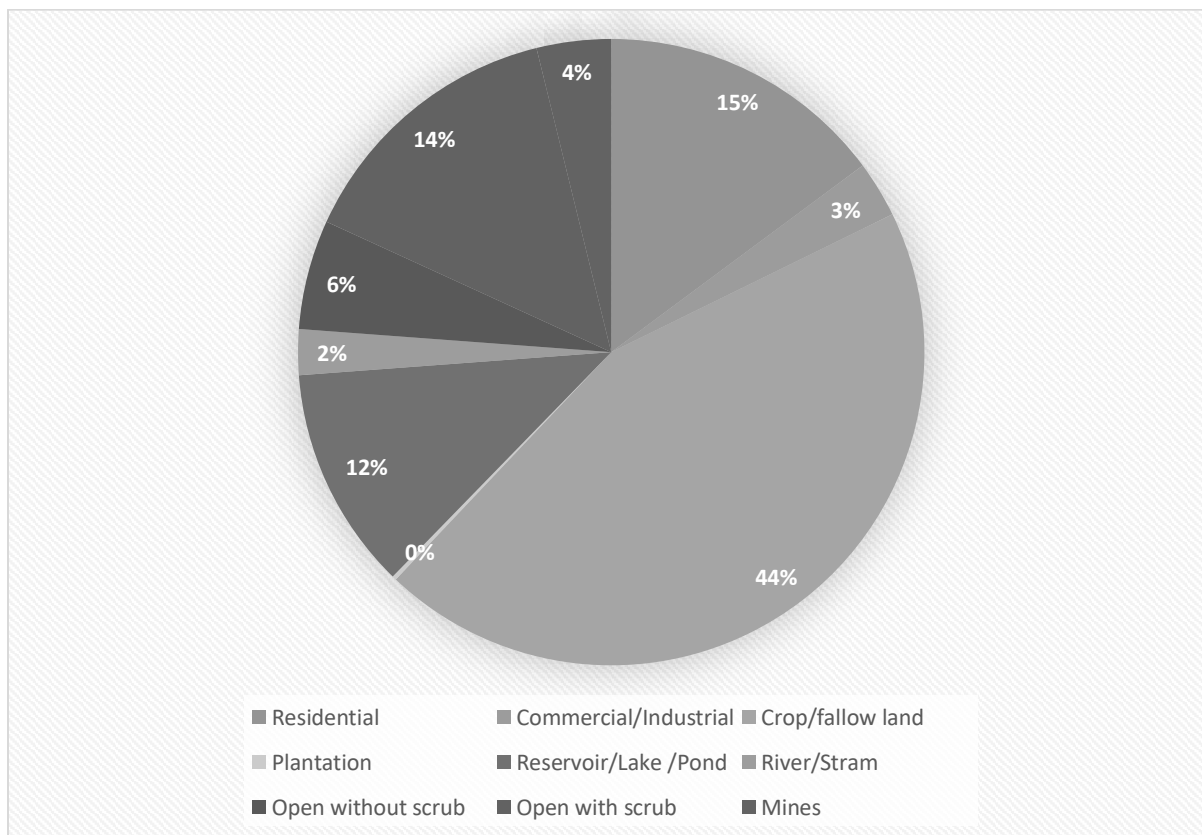
Most of the water bodies retain water for a shorter period after precipitation due to the soil constraint and hence go dry soon. Spatial extent of rivers, stream and water bodies is estimated at 45.28 sq.km and 13.89 %.

Mining area

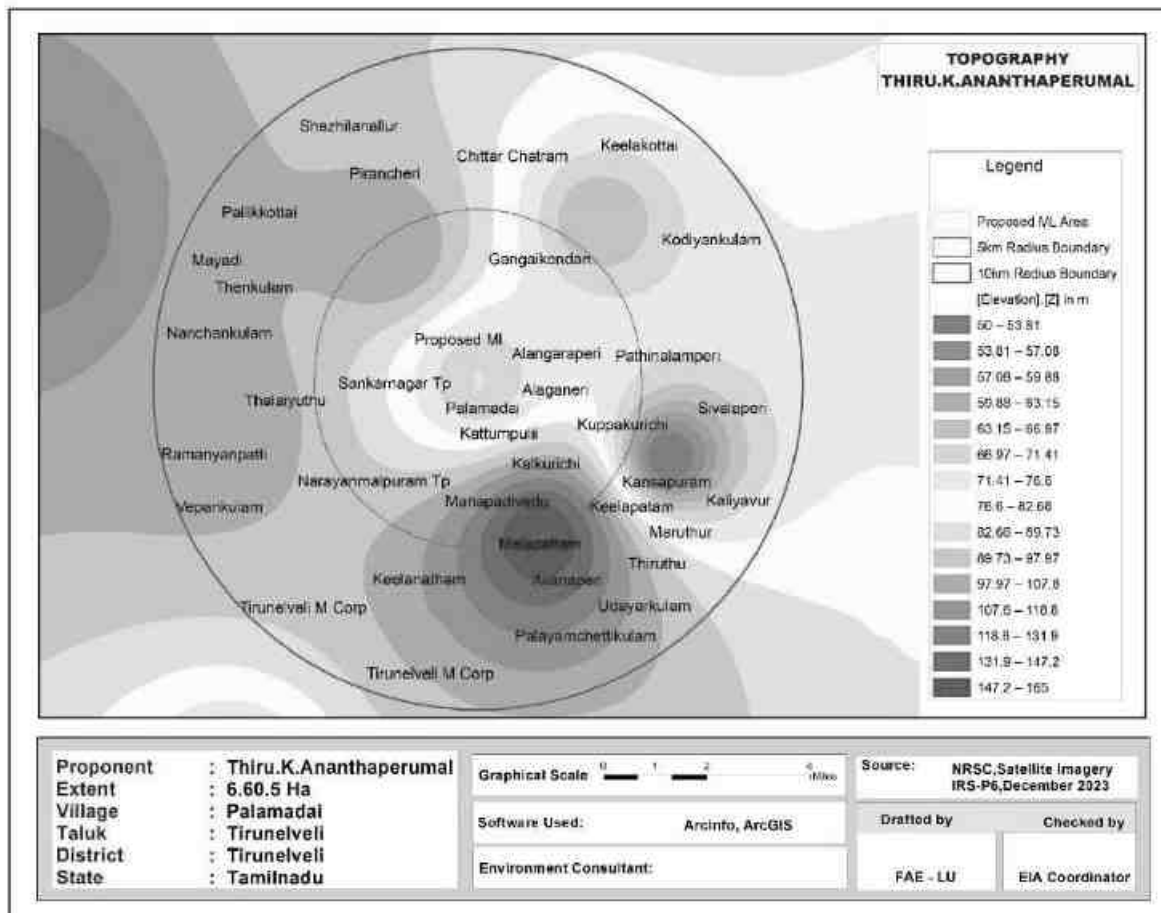
Mining is seen in the study area distributed all over the study area. Major domestic income from mining business. Spatial extent of mining is estimated at 12.51 sq.km and 3.84 %.

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

S. No	1st Level Classification	Area in (sq.km)	Percentage (%)	2nd Level Classification	Area in (sq.km)	Percentage (%)
1	Built-up or habitation	57.85	17.75	Residential	48.38	14.84
				Commercial/Industrial	9.47	2.90
2	Agriculture	145.21	44.54	Crop/fallow land	144.5	44.33
				Plantation	0.71	0.22
3	Water bodies	45.28	13.89	Reservoir/Lake /Pond	37.60	11.53
				River/Stram	7.68	2.36
4	Waste Land	65.15	19.98	Open without scrub	18.44	5.66
				Open with scrub	46.71	14.33
5	Others	12.51	3.84	Mines	12.51	3.84
Total		326	100		326	100



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3.11 SOCIOECONOMIC ENVIRONMENT

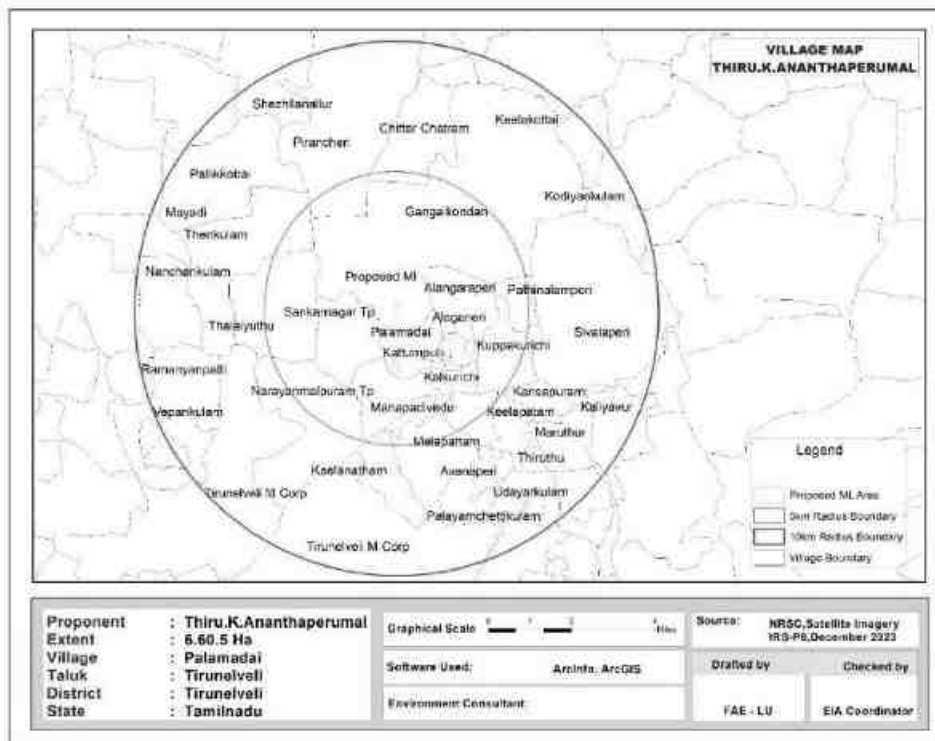
The socio economic environment of the study area is studied by conducting primary sites through site visits and conducting sample surveys. The secondary data obtained from Census 2011 is also used. The following data area collected from secondary data:

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

3.11.1 DETAILS OF VILLAGES

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

FIG 3.18 VILLAGE MAP OF THE STUDY AREA



DETAILS OF VILLAGES

The project is located in Sendamangalam Taluk, Namakkal District. The total population is 567825 which comprise of 280347 males and 287478 females. There are 29 rural villages and one urban area in the study area. List of villages are given below.

S.No.	Village/Town Name	Radius	Taluk Name	District
1	Gangaikondan	1-5km	Tirunelveli	Tirunelveli
2	Alaganeri			
3	Palamadai			
4	Kalk3urichi			
5	Kuppakurichi			
6	Pirancheri			
7	Thenkulam			
8	Chittar Chatram			
9	Thirumalaikolunthupuram			
10	Alangaraperi			
11	Tirunelveli M Corp			
12	Udayaneri	6-10km	Tirunelveli	
13	Kattalai Udayaneri			
14	Tirunelveli M Corp			
15	Naranammalpuram Tp			

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16	Rajavallipuram		Manur	
17	Pallikkottai			
18	Mavadi			
19	Thalaiyuthu			
20	Nanchankulam			
21	Kansapuram			
22	Keelapattam		Palayamkottai	
23	Melapattam			
24	Maruthur			
25	Keelanatham			
26	Thiruthu			
27	Naduvakurichi			
28	Palayamchettikulam			
29	Udayarkulam			

Table 3.16 Population profile of the study area		
Particulars	No of Population	Percentage (%)
A. Population break-up by Gender		
Male Population	280347	49.37
Female Population	287478	50.63
Total	567825	100
B. Population break-up by Caste		
Scheduled Caste	88401	15.57
Scheduled Tribes	1509	0.27
Others	477915	84.17
Total	567825	100
C. Literacy Level		
Male Literate Population	234992	41
Female Literate Population	218866	39
Male Illiterate	45355	8
Female Illiterate	68612	12
Total	567825	100
D. Occupational structure		
Main workers	202425	
Marginal workers	21032	
Total Workers	223457	39
Total Non-workers	344368	61
Total	567825	100

Among the total population 0.27 % belong to Scheduled Tribes, 15.57 % are Scheduled Caste and the balance 84.17 % people belong to other castes. Among the total population, 80 % of the people are literate. Among the total population, 8% are literate males and 12% are literate females. This shows that the male literates are higher than the female literates. The results are plotted in figures below.

FIG 3.19 GENDER-WISE POPULATION DISTRIBUTION

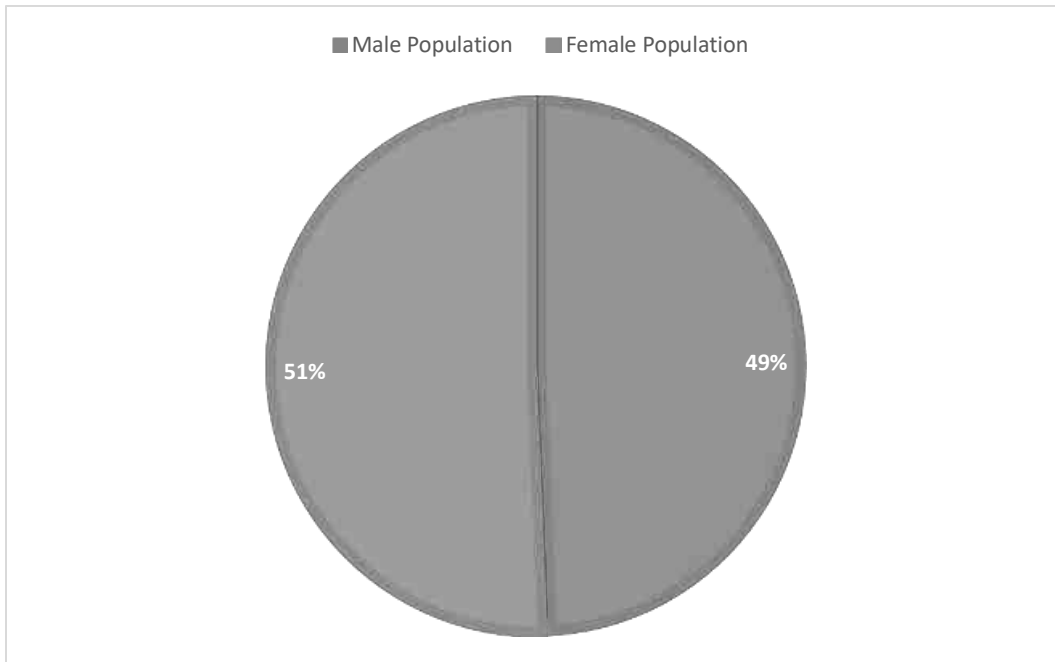


FIG 3.20 GENDER WISE LITERACY DISTRIBUTION

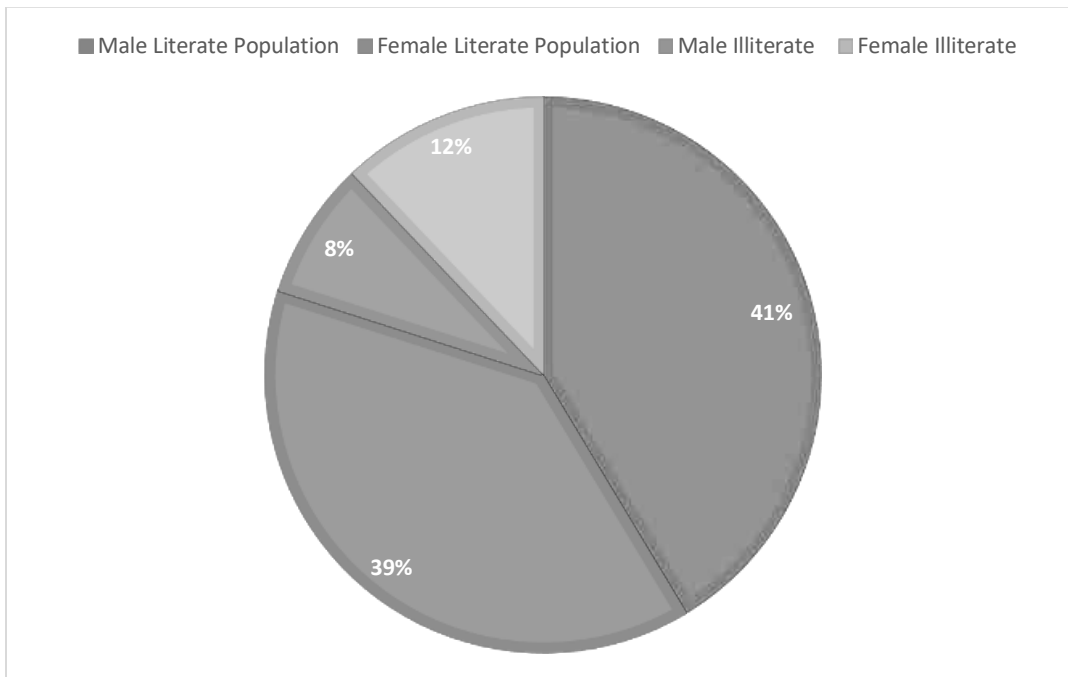
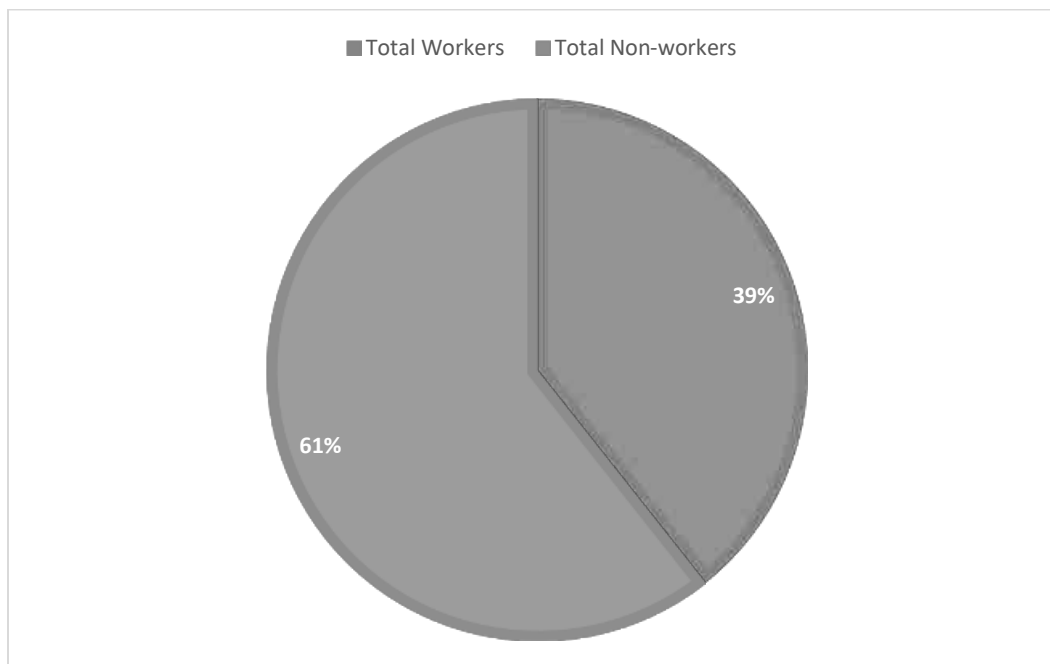


FIG 3.21 OCCUPATIONAL STRUCTURE WITHIN BUFFER ZONE



Infrastructure facilities in the study area

Education

Table 3.16 Educational infrastructure		
S. No.	Particulars	Available in village(Nos)
1	Govt. Primary School	Tirunelveli -20
2	Govt. Middle School	20
3	Govt. Secondary School	15
4	Govt. Senior Secondary School	8
5	Govt. Arts and Science Degree College	39
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 20 rural villages. Among them 15 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.

S.No.	Particulars	Available in village (Nos)
1	Community Health Centre	3
2	Primary Health Centre	2
3	Primary Health Sub Centre	12
4	Maternity And Child Welfare Centre	10
5	TB Clinic	4
6	Hospital Allopathic	0

Other Infrastructure

The other infrastructure facilities available are given below.

S.No.	Particulars	Available in village
1	Tap Water-Treated	25
2	Covered Well	8
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 Gangaikondan , Thathanuthu Avanapperi, 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 Thathanuthu. 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 Thathanuthu which is about 3.28 km from the lease

area. Major schools with higher secondary and senior secondary schools are located in Thathanuthu. The major Thathanuthu Union located in the area is Tirunelveli. Facilities like petrol pump stations, ATM facility are available in Thathanuthu

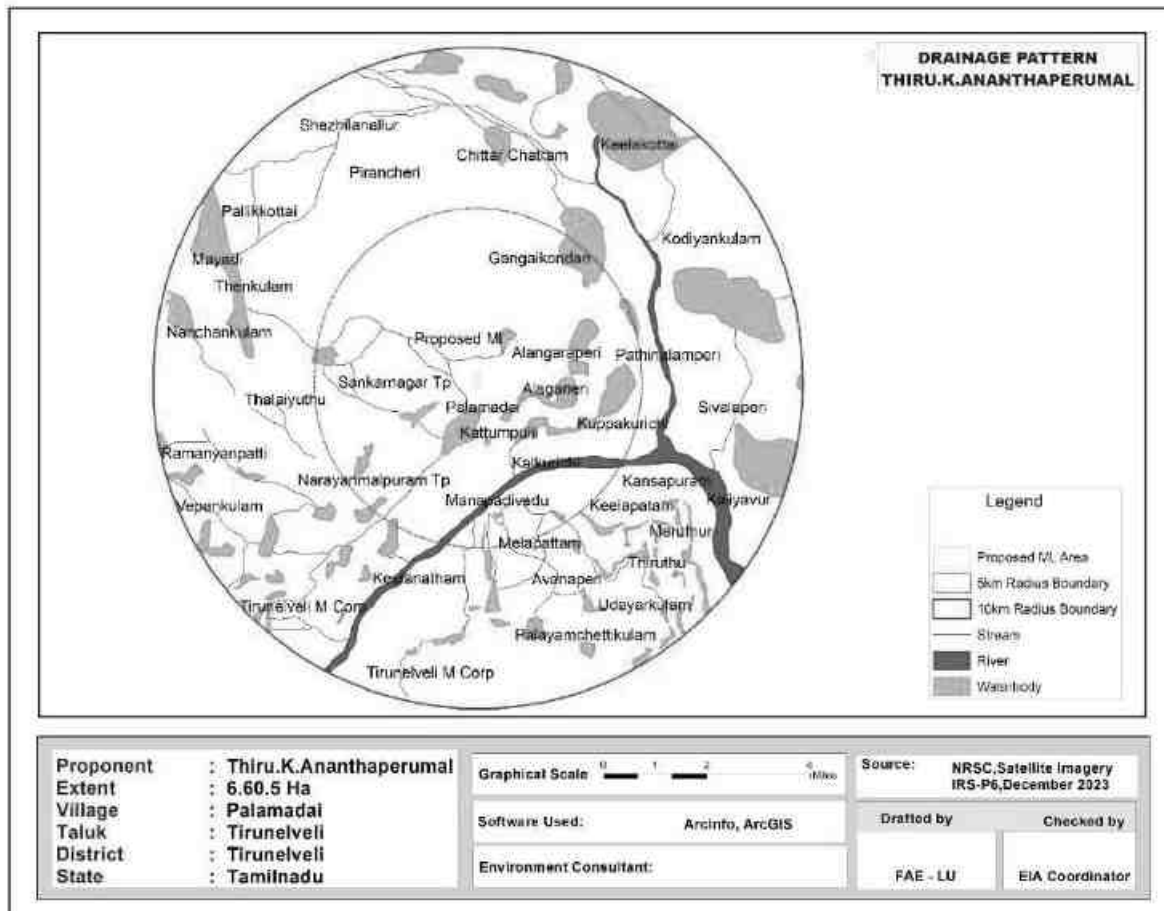
3.12 HYDROGEOLOGY OF THE STUDY AREA

Since there is Thamirabarani river is located at a distance of 3.42 km in south side of the proposed site, the hydrological and hydrogeological pattern of the study area is studied in detail using satellite imagery.

3.12.1 HYDROGEOLOGICAL STUDY

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

FIGURE 3. 22 10 KILOMETER RADIUS OF THE DRAINAGE MAP



3.12.2 PHYSIOGRAPHY AND DRAINAGE

Physiography: The area applied for quarry lease is exhibits hilly terrain topography covered by rough stone formation. The massive Charnockite formation is clearly visible right from the surface and gentle towards Southwestern side of the area, the altitude of the area is above 125m (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 Thamirabarani river is located at a distance of 3.42 km in south side of the proposed site.

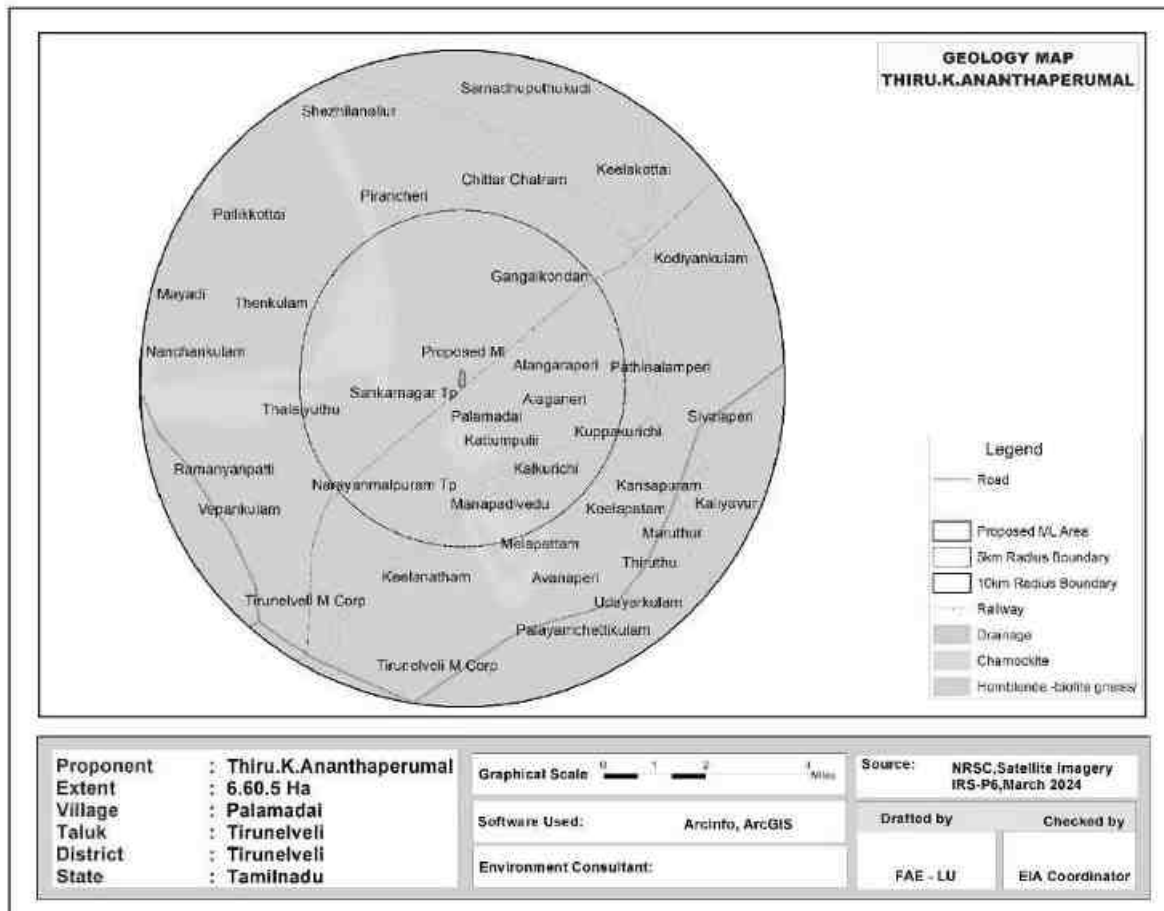
3.12.3 GEOLOGY, GEOMORPHOLOGY AND SOIL

Geology:

The Core and 10 Km buffered zone geological features (Figure 3.21) shows that the Namakkal District is mostly underlain by the Achaean crystalline and metamorphic complex. The geology of the district is complicated due to recurring tectonic and magmatic activities occurred during Pre-Cambrian period. The famous Sittampundi Anorthosite Complex which is known for its complex geology and occurrences of Platinum Group of Elements is situated in this district. Hornblende Biotite Gneisses are the oldest rocks in four taluks of the district. It is very fissile and present widely in plains.

The gneisses are highly weathered upto 30 m at some places. The Charnockites are coarse grained, massive and foliated at places and their colour is bluish dark to grey. They are the second largest rock type present in the district. They are massive and less weathered than the gneisses. They exhibit 2 to 3 distinct set of joints and most of them are vertical with steep dips. Iron ore deposits associated with quartz feldspathic gneiss and garnetiferous quartz gneisses are present in some areas. These rocks are highly folded and jointed and less weathered. Quartzite and crystalline limestone are exposed in patches in north and central parts of the district. The thickness of these bands varies from a few meters to ten meters and the length extends to few kilometers. Numerous lenses of dunite with magnesite veins of various dimensions are exposed within gneiss. There are number of basic dykes present in the study area. Granites are found in some parts of the district. They are massive and jointed poorly. Thin veneer of alluvium is found along the course of the Cauvery and Thirumanimuthar. However, alluvium of few metres thickness is found near the junction of river Thirumanimuthar and river Cauvery. Several faults and shears are occurring mostly with north east-southwest trend. They are expected to influence the course of groundwater movement, its storage and developmental potentials in the district

FIGURE 3. 23 10 KILOMETER RADIUS OF THE GEOLOGY MAP

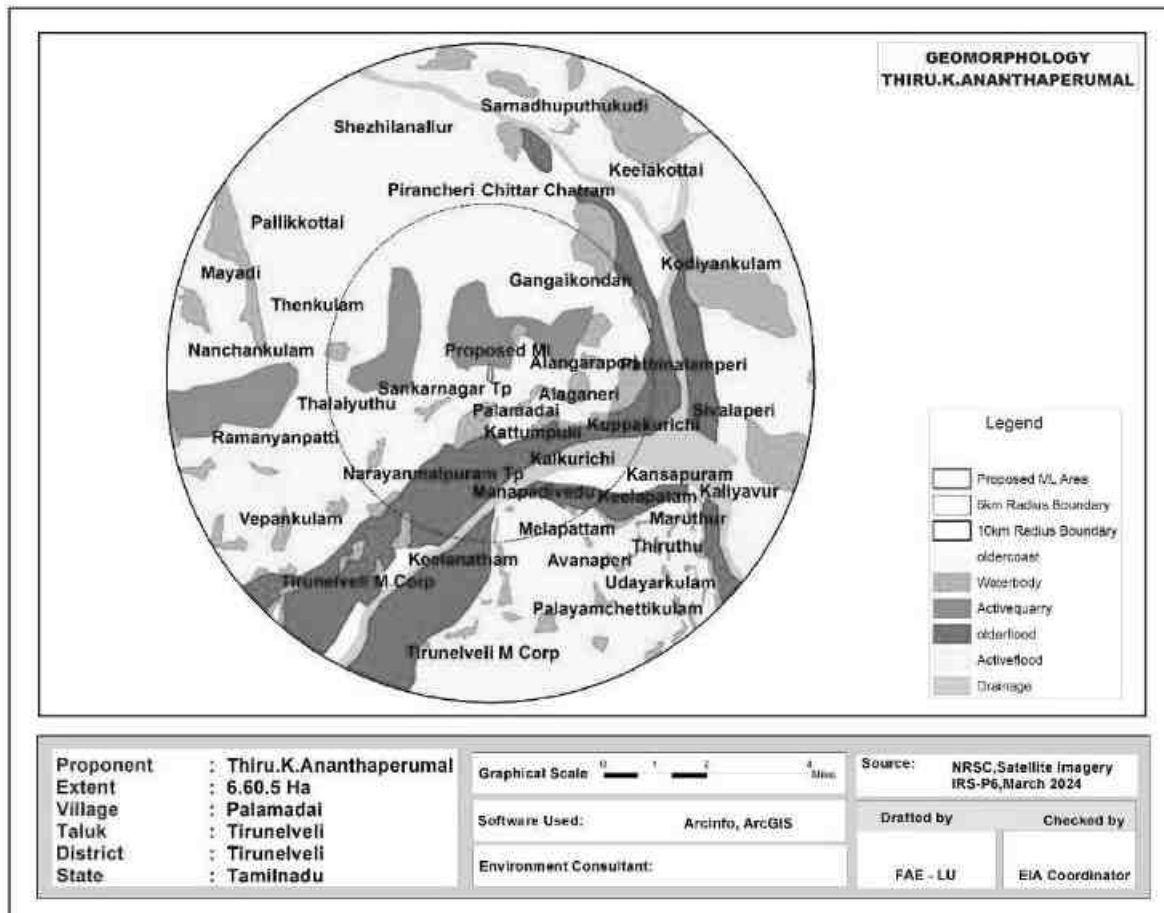


Geomorphology: The Core and 10 Km buffered zone geomorphological features (Figure 3.22) shows that the Namakkal district forms part of the upland plateau region of Tamil Nadu with many hill ranges, hillocks and undulating terrain with a gentle slope towards east. The prominent geomorphic units identified in the district through interpretation of Satellite imagery are 1) Structural hills, 2) Bazada zone, 3) Valleyfill, 4) Pediments, 5) Shallow Pediments and (6) Deep Pediments. A number of hill ranges are located in the eastern and north-eastern parts of the district, whereas the southern, western and northern parts of the district are plain to undulating, dotted with a few isolated hillocks. The important hill ranges in the district are Kollimalai Agasthyamala(1509 m), Aduppukkai Mottai (526 m) Aintalai Podigai (241

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m), Karimalai Kadakal. (656 m), Nāga Podigai (219 m), Nuraltodia Bluff Rock (171 m), Mānametti Malai (316 m), Manjanam Pārai (253 m) range.

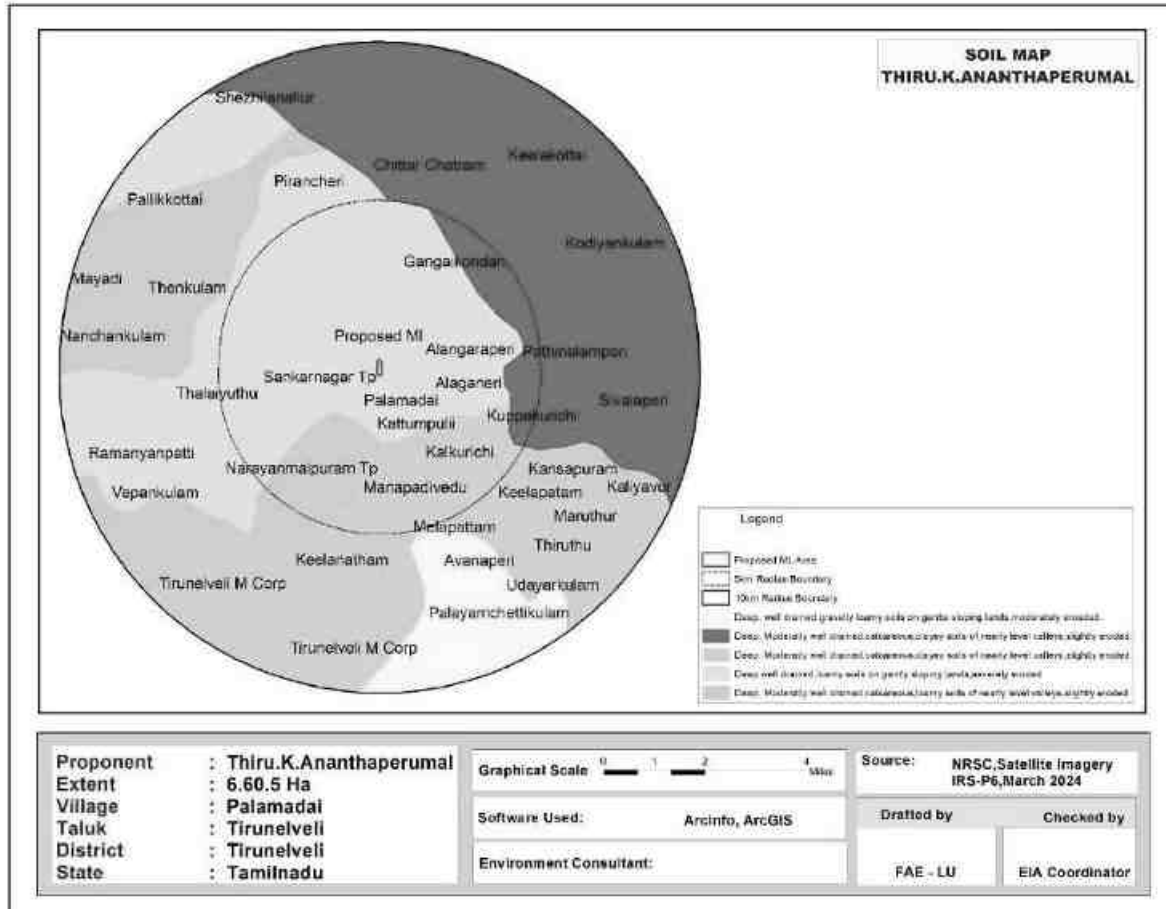
FIGURE 3. 24 10 KM RADIUS OF THE STUDY AREA GEOMORPHOLOGY MAP



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).

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FIGURE 3.25 10 KM RADIUS OF THE STUDY AREA SOIL TYPE MAP



3.12.4 BELOW GROUND LEVEL (BGL)

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

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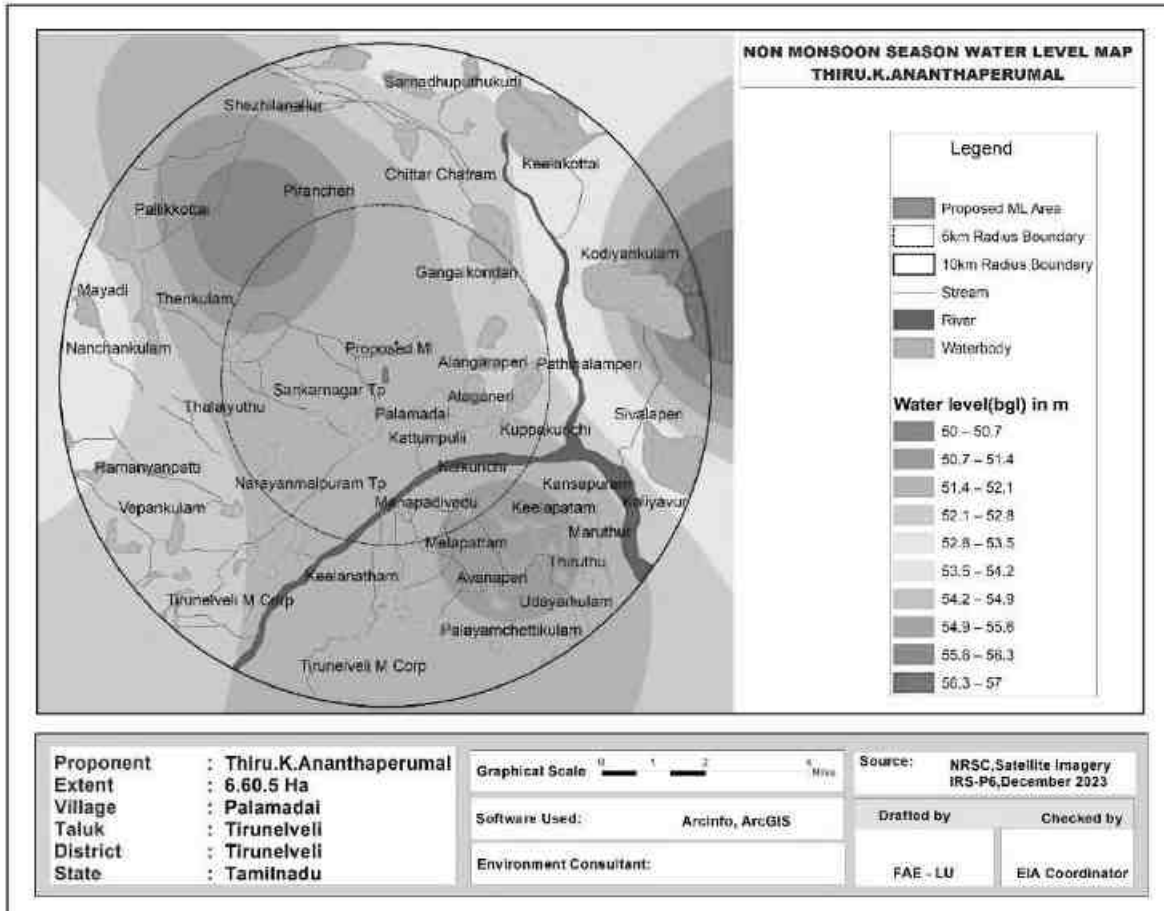


FIGURE 3.26 NON-MONSOON WATER LEVEL MAP OF THE STUDY AREA

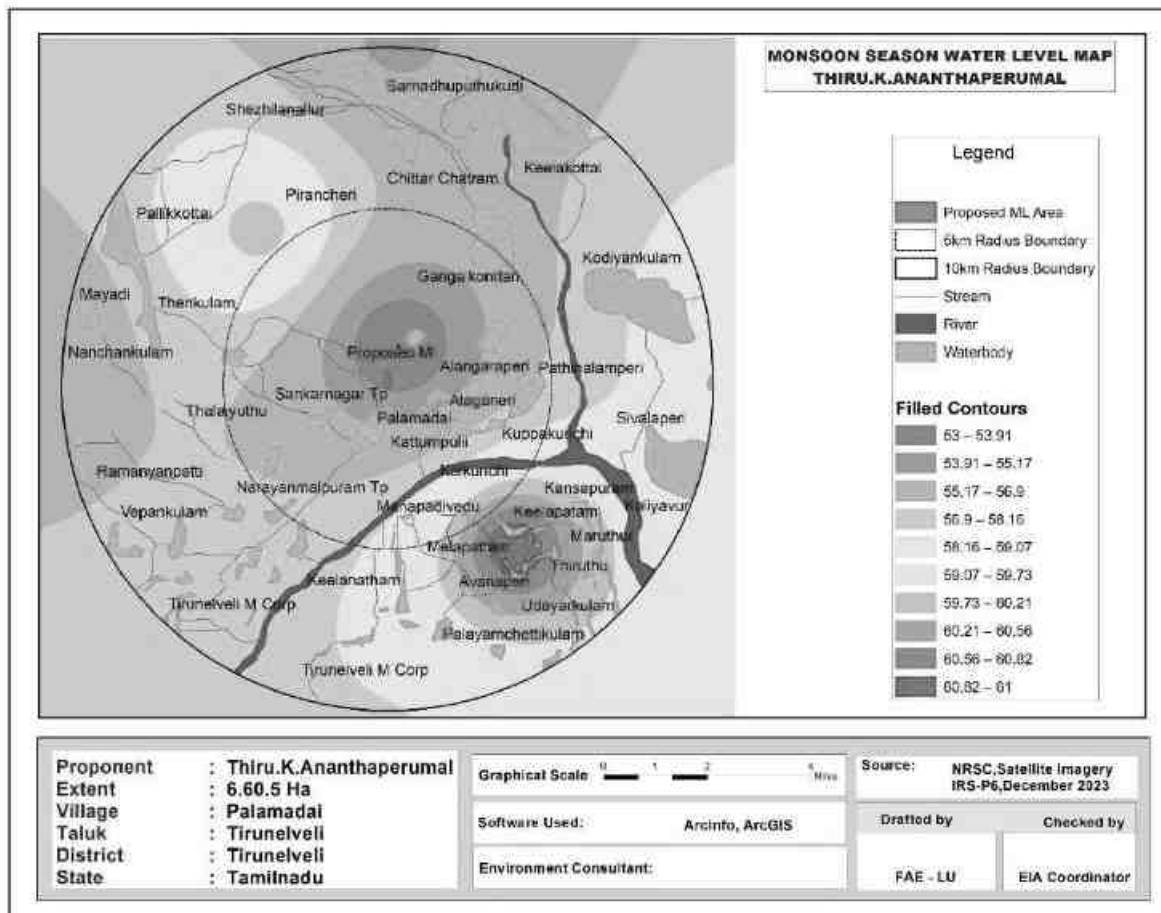


FIGURE 3.27 MONSOON WATER LEVEL MAP OF THE STUDY AREA

3.12.5 FIELD INVESTIGATION

The temporary seasonal streams water flow from center to outer most area. There is Thamirabarani River is located at a distance of 3.42 km in South Eastern side direction away from the 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 Quarry of Thiru.K.Ananthaperumal at S.F. No. 414/1, 415A/1A AND 415A/2A over an extent of 6.60.5 in Palamadai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu State. The method of mining is Opencast Semi mechanized with a bench width and height of 5m. It is proposed to excavate to 9,26,070 m³ of Rough Stone and 1,03,074 m³ Gravel formation upto a depth of 27m (BGL) for the period of five years. There is no stream/odai within the mine lease area.

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

The entire mine lease area is Patta land. The project area of 6.60.5 Ha boundary barrier except in eastern direction. It is proposed to be altered by effective quarrying operation such as excavation (5.15.5 Ha), Infrastructure (0.01), Road (0.01.0 Ha) and green belt will be developed in the safety zone of 1.43.0 Ha. The ultimate depth of quarrying is proposed with maximum depth of 27m BGL and will not intersect the ground water table.

4.3 ANTICIPATED IMPACTS AND MITIGATION MEASURES

Aspect	Impact	Mitigation measures																																													
Topography	<p>The area 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 lead to affect the aesthetic view on the environment. Further, due to the movement of heavy vehicles in and around the mine lease area will lead to affect the surrounding agricultural lands, ecology and biodiversity, human habitations due to the emissions from vehicles like SO₂, NO_x, PM₁₀, PM_{2.5}, etc., The existing land use pattern is given as under.</p> <table border="1"> <thead> <tr> <th>Land Use</th> <th>Present Area (Hect)</th> <th>Area in use during the quarrying period (Hect)</th> </tr> </thead> <tbody> <tr> <td>Quarrying Pit</td> <td>Nil</td> <td>5.15.5</td> </tr> <tr> <td>Infrastructure</td> <td>Nil</td> <td>0.01.0</td> </tr> <tr> <td>Roads</td> <td>Nil</td> <td>0.01.0</td> </tr> <tr> <td>Green Belt</td> <td>Nil</td> <td>1.43.0</td> </tr> <tr> <td>Unutilized</td> <td>6.60.5</td> <td>Nil</td> </tr> <tr> <td>Total</td> <td>6.60.5</td> <td>6.60.5</td> </tr> </tbody> </table>	Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)	Quarrying Pit	Nil	5.15.5	Infrastructure	Nil	0.01.0	Roads	Nil	0.01.0	Green Belt	Nil	1.43.0	Unutilized	6.60.5	Nil	Total	6.60.5	6.60.5	<p>The major impact due to this project on land environment is the change in land use. Mining activity will be carried out upto a depth of 27m Below ground level. At the end of mining period, the quarried pit will act as a water reservoir to store the rain water.</p> <p>Land Use at the end of mine will be as follows.</p> <table border="1"> <thead> <tr> <th>Land Use</th> <th>Area in use during the quarrying period (Hect)</th> </tr> </thead> <tbody> <tr> <td>Area left for water body</td> <td>5.15.5</td> </tr> <tr> <td>Green Belt</td> <td>1.43.0</td> </tr> <tr> <td>Remaining area</td> <td>0.02.0</td> </tr> <tr> <td>Total</td> <td>6.60.5</td> </tr> </tbody> </table> <p>At the mine closure stage, 5.15.5 Ha of lease area will be left as rain water harvesting pond. 1.43.0 Ha will be developed with green belt. Greenbelt shall be developed around the mine lease area and the details has been given below.</p> <table border="1"> <thead> <tr> <th>Year</th> <th>Species</th> <th>No. of trees</th> <th>Spacing</th> <th>Survival</th> </tr> </thead> <tbody> <tr> <td>I</td> <td rowspan="3">Azadirachta indica</td> <td>500</td> <td rowspan="3">3m x 3m</td> <td rowspan="3">80%</td> </tr> <tr> <td>II</td> <td>400</td> </tr> <tr> <td>III</td> <td>400</td> </tr> </tbody> </table>	Land Use	Area in use during the quarrying period (Hect)	Area left for water body	5.15.5	Green Belt	1.43.0	Remaining area	0.02.0	Total	6.60.5	Year	Species	No. of trees	Spacing	Survival	I	Azadirachta indica	500	3m x 3m	80%	II	400	III	400
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III		400																																													

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU. K. ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A AND 415A/2A LOCATED AT VILLAGE - PALAMADAI, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

	<p>The ultimate pit dimension of the mine lease area is given below.</p> <table border="1" data-bbox="436 363 1008 711"> <thead> <tr> <th colspan="4">Ultimate Pit dimension at the end of Mining plan Period</th> </tr> <tr> <th>Pit No.</th> <th>Length (max) (m)</th> <th>Width (Avg) (m)</th> <th>Depth (max) (m)</th> </tr> </thead> <tbody> <tr> <td>I</td> <td>419</td> <td>123</td> <td>27 Below ground level</td> </tr> </tbody> </table> <p>If mining is not done systematically it will leads to the dumping failure in the mining area.</p>	Ultimate Pit dimension at the end of Mining plan Period				Pit No.	Length (max) (m)	Width (Avg) (m)	Depth (max) (m)	I	419	123	27 Below ground level	<table border="1" data-bbox="1083 214 1776 354"> <tr> <td>IV</td> <td></td> <td>250</td> <td></td> <td></td> </tr> <tr> <td>V</td> <td></td> <td>250</td> <td></td> <td></td> </tr> <tr> <td colspan="2">Total</td> <td>1800</td> <td></td> <td></td> </tr> </table> <p>Due to the thick vegetation around the mine lease area and sprinkling of water around the haul roads the dust emissions arises from the vehicles will be controlled. 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.</p>	IV		250			V		250			Total		1800		
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<p>Drainage</p>	<p>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.</p>	<p>As per the approved mining plan the ultimate pit limit is 27m (BGL). The ground water table is reported as 62m In the proposed mining plan only 27m below ground level 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.</p>																											
<p>Soil Quality and Agriculture</p>	<p>In monsoon seasons due to the excavation of minerals soil erosion and sediment deposition will occur in the nearby water bodies.</p>	<p>It is proposed to quarry upto a depth of 27 m below ground level and the nearby water table is 62 m. So, the mining activity will not affect the ground water. To prevent the soil erosion during monsoon season, garland drain will be constructed with silt traps.</p>																											

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU. K. ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A AND 415A/2A LOCATED AT VILLAGE - PALAMADAI, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

<p>Visual impact on surrounding environment</p>	<p>Quarrying activities and rock extraction generally cause several environmental effects on the surrounding areas. The alteration of landscape due to activities like excavation, drilling or blasting, in particular, often generates a visual impact on the receptors set in the surroundings. Among these effects, the shape, extent, or chromatic contrast of the mining surface with the original land form may represent a huge loss of appeal for the growth of new urban settlements.</p>	<p>The reclamation of the post mined quarry surface is aimed at restoring the ecological balance taking into account geological parameters but also local flora and climate. Further the ultimate depth of mining is 27m. In the post mining stage the quarried out pit will be used for rainwater harvesting.</p>
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4.4 SOLID WASTE GENERATION AND MANAGEMENT

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

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

4.5 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.

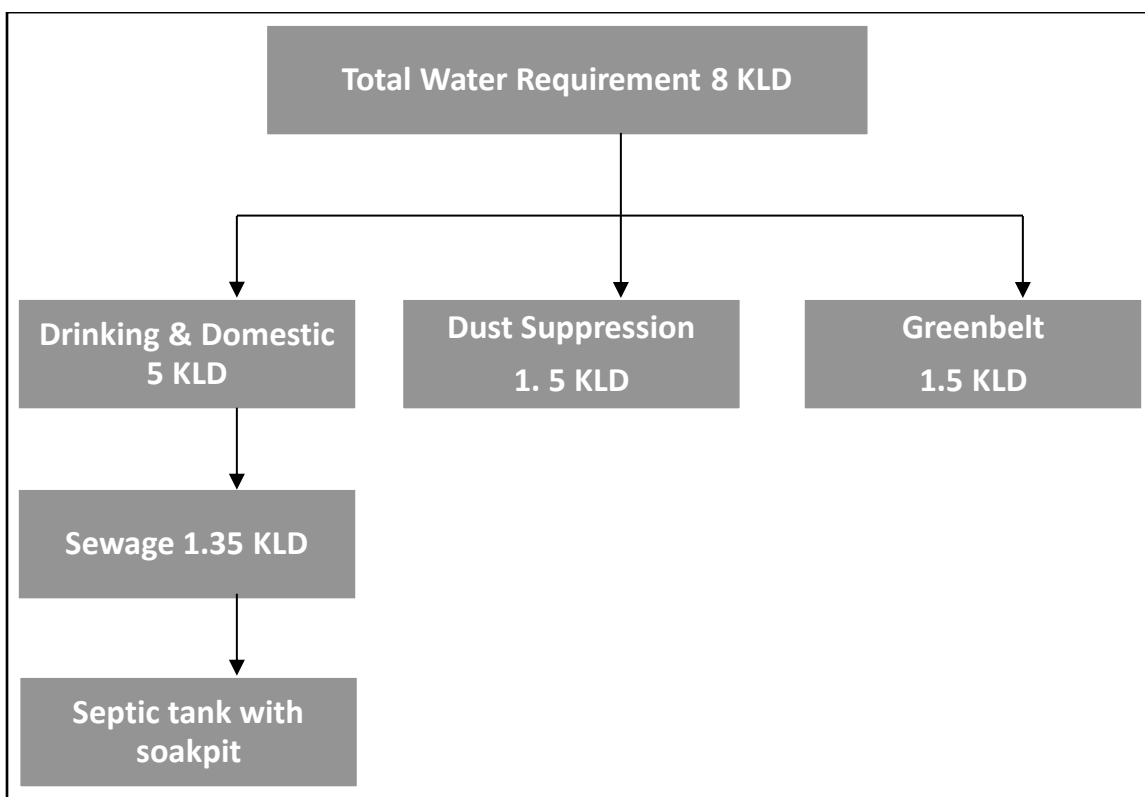
The pond is situated at a distance of 480 m in north direction. Thamirabarani River is located at a distance of 3.42 km in south direction of the proposed ML area. Water table is found at a depth of 62m.

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 8.0 KLD which will be sourced from outside agencies. Negligible sewage of 1.35 KLD will be generated, for which a septic tank with soak pit will be set up. The water balance diagram is given below.

FIG 4.1 WATER BALANCE DIAGRAM



4.5.3 Impact on Ground Water

The mining activity is not likely to intersect ground water as the ground water table occurs at a depth of 62m. The mining will go up to the maximum depth of 27 m BGL. So there will be no chance of intersecting the ground water table by the mining activity. So the impact of mining on the ground water is not envisaged.

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 Tirunelveli District, Palamadi Taluk is given below.

TABLE 4.1 Ground Water Level Status in Tirunelveli District							
S. No.	Assessment Unit (Firka)	Net Annual Ground water availability	Existing gross ground water consumption for irrigation	Existing gross ground water consumption for domestic and industrial water supply	Existing gross ground water consumption for all uses	Stage of ground water development	Category
1	Tirunelveli	1,496.90	0.00	2,768.26	2,768.26	185	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 1.43.0 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 1800 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 9,26,070 m³ of Rough Stone and 1,03,074 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 is 9,26,070 m³ of Rough Stone and 1,03,074 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.

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 February 2024 – April 2024 on hourly basis on wind speed, wind direction and temperature has been processed to extract the 24- hourly mean meteorological data as per the guidelines of IMD and MoEF for application of AERMOD model. Stability classes computed for the mean hours is based on guidelines issued by CPCB on modeling. Mixing heights representative of the region have been taken from the available published literature.

4.7.8 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 0.39 $\mu\text{g}/\text{m}^3$ of PM 2.5 & 1.76 $\mu\text{g}/\text{m}^3$ of PM₁₀ within the mine area, where mining operations are being carried out. The impact of mining operations would be negligible beyond 0.5 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 Quarry of Thiru.K. Ananthaperumal emission details is quantified and presented below:

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

Quantity, TPA	Rough Stone:9,26,070 m ³ Gravel: 1,03,074 m ³
Operational Hours Per Year	2400
Activity Rate, t/hr.	400.5416667
Emission of dust, g/t.	0.16
Emission of dust, g /hr.	55.07583333
Area of influence, m ²	623
Uncontrolled emission rate g/s/m ²	0.000067454
Controlled emission rate, PM10 g/s/m ²	0.000006745
Controlled emission rate, PM2.5 g/s/m ²	0.0000044969

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

Quantity, TPA	Rough Stone:9,26,070 m ³ Gravel: 1,03,074 m ³
Operational Hours Per Year	2400
Capacity of each Dumper (T)	10
Total No. of Tippers/ year	44745
Lead length/trip, Km	0.9
Total VKT/Year	75987
Emission Kg/VKT	0.22
Total emission Kg/Year	19989.04
Uncontrolled emission rate g/s/m	6.7454481

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Controlled emission rate, PM10 g/s/m	0.67454481
Controlled emission rate, PM2.5 g/s/m	0.4496965

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

FIG 4.2 Isopleth of GLC Prediction for PM_{2.5}

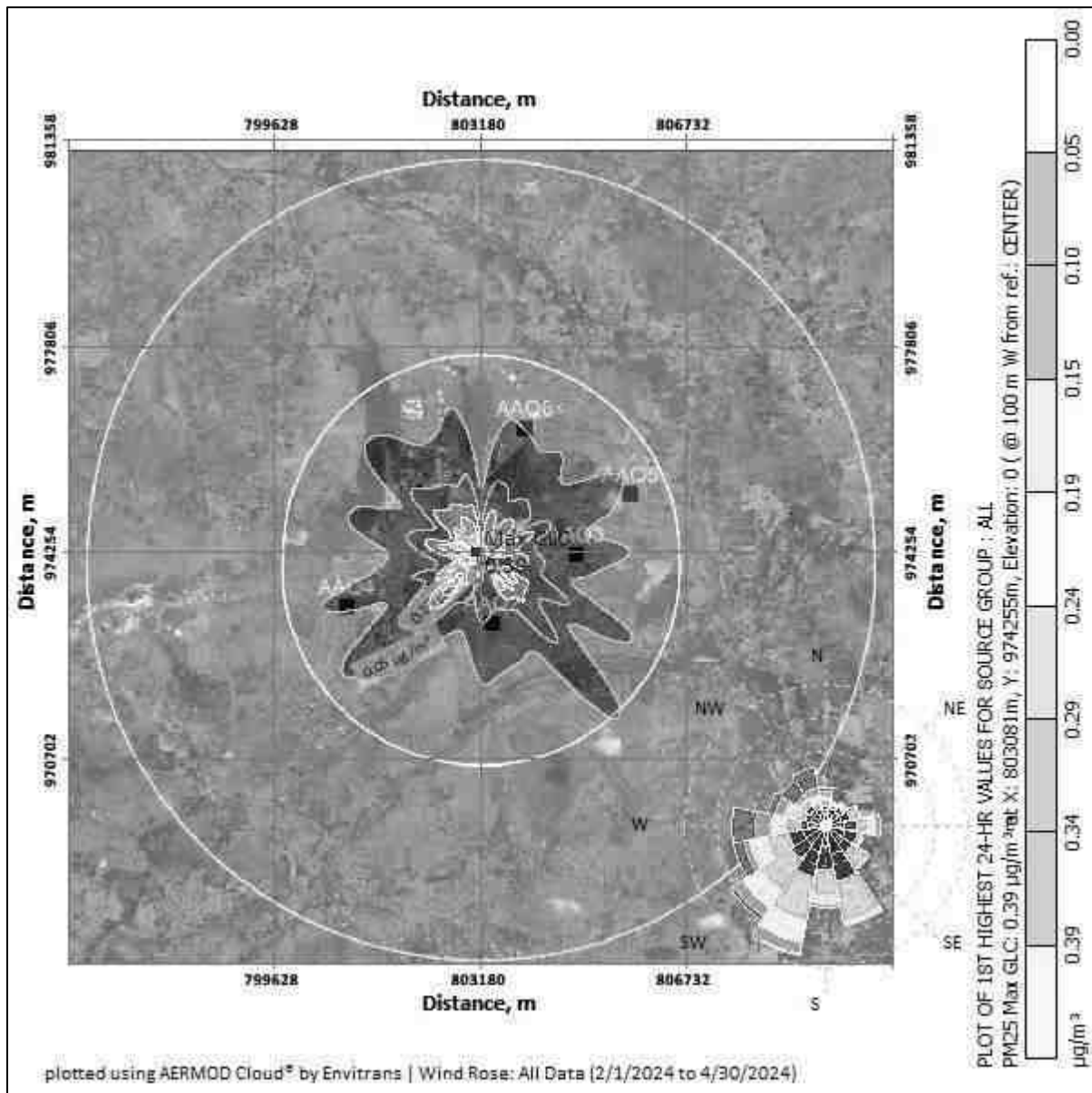


FIG 4.3 Isopleth of GLC Prediction for PM₁₀

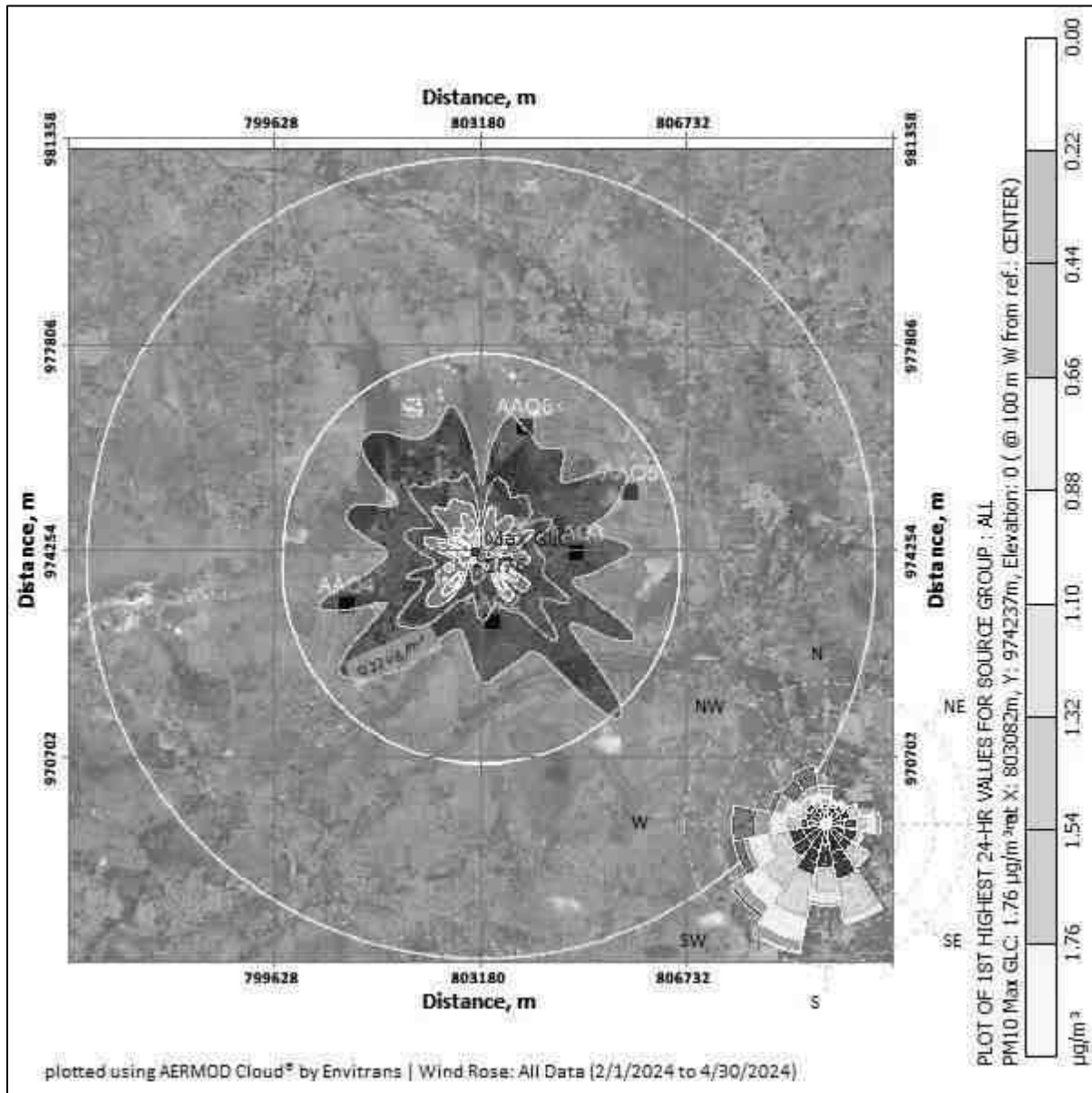


FIG 4.4 Isoleth of GLC Prediction –Cumulative for PM_{2.5}

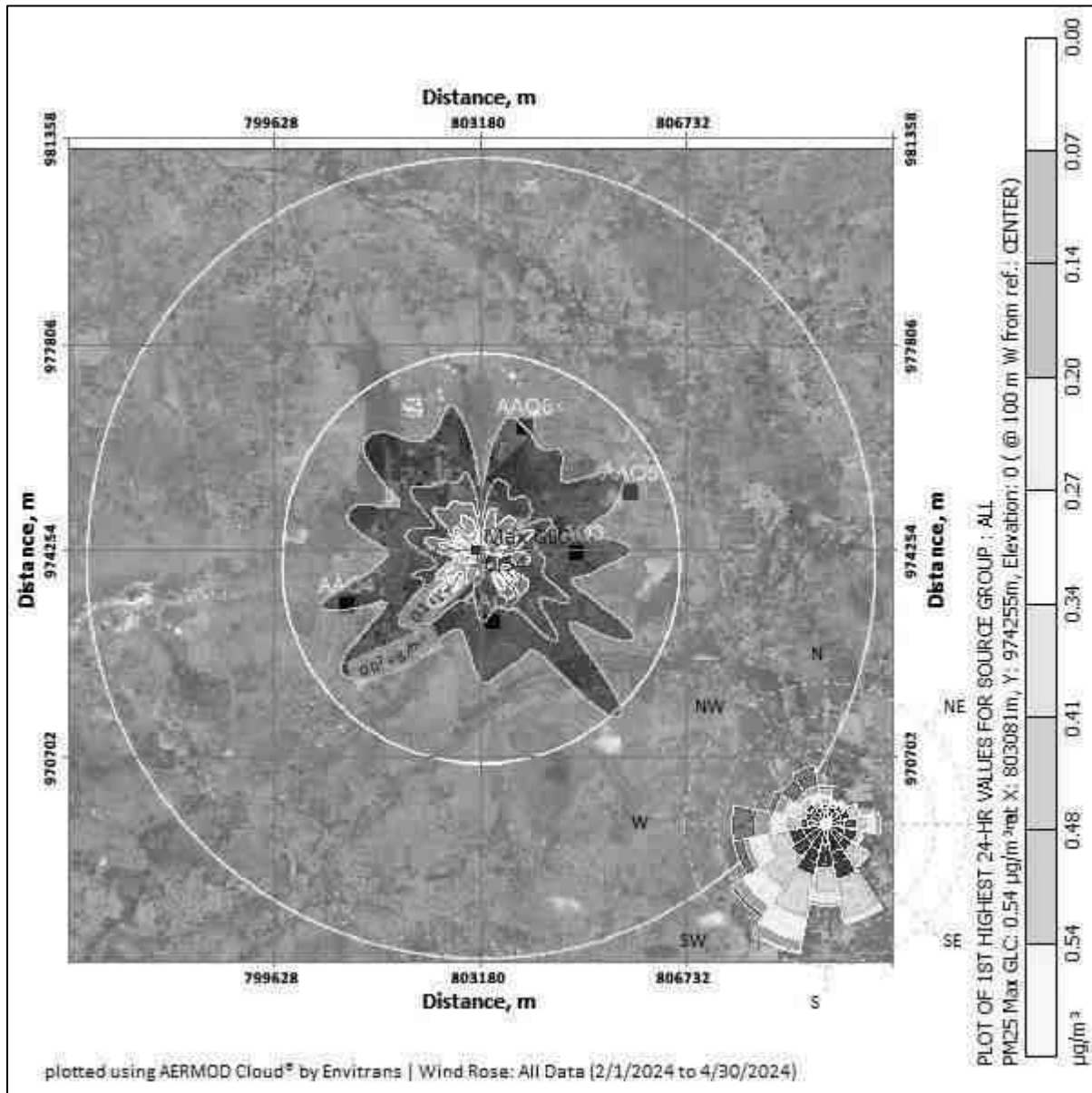
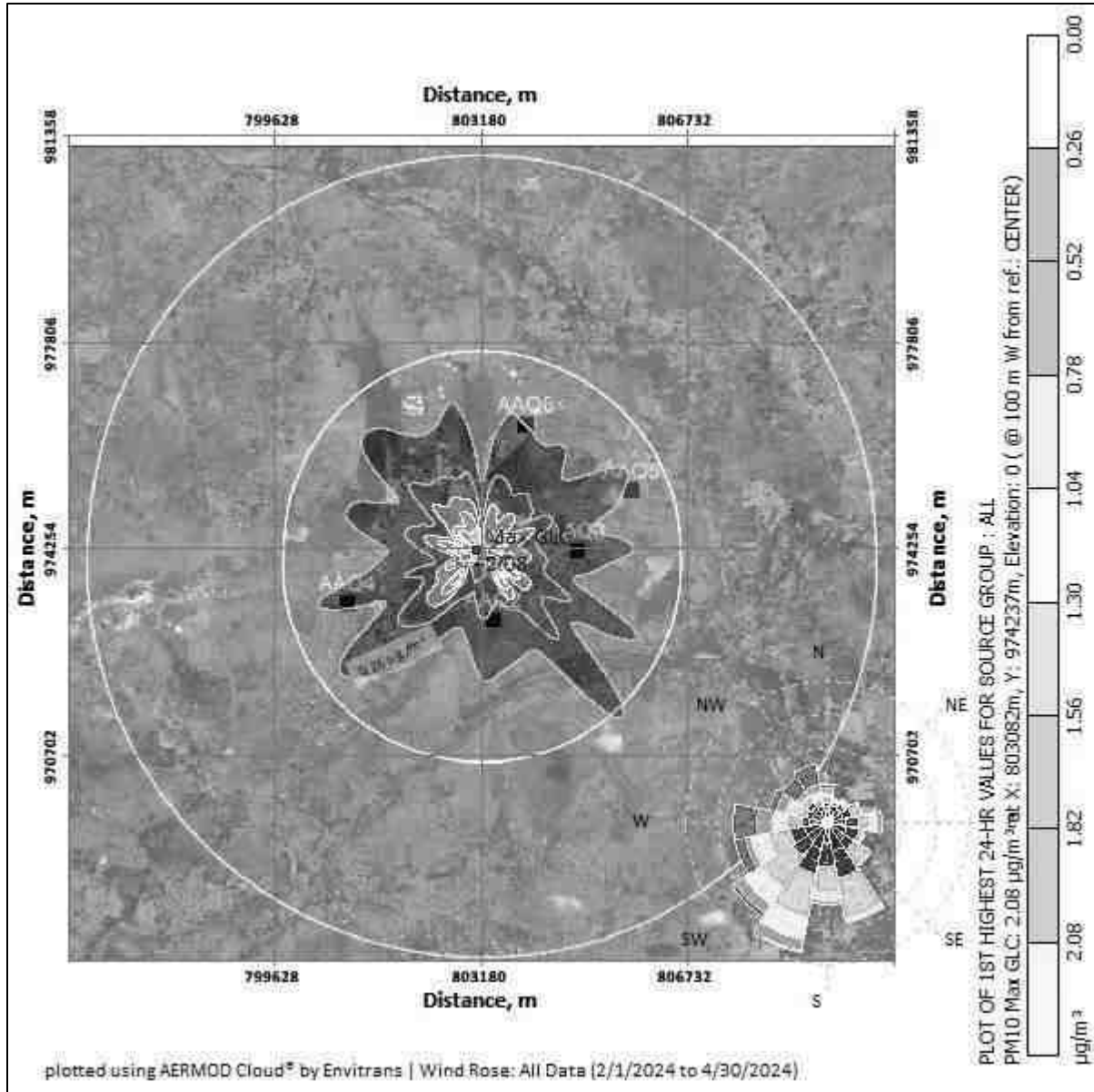


FIG 4.5 Isopleth of GLC Prediction –Cumulative for PM₁₀



PREDICTED AMBIENT AIR QUALITY:

The post project Concentrations of PM₁₀, PM_{2.5}, (GLC) (base line + incremental) after adopting necessary control measures is given in Table No - 4.7 to 4.8.

Table 4.3 Concentrations of PM_{2.5} after Project Implementation					
SL. No	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in $\mu\text{g}/\text{m}^3$
1	Project site	26.80	0.39	27.19	60
2	Rajvirampuram	19.85	0.34	20.19	
3	Alangaraperi	21.95	0.30	22.25	
4	Vadaku Thalaisyuthu	27.30	0.28	27.58	
5	Pathinalamperi	23.55	0.18	23.73	
6	Aladipatti	22.35	0.15	22.50	

Table 4.3 Concentrations of PM₁₀ after Project Implementation					
SL. No	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in $\mu\text{g}/\text{m}^3$
1	Project site	62.25	1.76	64.01	100
2	Rajvirampuram	43.00	1.56	44.56	
3	Alangaraperi	51.50	1.32	52.82	
4	Vadaku Thalaisyuthu	58.50	1.10	59.60	
5	Pathinalamperi	48.90	0.85	49.75	
6	Aladipatti	49.10	0.56	49.66	

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 44.56 $\mu\text{g}/\text{m}^3$ to 64.01 $\mu\text{g}/\text{m}^3$ and for PM_{2.5} are in the range of 20.19 $\mu\text{g}/\text{m}^3$ to 27.58 $\mu\text{g}/\text{m}^3$ which are within the statutory limits in each case. The mitigation measures undertaken in the mine for control of air pollution are given below.

- Wet drilling will be practiced in drilling operation.
- Water sprinkling will be done in haul roads & loading etc.
- The mines workers are provided with the dust masks.
- Three layer plantation in the safety zone.

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

4.8 NOISE ENVIRONMENT

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

4.8.1 Likely Noise Levels in Lease Area due to mining activity

S.No.	Source Name	Noise Level in dB (A)
1	Diesel generator	98
2	Excavator Operation	92
3	Trucks movement	91
4	Drilling	102
5	Blasting	118

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

Noise levels were measured in the lease area and in the nearby villages Rajvirampuram Village, Vadakku Thalaiyuthu Village, Pathinalamperi Village and Aladipatti Village, the values are given below.

TABLE 4.4 Noise Levels in Monitoring Locations

S. No.	Location	Distance and direction from Mine lease area	Day Equivalent (in dBA)	Night Equivalent (dBA)
1	Project site	Core Zone	43.1	36.8
2	Rajvirampuram	1.61 Km, S	45.5	37.2
3	Alangaraperi	2.45 Km, E	44.3	38.1
4	Vadakku Thalaiyuthu	3.6 Km, W	44.4	36.6
5	Pathinalamperi	4.2 Km, NE	46.9	37.8
6	Aladipatti	3.6 Km, N	46.1	37.8

The noise levels are within the MoEF & CC limits of 55 dB(A) in the working area and in the buffer areas, the values are below the limit of 55 dB(A). Since, the residential area norm has been considered for all five locations mentioned above, during mining operation mine lease area will be considered as industrial area/quarry area for which DGMS norms 85 dB(A)/CPCB guidelines 75 dB(A)

4.8.2 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.

4.8.3 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.

4.9 IMPACTS DUE TO VIBRATION

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

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

Impacts

- ✦ Though vibration will be only felt by the people working inside the lease area it is usually undesired.
- ✦ Vibration may also cause flyrocks.
- ✦ It may frighten the birds and small insects in the lease area. However, it will be felt only for a short period.

Mitigation measures

- ✦ The DG set will be kept within the acoustic enclosure made by the stone blocks.
- ✦ Drills will be equipped with sharp bits and wet drilling will be adopted.
- ✦ A well planned green belt is proposed for the mining to reduce noise level.

- ✦ Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.
- ✦ Regular maintenance of the machineries and vehicles to reduce the noise level.
- ✦ Use of ear muffs by the workers with occupational exposure to noise.
- ✦ Carrying out blasting on limited scale, only from 12:00 PM to 2:00 PM
- ✦ Control of fly rock and vibration by maintaining peak particle velocity within the standard as prescribed by the DGMS and MOEF & CC.
- ✦ Shallow depth jackhammer drilling and blasting is proposed to be carried out with minimum use of explosive.
- ✦ Supervising blasting by competent and statutory Foreman/ Mines Manager.

4.10 SOCIO ECONOMIC IMPACT

The lease area is Patt land and the proponent has obtained tender from the government. The proponent has planned to spend INR 5, 00,000 for CER activities.

4.11 OCCUPATIONAL HEALTH

4.11.1 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 40 workers will be engaged in the mining activity. Mining activity may cause various health problems to the mines workers as follows:

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

Table 4.5 Impacts on humans due to various mining activities

S.No.	Type of activity	Impact
1	Dust generation due to drilling and blasting	Continuous exposure to dust causes Pneumonia, Tuberculosis, Rhematic 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

4.11.2 Mitigation measures

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

- Educating the employees about how to handle unexpected happenings
- Posting information containing emergency contact numbers in mines office
- By adopting all these measures, the safety of the employees working in the quarry will be ensured.

4.12 WASTE MANAGEMENT

4.12.1 Solid Waste

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

4.12.2 Liquid Waste

There is no process effluent generation from this mine. Hence no liquid waste is generated. Domestic wastewater i.e 0.3 KLD will be discharged in soak pit via septic tank.

4.12.3 Hazardous Waste Management

In this project the following management practices will be followed:

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

4.12.4 Plastic Waste

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

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) is site-specific, the chosen location is the only site to carry out Rough Stone 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	L _{eq} , L _{max} , L _{min} , L _{eq} Day & L _{eq} 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

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

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.

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

Sl .No	Budget planned for	Capital Cost Amount (INR)	Recurring Cost/Annum Amount (INR)
1	Air Quality Sampling	196100	39220
2	Water Quality Sampling	266100	53220
3	Noise Monitoring	50000	10000
4	Sanitary Arrangements	35000	7000
5	Safety kids	160000	32000
6	Afforestation	420000	84000
Total		11,272,00	225440

Total Project Cost for 5 years is 1,32,33,000 lakhs i.e., Rs. 11.27 Lakhs of Capital + Recurring cost Rs. 2.25 lakhs (Five years x 2.25 = 11.27 Lakhs)

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. Cumulative 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
4	Landslide	Width, height and slope will be maintained as suggested by DGMS

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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 CUMULATIVE ENVIRONMENTAL IMPACT ASSESSMENT STUDY

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

Table.7.2 Details of quarries within 500m radius (as per 500m certificate)						
Sl. No	Name and address	G.O. No. and Date	Village and Taluk	S.F.No.	Extent (in Ha)	Period of lease
Existing Quarries						
1	Thiru.P.K.S.Ahamad Meeran, S/o.Mohamed Sultan, 18, Puthu Amman Kovil Street, Sindhupundhurai, Tirunelveli Taluk and District.	Rc. No.M2/214/2023, dated. 20.09.2023	Gangaikondan Part-2 Village, Tirunelveli Taluk	1665/1B	2.10.5	06.10.2020 to 05.10.2025
2	Thiru.C.Rasheed Ali, S/o.Chinna Sheik Rowther, 9/100, Mela Pallivasal Street, Mela Thalaiyuthu, Sankar Nagar, Tirunelveli - 627357	Rc. No.M2/214/2023, dated. 20.09.2023	Gangaikondan Part-2 Village, Tirunelveli Taluk	1662/1A(P) (0.38.0) & 1663/1A (1.21.5)	1.59.5	21.01.2022 to 20.01.2032
Extent: 3.70.0 Ha						
Abandoned Quarries:						
1	Thiru.Navaskhan, Sankar Nagar	Rc. No.M2/214/2023, dated. 20.09.2023	Gangaikondan (V),Tirunelveli Taluk,	1633, etc.	2.89.0	Abandoned quarry

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2	Thiru.P.K.S.Ahamed Meeran, Tirunelveli.	Rc. No.M2/214/2023, dated. 20.09.2023	Gangaikondan (V),Tirunelveli	1671/1B, etc.	2.14.0	Abandoned quarry
Proposed Quarries						
S.No	Name and address	Village & Taluk	S.F.No.	Extent (in Ha)	Remarks	
1	P.Arumugasundar, S/o.Paramasivan, 34, Maravar Colony Street, Rajavallipuram, Palayamkottai, Tirunelveli - 627359	Palamadai Village, Tirunelveli Taluk	402/1 & 402/2	2.60.50	Proposed quarry	
2	Thiru.N.Mohammed Saleem Badhusa, S/o.Navaskhan, 1/19, Muthunagar, Sankarnagar, Tirunelveli District - 627357.	Naranammalpuram Part-1 Village, Tirunelveli Taluk	812(P)	1.95.0	Proposed quarry	
3	Thiru.K.Ananthaperumal, S/o.Kanniah, 160D/8, Polepettai West, Thoothukudi District.	Palamadai Village, Tirunelveli Taluk	414/1, 415A/1A & 415A/2A	6.60.5	Instant proposal	
4	Thiru.N.Mohideen Sheik Shahith, S/o.Navaskhan, 1/19, Muthu Nagar, Sankar Nagar, Tirunelveli - 627 357.	Naranammalpuram Part-1 Village, Tirunelveli Taluk	807	1.94.50	Proposed quarry	
5	Thiru.A.Kothar Mydeen, S/o.Ahamed Meeran, Thenkulam, Tirunelveli.	Gangaikondan Village, Tirunelveli Taluk	1660/4	1.62.0	Proposed quarry	
Total Extent: 18.42.5 Ha						

A cumulative impact of these two proposed 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 February to April 2024. The following sources are considered.

Emission sources & Quantification of the cluster area.

Various point and non-point sources of emissions from Proposed Rough Stone Quarry of Thiru.K. Ananthaperumal emission details is quantified and presented below:

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

Quantity, TPA	Rough Stone:9,26,070 m ³ Gravel: 1,03,074 m ³
Operational Hours Per Year	2400
Activity Rate, t/hr.	400.5416667
Emission of dust, g/t.	0.16
Emission of dust, g /hr.	55.07583333
Area of influence, m ²	623
Uncontrolled emission rate g/s/m ²	0.000067454
Controlled emission rate, PM10 g/s/m ²	0.000006745
Controlled emission rate, PM2.5 g/s/m ²	0.0000044969

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

Quantity, TPA	Rough Stone:9,26,070 m ³ Gravel: 1,03,074 m ³
Operational Hours Per Year	2400
Capacity of each Dumper (T)	10
Total No. of Tippers/ year	44745
Lead length/trip, Km	0.9
Total VKT/Year	75987
Emission Kg/VKT	0.22
Total emission Kg/Year	19989.04
Uncontrolled emission rate g/s/m	6.7454481
Controlled emission rate, PM10 g/s/m	0.67454481
Controlled emission rate, PM2.5 g/s/m	0.4496965

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

FIG 4.2 Isopleth of GLC Prediction for PM_{2.5}

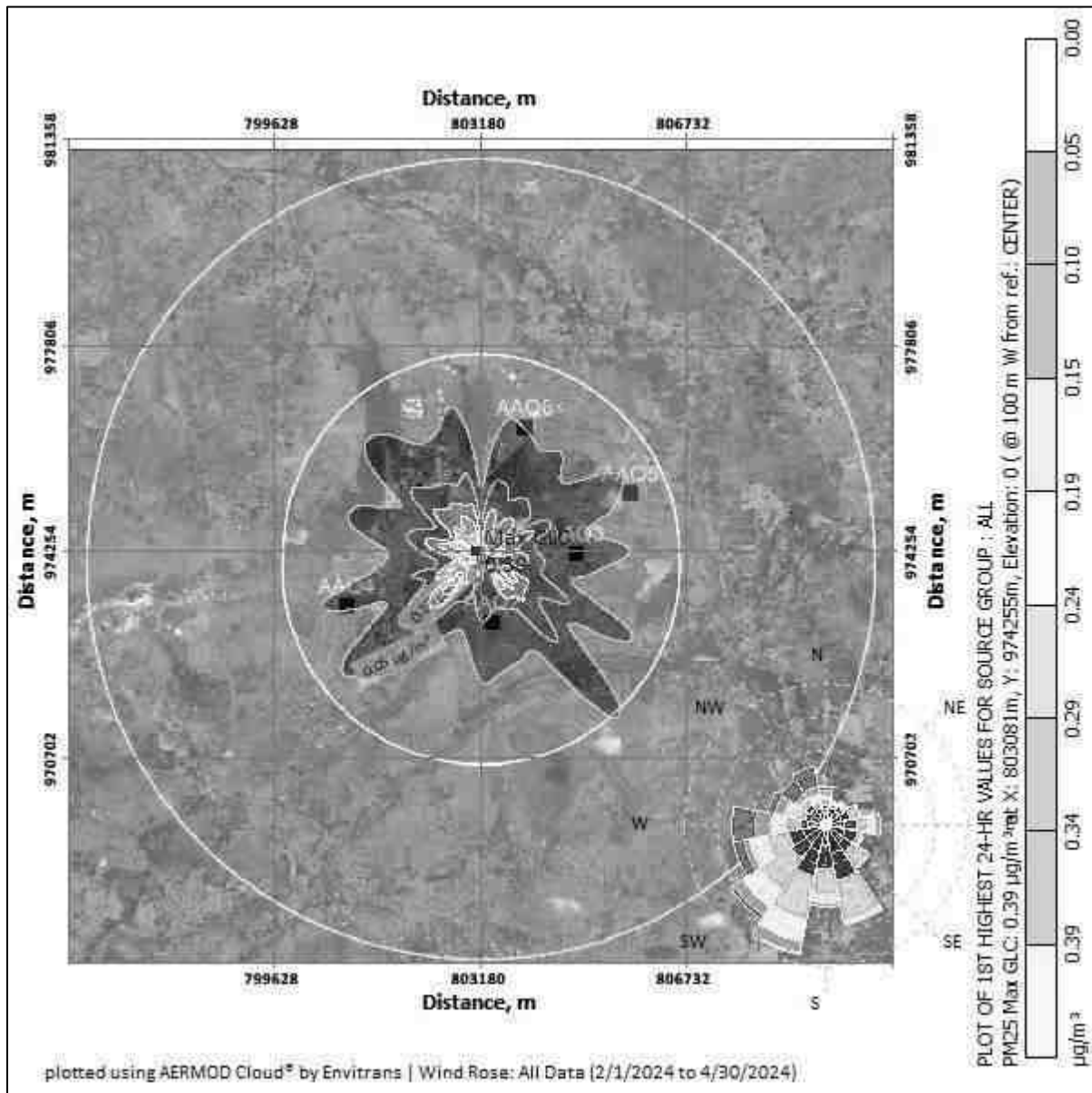


FIG 4.3 Isopleth of GLC Prediction for PM₁₀

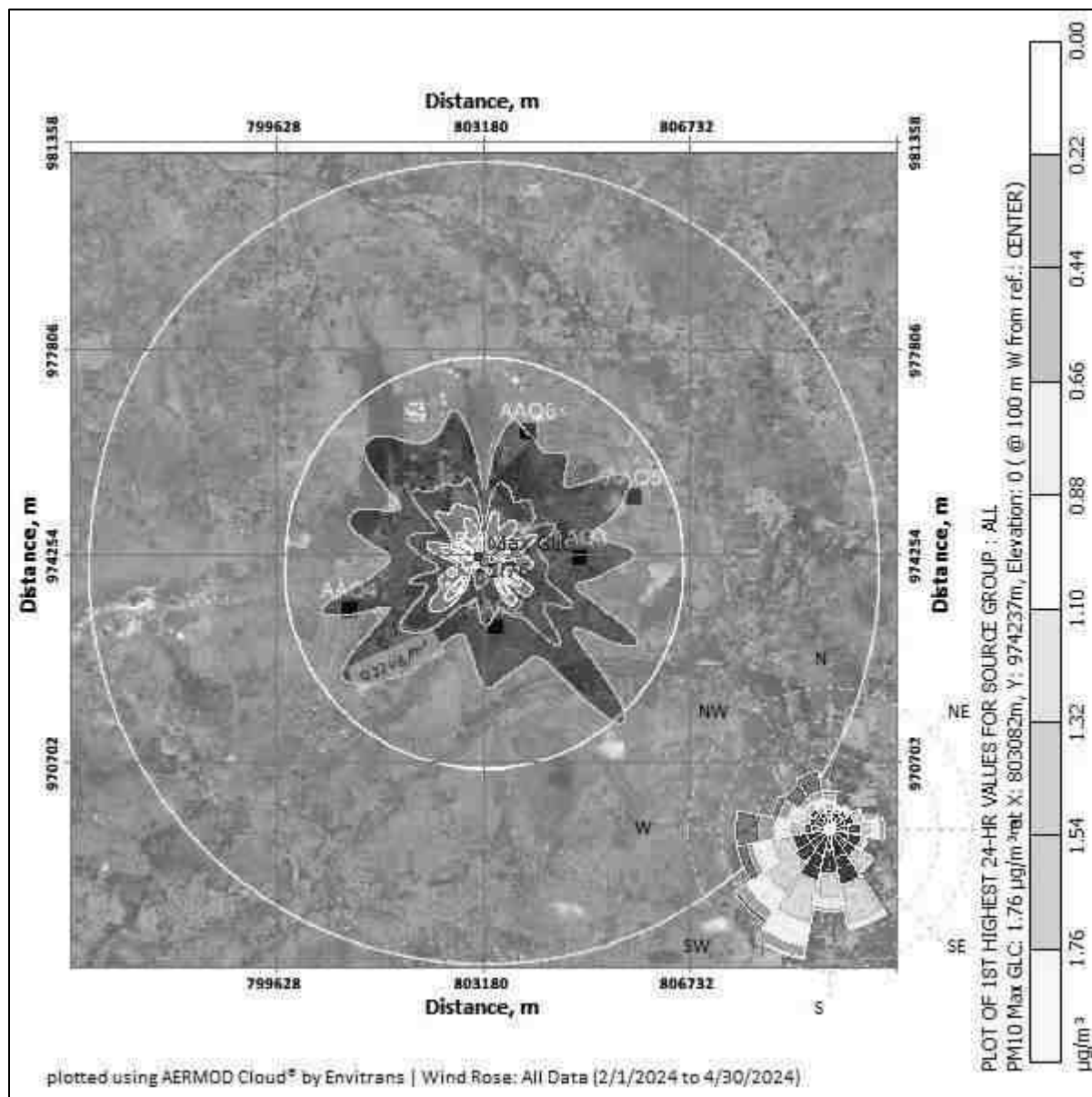


FIG 4.4 Isoleth of GLC Prediction –Cumulative for PM_{2.5}

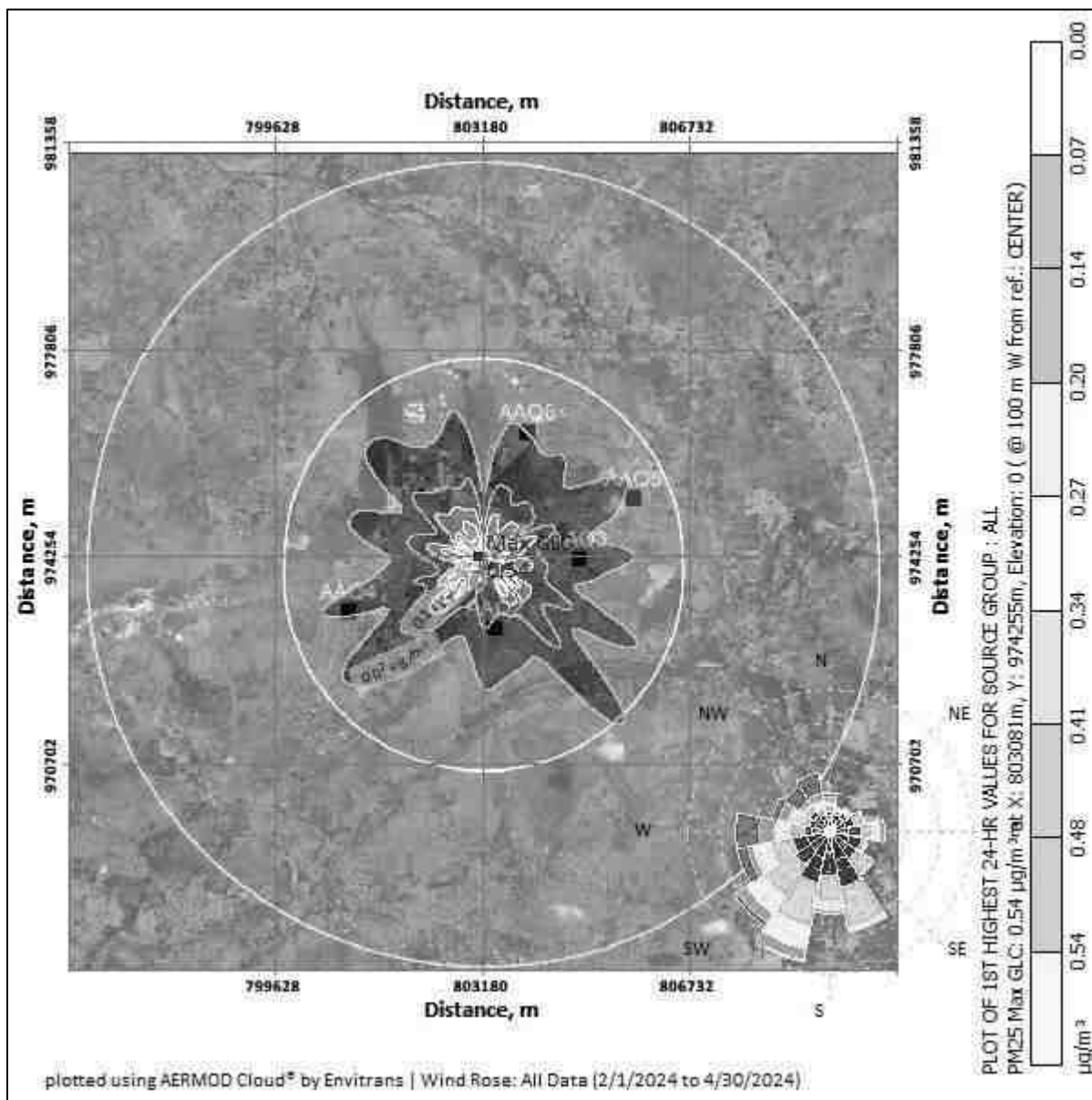
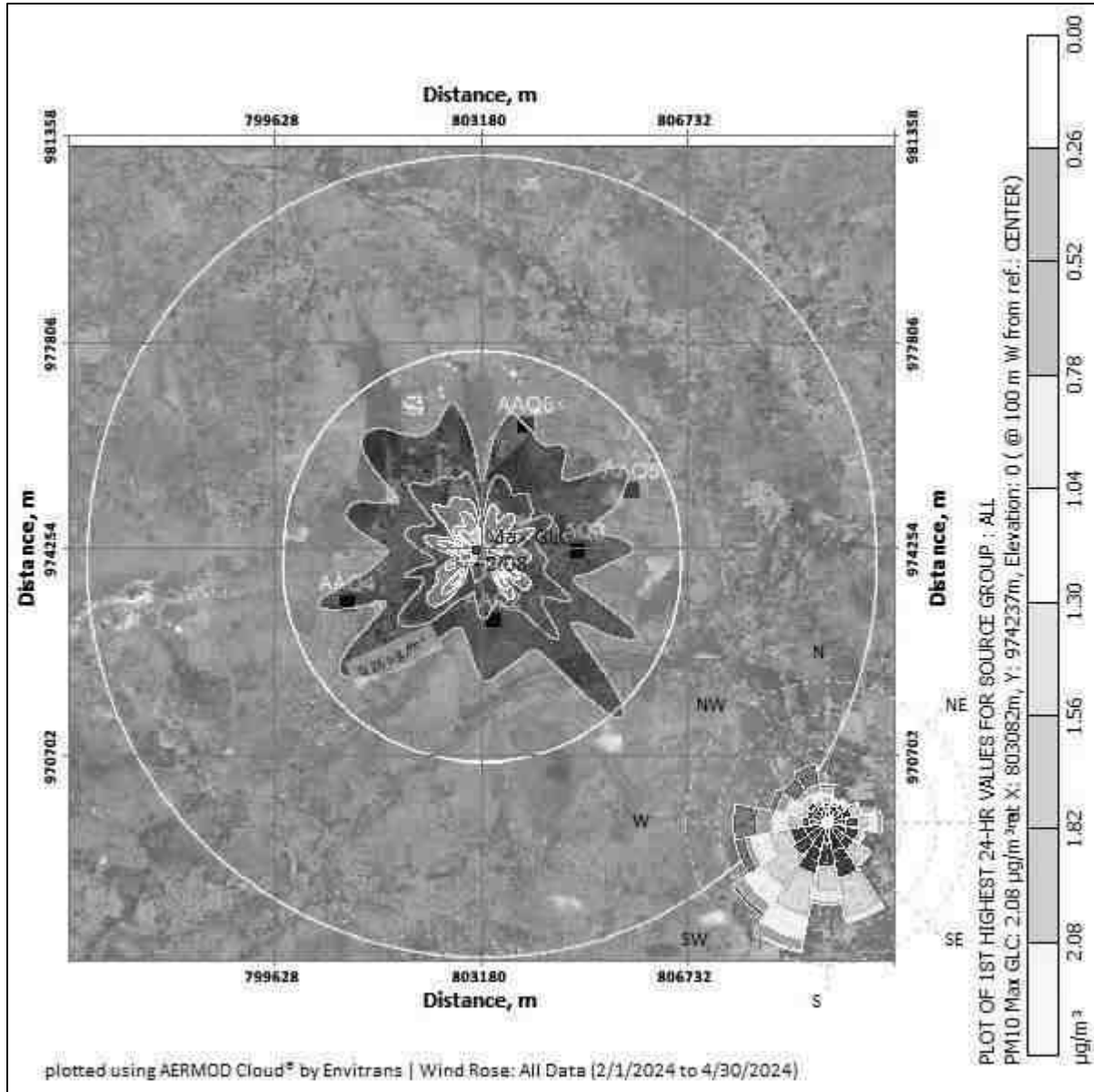


FIG 4.5 Isopleth of GLC Prediction –Cumulative for PM₁₀



PREDICTED AMBIENT AIR QUALITY:

The post project Concentrations of PM₁₀, PM_{2.5}, (GLC) (base line + incremental) after adopting necessary control measures is given in Table No - 4.7 to 4.8.

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 $\mu\text{g}/\text{m}^3$
1	Project site	26.80	0.39	27.19	60
2	Rajvirampuram	19.85	0.34	20.19	
3	Alangaraperi	21.95	0.30	22.25	
4	Vadaku Thalaisyuthu	27.30	0.28	27.58	
5	Pathinalamperi	23.55	0.18	23.73	
6	Aladipatti	22.35	0.15	22.50	

Table 7.4 Concentrations of PM₁₀ after Project Implementation

SL. No	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in $\mu\text{g}/\text{m}^3$
1	Project site	62.25	1.76	64.01	100
2	Rajvirampuram	43.00	1.56	44.56	
3	Alangaraperi	51.50	1.32	52.82	
4	Vadaku Thalaisyuthu	58.50	1.10	59.60	
5	Pathinalamperi	48.90	0.85	49.75	
6	Aladipatti	49.10	0.56	49.66	

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 44.56 $\mu\text{g}/\text{m}^3$ to 64.01 $\mu\text{g}/\text{m}^3$ and for PM_{2.5} are in the range of 20.19 $\mu\text{g}/\text{m}^3$ to 27.58 $\mu\text{g}/\text{m}^3$ which are within the statutory limits in each case. The mitigation measures undertaken in the mine for control of air pollution are given below.

- Wet drilling will be practiced in drilling operation.
- Water sprinkling will be done in haul roads & loading etc.
- The mines workers are provided with the dust masks.
- Three layer plantation in the safety zone.

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

Cumulative Impact on Traffic

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

Table 7. 6 – Impact on Traffic

Quarry	Description	Rough Stone Production Per day in tons	No. of Lorry Load per day
P1		617	210
P2		68	30
Total			240

The proposed projects will bring 240trips per day. The existing road can absorb this additional traffic due to this project. Various measures like proper maintenance of road, covering of the loaded truck with tarpaulin, water sprinkling will be carried out to ensure no adverse impact on the logistical front.

7.6 HYDROGEOLOGICAL STUDY

The pond is situated at a distance of 480 m in north direction. Thamirabarani River is located at a distance of 3.42 km in southern direction of the proposed ML area. Due to the presence of these water bodies nearby, a detailed hydrogeological study has been done. As suggested in the Precise Area Communication letter, safety distances of 7.5m to adjacent Patta land.

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 27m (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 27m (BGL) only, which will be achieved in 5 years. The ultimate pit dimension will be 419 x 123 x (27 BGL). 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 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 of Thiru.K.Ananthaperumal cluster will create direct employment opportunity for 40 local people. As per MOEF & CC Notification CER cost is arrived for an amount of 2.64 Lakhs @ 2% of the project cost. However, the project proponent has revised CER cost as 5.0 Lakhs 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 BASIC OF EMP

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

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

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

Table 10.1 Environmental Management Plan	
Environmental Parameter	Mitigation Measures
Air	Wet drilling to suppress the dust emission from drill machine
	Regular water sprinkling on haulage road through fixed water sprinkler.
	1.5 KLD of water will be used for dust suppression.
	Avoiding blasting during high wind period, night times and temperature inversion periods.
	Regular grading of haul road to clear accumulation of loose material.
	It will be ensured that vehicles are properly maintained to comply with exhaust emission requirements
	Maintenance as per operator manual of the equipment and machinery in the mines to minimizing air pollution
	Ambient Air Quality Monitoring carried out in the project area and in surrounding villages to assess the impact due to the mining activities and the efficacy of the adopted air pollution control measures.
	Afforestation for control of dust.
Surface water	The pond is situated at a distance of 2.12 m in SE direction. Thamirabarani River is located at a distance of 3.42 km in Eastern direction of the proposed ML area. Adequate safety distance is left. No dumping of material or discharge will be done in or near the river or water body.

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	<p>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.</p> <p>Monthly or after rainfall, inspection will done to ensure performance of water management structures and systems.</p> <p>There is no discharge of any effluent into nearby water bodies.</p>
Ground Water	<p>The quarrying operation is proposed upto a depth of 27 m above ground level, Water table is found at a depth of 62m, hence the project will not intersect the Ground water table during entire quarry period.</p>
Water Consumption and Wastewater generation	<p>Water required for this project will be sourced from vendors.</p>
	<p>Domestic wastewater generation of 0.30 KLD will be treated in septic tank with soak pit.</p>
	<p>Conduct ground water and surface water monitoring for parameters specified by CPCB</p>
Noise	<p>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.</p>
	<p>Noise levels are controlled by using optimum explosive charge, proper delay detonators and proper stemming to prevent blow out of holes.</p>
	<p>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.</p>
	<p>Preventive maintenance of mining machinery and replacement of worn-out accessories to control noise generation.</p>
	<p>Annual ambient noise level monitoring are carried out in the project area and in surrounding villages to access the impact due to the mining activities and the efficacy of the adopted noise control measures. Additional noise control measures will be adopted if required as per the observations during monitoring.</p>
Ground Vibration and Fly Rock Control	<p>Controlled blasting using delay detonators will be carried out to maintain the PPV value well within the prescribed standards of DGMS.</p>
	<p>Drilling and blasting will be carried under the supervision of qualified persons.</p>

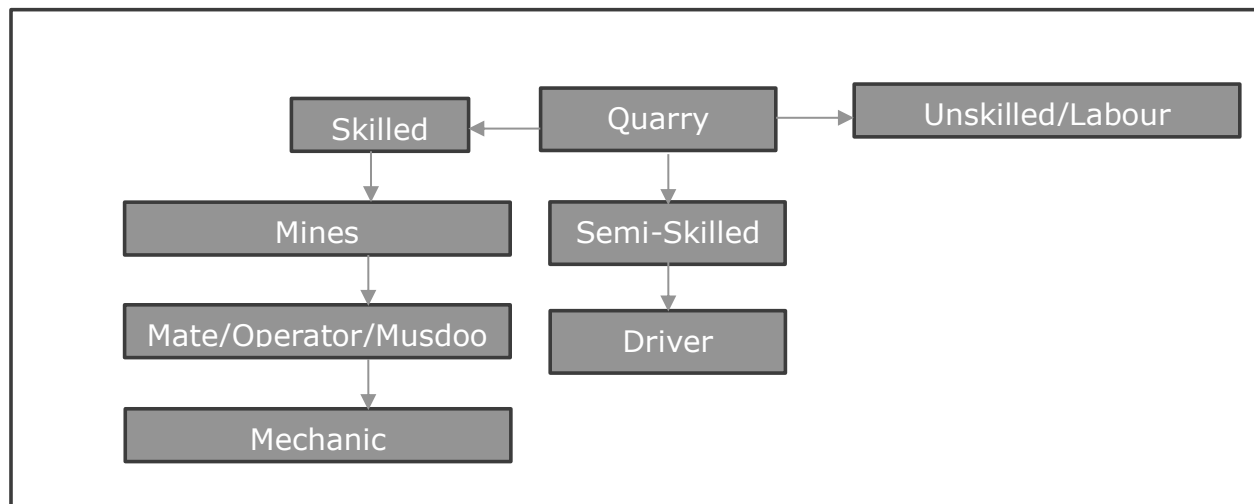
	Will be Ensured that blast holes are adequately stemmed for the depth of the hole and stemmed with suitable angular material.
	To be Undertake noise or vibration monitoring.
Land Environment	At conceptual stage, the mining pits will be converted into Rain Water Harvesting pit. Remaining area will be converted into greenbelt area.
	No external dumping i.e., outside the project area. The entire material will be sold.
	Garland drains with catch pits / settlement traps to be provided all around the project area to prevent run off affecting the surrounding lands.
	The periphery of Project area will be planted with thick plantation to arrest the fugitive dust, which will also act as acoustic barrier.
	Frequent Soil and ground water testing as per Environmental Monitoring Plan.
Top Soil / Overburden	There is no overburden anticipated during the quarrying operation.
Biological Environment	During mining, thick plantation will be carried out on the mentioned safety zone areas.
	The main attributes that retard the survival of sapling is fugitive dust, this fugitive dust can be controlled by water sprinkling on the haul roads and installing a sprinkler unit near the newly planted area.
	Regular review on Green belt development programme.
	Year wise greenbelt development plan mentioned in Chapter III will be monitored.

10.3 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



1	Skilled	Mines Manager	1 No
		Foreman/Mate	3 Nos
		Operator	14 Nos
		Mechanic	1 No
2	Semi-Skilled	Diver	4 Nos
3	Un-skilled	Labours	17 Nos
Total			40 Nos

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 Quarry of Thiru.K.Ananthaperumal 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

Sl .No	Budget planned for	Capital Cost Amount (INR)	Recurring Cost/Annum Amount (INR)
1	Air Quality Sampling	196100	39220
2	Water Quality Sampling	266100	53220
3	Noise Monitoring	50000	10000
4	Sanitary Arrangements	35000	7000
5	Safety kids	160000	32000
6	Afforestation	420000	84000
Total		11,272,00	225440

Total Project Cost for 5 years is 1,32,33,000 lakhs i.e., Rs. 11.27 Lakhs of Capital + Recurring cost Rs. 2.25 lakhs (Five years x 2.25 = 11.27 Lakhs)

10.5 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 11.27 lakhs has been allocated for the same. The EMP is dynamic, flexible, and subjected to periodic review. For projects where major environmental impacts are associated, EMP will be under regular review. Thus, the proper steps will be taken to accomplish all the goals mentioned in the EMP, and the project will have a positive impact on the study area.

CHAPTER 11

SUMMARY& CONCLUSION

11.1 INTRODUCTION

Thiru.K.Ananthaperumal has obtained Precise Area Communication Letter from Joint Director/Assistant Director (i/c), Department of Geology and Mining, Tirunelveli to quarry out 9,26,070 m³ of Rough Stone and 1,03,074 m³ of Gravel from an extent of 2.36.0 Ha located in S.F. No. 414/1, 415A/1A and 415A/2A at Palamadai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu State.

As per EIA notification, 2006 and its subsequent amendments the proposed "Rough Stone and Gravel Quarry of Thiru.K.Ananthaperumal 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.10524/2023/SEAC/ToR-1672/2024, Dated 08.02.2024. This report has been prepared in line with the approved TOR for production of maximum excavation of 9,26,070 m³ of Rough Stone and 1,03,074 m³ of Gravel.

S.No.	Description	Status/Remarks
1.	Sector	1(a), non-coal mining
2.	Category of the project	B1
3.	Proposed mineral	Rough Stone and Gravel
4.	Type of Lease	Fresh Lease
5.	Extent of the lease	6.60.5 Ha
6.	Proposed depth of Mining	27m (BGL)
7.	Method of mining	Opencast Semi-mechanized
8.	Proposed lease period	5 Years
9.	Proposed Environmental Clearance	10 Years
10.	Proposed production quantity for five years	Rough Stone - 9,26,070 m ³ Gravel-1.03,074 m ³

The Lessee Thiru.K. Ananthaperumal is an individual with sound experience in the identification, quarrying and marketing of Rough Stone. The proposed land is a Patta land attached as **Annexure 6**.

11.2 LOCATION

This project site is located in Palamadai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu State with Latitude 08°48'10.57"N to 08°48'27.47"N and Longitude 77°45'06.01"E to 77°45'11.28"E with Survey of India Topo Sheet No. 58-H/13. To conduct the study, the proposed mine lease area (core zone) and an impact zone of 10 km radius (called buffer zone) around the proposed mine site were considered. The EIA report is based on three months baseline data (i.e. February 2024 to April 2024)

11.3 GEOLOGY

The rock type noticed in the area for lease is Charnockite which contains mostly Quartz and Feldspar with some ferromagnesian minerals. The Charnockite is part of peninsular Gneisses, a high grade metamorphic rock. The strike of the Charnockite formation is N45°E – S45°W with vertical dipping.

11.4 PROJECT DESCRIPTION

This is a proposed Rough Stone quarry by Opencast Semi-mechanized mining method with drilling and blasting. The quarrying is restricted up to a depth of 40m above ground level. The geological reserves is estimated to be 29,67,300 m³ of Rough Stone and 1,31,880 m³ Gravel. The mineable reserve calculated by deducting 10m safety distance and bench loss. The mineable reserves is 13,22,445 m³ of Rough Stone and 1,03,074 m³ Gravel which will be recovered at the rate of 100% recovery upto a depth of 40m above 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 Open cast Semi-Mechanized method. The quarry operation involves shallow jack hammer drilling, slurry blasting, excavation, Loading and transportation of Rough Stone.

- There is no overburden anticipated during entire rough stone quarrying operation.

S.No.	Type of Detail	Description
1	Sector	1(a) Non coal mining
2	Fresh/Existing project	Fresh project
3	Category	B1
4	Nature of mineral	Rough Stone and Gravel
5	Production	9,26,070 m ³ of Rough Stone 1.03,074 m ³ of Gravel
6	Life	5 years
7	Waste generation and management	There is no overburden anticipated during the quarrying operation. Hence, no waste generation.
8	Bench height and width	Height and Width - 5m
9	Ultimate pit depth	27m (BGL)
10	End use	Rough Stone will be loaded into tippers to needy buyers for producing aggregates, M-sand.

11.5 PROJECT REQUIREMENTS

The requirements of the project is given below.

S.No.	Nature of requirement	Description
1	Water requirement	Total water requirement of 8KLD which will be procured from the outside agencies. Out of 8.0 KLD, drinking water requirement is 5.0 KLD, Green belt development and dust suppression is 3.5 KLD.
2	Power requirement	No electricity is needed for mining operations, for office demands, it will be met from the state grid.
3	Manpower requirement	Permanent employees - 20, temporary employees - 20
4	Financial requirement	The total project cost as per AMP will be INR 1,32,33,000 including Operational cost, Fixed Asset cost and EMP cost

5	Funds for Socio economic development	INR 5.0 Lakhs is allocated. In addition, any demand raised by people during public hearing will also be met.
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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,	Water bodies	Distance (Km)	Direction
		Palamadai Pond	2.12	SE
		Thalaiyuthu Kulam	4.52	S
		Gangaikondan Kulam	5.02	NE
		Alagankulam Pond	5.42	SW
		Molni Pond	7.38	SE
		Indira Kulam (South Pond)	8.57	NE
		Seeniyappa Kulam	8.61	SW
		Pallamadai Kulam	8.76	NW
		Kandiyapperi Pond	9.17	SW
		Elanthakulam	10	S
		Thamirabarani River	3.42	S
		Chittar River	5.75	E
B	Coastal zone, biospheres	None in 10km radius		

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU. K. ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A AND 415A/2A LOCATED AT VILLAGE - PALAMADAI, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

C	Mountains, forests	Thalaiyuthu RF-2.83km(W) Melapattam RF-3.94km(S)
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	Pappankulam - 1.2km - NE Gangaikondan -1.7km -NW Palamadai - 1.2km - SE Pandarkulam - 2.0km - SW
9	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	All facilities are available in Palamadai - 1.2km - SE
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 February to April 2024.

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

11.7 AIR ENVIRONMENT

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

S. No.	Station Code	Locations	Distance & Direction	Coordinates
1	AAQ 1	Project site	Core Zone	08°48'10.57"N 77°45'06.01"E
2	AAQ 2	Rajvirampuram	1.61 Km, S	08°47'26.42"N 77°45'17.36"E
3	AAQ 3	Alangaraperi	2.45 Km, E	08°48'28.3"N 77°4'28.1"E
4	AAQ 4	Vadakku Thalaiyuthu	3.6 Km, W	08°47'41.46"N 77°43'16.12"E
5	AAQ 5	Pathinalamperi	4.2 Km, NE	08°49'13.62"N 77°47'13.33"E
6	AAQ6	Aladipatti	3.6 Km, N	08°50'9.62"N 77°45'46.25"E

Station ID	Min	Max	Avg.
Particulate matter PM_{2.5} (µg/m³)			
AAQ-1	23.8	29.6	26.8
AAQ-2	16.6	23.1	19.85
AAQ-3	20.7	26.5	21.95
AAQ-4	23.1	31.5	27.3
AAQ-5	21.3	25.8	23.55
AAQ-6	19.4	25.3	22.35
CPCB NAAQS 2009 for PM_{2.5} - 60 µg/m³			
Particulate matter PM₁₀ (µg/m³)			
AAQ-1	57.3	67.2	62.25
AAQ-2	36.1	49.9	43
AAQ-3	46.3	56.7	51.5
AAQ-4	49.2	67.1	58.5
AAQ-5	44.5	53.3	48.9
AAQ-6	42.5	55.7	49.1
CPCB NAAQS 2009 for PM₁₀ - 100 µg/m³			
Sulphur Di-oxide as SO₂ (µg/m³)			

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU. K. ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A AND 415A/2A LOCATED AT VILLAGE - PALAMADAI, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

Station ID	Min	Max	Avg.
AAQ-1	3.5	4.9	4.2
AAQ-2	3.1	5.6	4.35
AAQ-3	3.2	4.9	4.05
AAQ-4	5.5	10.4	7.95
AAQ-5	3.1	5.4	4.25
AAQ-6	3.1	4.4	3.75
CPCB NAAQS 2009 for SO₂ – 80 µg/m³			
Oxide of Nitrogen as NO₂ (µg/m³)			
AAQ-1	7.2	9.5	8.35
AAQ-2	6.2	8.5	7.35
AAQ-3	6.7	8.9	7.8
AAQ-4	8.1	12.7	10.4
AAQ-5	6.9	9.2	8.05
AAQ-6	7.1	8.7	7.9
CPCB NAAQS 2009 for NO₂ – 80 µg/m³			

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

11.8 WATER ENVIRONMENT

Table 3.7 Results of Ground Water sampling Analysis in 6 locations								Specification/Limit (As per IS:10500:2012)	
Parameter	Test Parameter	Unit	GW1	GW2	GW3	GW4	GW5	Desirable	Permissible
Odour	-	AGREEABLE	AGREEABLE	Agreeable	AGREEABLE	AGREEABLE	AGREEABLE	Agreeable	Agreeable
Taste	NTU	<1	<1	<1.0	<1	<1	<1	Agreeable	Agreeable
pH	-	7.15	6.75	7.24	7.22	7.54	7.68	6.5 - 8.5	No Relaxation
Turbidity	µs/cm	1624	1720	144.1	1335	1597	1421	1	5
TDS	mg/l	975	1032	86.0	802	960	855	500	2000
Fluoride,(F)	mg/l	453	560	51.5	497	446	283	1	1.5
Total Alkalinity, (CaCO ₃)	mg/l	102	114	14.3	87.1	97.6	78.4	200	600
Total Hardness, (CaCO ₃)	mg/l	47.8	65.8	3.80	67.0	48.5	20.9	200	600
Calcium,(Ca)	mg/l	254	286	35.6	218	244	196	75	200
Calcium as CaCO ₃	mg/l	199	274	15.8	279	202	87.1		
Free Residual chlorine as Cl-	mg/l	452	316	40.4	333	439	356		
Chloride,(Cl)	mg/l	249	269	17.6	232	242	244	250	1000

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU. K. ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A AND 415A/2A LOCATED AT VILLAGE - PALAMADAI, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

Magnesium,(Mg)	mg/l	BDL (D.L - 0.2)	BDL (D.L - 0.2)	BDL (D.L - 0.2)	BDL (D.L - 0.2)	BDL (D.L - 0.2)	BDL (D.L - 0.2)	30	100
Nitrate, (NO ₃)	mg/l	201	290	20.1	190	198	209	45	No Relaxation
Sulphate, (SO ₄)	mg/l	0.09	0.05	BDL (D.L - 0.01)	0.08	0.06	0.04	200	400
Iron,(Fe)	mg/l	3.25	4.56	BDL (D.L - 1.0)	3.56	3.72	3.59	1	No Relaxation
Manganese, (Mn)	mg/l	0.32	0.51	BDL (D.L - 0.1)	0.49	0.41	0.57	0.1	0.3
Conductivity	mg/l	BDL (D.L - 0.05)	BDL (D.L - 0.05)	BDL (D.L - 0.05)	BDL (D.L - 0.05)	BDL (D.L - 0.05)	BDL (D.L - 0.05)	Not Specified	Not Specified

All the values were found to be within permissible limits

11.9 NOISE ENVIRONMENT

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

S. No.	Station Code	Locations	Distance & Direction	Coordinates
1	N1	Project site	Core Zone	08°48'10.57"N 77°45'06.01"E
2	N2	Rajvirampuram	1.61 Km, S	08°47'26.42"N 77°45'17.36"E
3	N3	Alangaraperi	2.45 Km, E	08°48'28.3"N 77°4'28.1"E
4	N4	Vadakku Thalaisyuthu	3.6 Km, W	08°47'41.46"N 77°43'16.12"E
5	N5	Pathinalamperi	4.2 Km, NE	08°49'13.62"N 77°47'13.33"E
6	N6	Aladipatti	3.6 Km, N	08°50'9.62"N 77°45'46.25"E

S. No	Location	Day equivalent	Night equivalent	Day equivalent limits by CPCB	Night equivalent limits by CPCB
1	Project site	43.1	36.8	75	70
2	Rajvirampuram	45.5	37.2		
3	Alangaraperi	44.3	38.1		
4	Vadakku Thalaisyuthu	44.4	36.6		
5	Pathinalamperi	46.9	37.8		
	Aladipatti	46.1	37.8		

11.10 SOIL ENVIRONMENT

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

S. No	Parameter	Unit	S1	S2	S3	S4	S5	S6
1	pH at 25 °C	-	6.67	7.55	7.24	7.43	7.96	7.24
2	Electrical Conductivity	µmhos/cm	312.8	52.47	76.54	110.4	110.6	50.13
3	Dry matter content	%	98.94	94.32	97.93	95.41	98.44	92.81
4	Water Content	%	1.06	5.68	2.07	4.59	1.56	7.19
5	Organic Matter	%	0.94	1.72	1.62	2.14	1.21	0.76
6	Soil texture	-	LOAM	LOAM	CLAY LOAM	SILT LOAM	Sandy Clay loam	Clay loam
7	Grain Size Distribution	%	45.95	42.06	28.41	27.22	44.38	29.46
	i. Sand							
	ii. Silt		45.09	38.37	33.08	53.54	27.65	40.68
9	iii. Clay	%	8.97	19.57	38.51	19.24	27.97	29.86
10	Phosphorous as P	mg/kg	1.58	2.66	2.13	3.21	0.97	1.56
11	Sodium as Na	mg/kg	905	434	373	264	388	512
12	Potassium as K	mg/kg	775	642	507	527	632	723
13	Nitrogen and Nitrogenous Compounds	mg/kg	275	475	453	635	292	163
14	Total Soluble Sulphate	%	BDL(D.L .0.02)	BDL(D.L .0.02)	BDL(D.L .0.02)	BDL(D.L .0.02)	BDL(D.L.0.02)	BDL(D.L .0.02)
15	Porosity	%	23.6	25.4	27.1	22.2	20.9	22.7
16	Water Holding Capacity	Inches/foot	3.5	3.6	3.1	3.7	3.5	3.2

11.11 BIOLOGICAL ENVIRONMENT

FLORA

For measuring the extent of flora present in the study area, the area is divided into 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

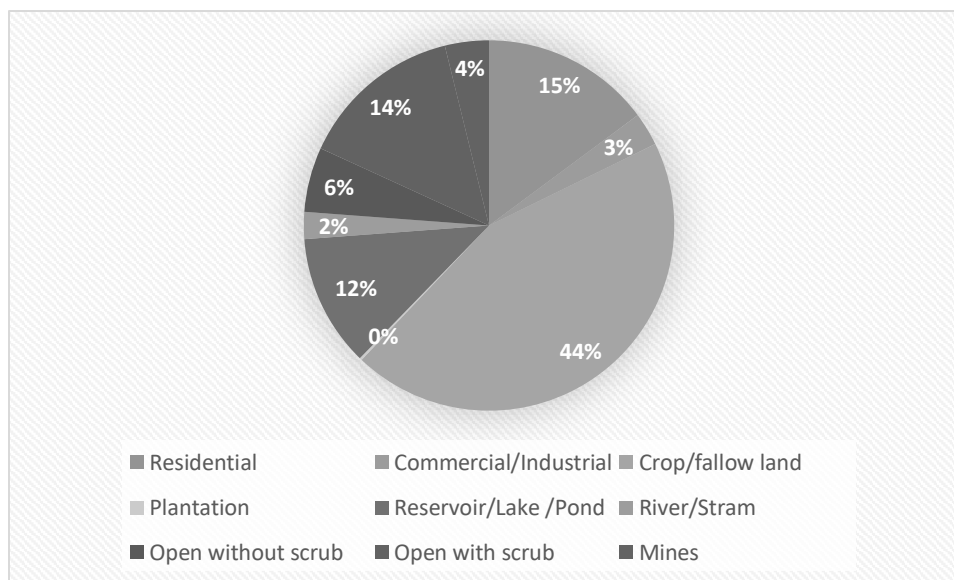
In the study area, commonly found animals like dogs, cats, bush rat, cows, birds like crow, Myna, Sparrow, etc were found.

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:

Table No. 3.17: Major Land Use Units of the Study Area in Percentage

S. No	1st Level Classification	Area in (sq.km)	Percentage (%)	2nd Level Classification	Area in (sq.km)	Percentage (%)
1	Built-up or habitation	57.85	17.75	Residential	48.38	14.84
				Commercial/Industrial	9.47	2.90
2	Agriculture	145.21	44.54	Crop/fallow land	144.5	44.33
				Plantation	0.71	0.22
3	Water bodies	45.28	13.89	Reservoir/Lake /Pond	37.60	11.53
				River/Stram	7.68	2.36
4	Waste Land	65.15	19.98	Open without scrub	18.44	5.66
				Open with scrub	46.71	14.33
5	Others	12.51	3.84	Mines	12.51	3.84
Total		326	100		326	100



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 Landuse expert visited more than 3 villages in the study area namely Gangaikondan , Thathanuthu nd Avanapperi, 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 Senthamangalam.

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 Palamadai which is about 1.2 SE km from the lease area.
- Major schools with higher secondary and senior secondary schools are located in Palamadai.
- The major Sendamangalam Union located in the area is Palamadai
- Facilities like petrol pump stations, ATM facility are available in Palamadai

11.14 HYDROGEOLOGY OF THE LEASE AREA

Since there is a pond is situated at a distance of 480 m in north direction. Thamirabarani River is located at a distance of 3.42 km in south direction of the proposed ML area. the hydrological and hydrogeological pattern of the study area is studied in detail using satellite imagery.

Thamirabarani 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.

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 40m

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

ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Environmental impacts on the following environments are identified.

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

11.16 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 upto 40m AGL. 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, 5.15.5 Ha of lease area will be left as rain water harvesting pond. 1.43.0 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 1800 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 8.0 KLD which will be sourced from outside agencies. Negligible sewage will be generated, for which a septic tank with soak pit will be set up.

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

Since the mining operation will be limited upto depth of 27m (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.

- Palamadai Pond – 2.12 km (SE)
- Thalaiyuthu Kulam - 4.52km (W)
- Gangaikondan Kulam-5.02km (NE)
- Alagankulam Pond - 5.42km (SW)
- Molni Pond- 7.38km (SE)
- Indira Kulam (South Pond)- 8.57km (NE)
- Seeniyappa Kulam - 8.61km (SW)
- Pallamadai Kulam -8.76km (NW)
- Kandiyapperi Pond-9.17km (SW)
- Elanthakulam - 10.00km (S)
- Thamirabarani River- 3.42km (S)
- Chittar River - 5.75km (E)

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 **11.27 lakhs** 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 40 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 11.27 lakhs for the five years has been allocated as EMP cost. The EMP is dynamic, flexible and subjected to periodic review. For project where the major environmental impacts are associated, EMP will be under regular review. Thus, the proper steps will be taken to accomplish all the goals mentioned in the EMP and the project will bring the positive impact in the study area.

CHAPTER 12

DISCLOSURE OF CONSULTANTS

Global Mining Solutions is a NABET Accredited EIA consultant as per NABET certificate NABET/EIA/2326/IA 0110. The registered office of Global Mining Solutions is at Plot No.6, S.F.No.13/2 A2, VS City, RC Chetty patty, Kottamettupatty, Omalur, Salem, Tamilnadu-636455.

Declaration by Experts contributing to the proposed Rough Stone Quarry over an extent of 6.60.5 Ha, while total cluster area of 18.42.5 Ha at Palamadai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu State..

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

EIA Coordinator Name: M. Manikandan

Signature & Date

Period of involvement: February 2024 to April 2024.

Contact information:


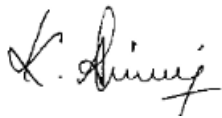



M/s Global Mining Solutions

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

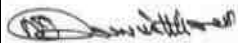
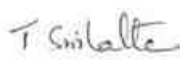


Kottamettupatty, Omalur,

Salem, Tamil Nadu – 636 455

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU. K. ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A AND 415A/2A LOCATED AT VILLAGE - PALAMADAI, TIRUNELVELI TALUK, TIRUNELVELI 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: Feb 2024 to April 2024.</u>	
2	WP	Abirami Kaliaperumal	Assessment of existing water quality, impact of the project on surface and ground water quality, suggested mitigation measures for minimizing the impact. <u>Period: Feb 2024 to April 2024.</u>	
3	SHW	Ramadoss N	Assessment of waste generated from the project, suggested waste management practices. <u>Period: Feb 2024 to April 2024.</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: Feb 2024 to April 2024.</u>	
5	EB	Saravanan S	Baseline data collection of related to ecology of the area. <u>Period: Feb 2024 to April 2024.</u>	

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU. K. ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A AND 415A/2A LOCATED AT VILLAGE - PALAMADAI, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.


6	HG	Ravinthiran N	<p>Hydrogeological feature of the area. Ground water depth and impact of project on ground water of the area.</p> <p><u>Period: Feb 2024 to April 2024.</u></p>	
7	AQ	Srilatha Thiruveedhula	<p>Air quality modeling utilizing the area source model. Predication of the ground level concentration of the dust. Suggesting suitable mitigation measures.</p> <p><u>Period: Feb 2024 to April 2024.</u></p>	
8	NV	Dhanalakshmi Ramanathan	<p>Ambient noise study of the area. Incremental noise generation due to quarry operation and impact of the noise due to the project.</p> <p><u>Period: Feb 2024 to April 2024.</u></p>	
9	LU	Dhanalakshmi Ramanathan	<p>Preparation of land use map based on satellite imagery. Land use classification and analysis. Impact prediction of the project on the surrounding land environment.</p> <p><u>Period: Feb 2024 to April 2024.</u></p>	

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU. K. ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A AND 415A/2A LOCATED AT VILLAGE - PALAMADAI, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.


10	RH	S.V. Prashant	<p><i>Identification of the Risk related to the mining activities. Preparation of emergency disaster management plan. Plan for supply of safety equipment for the worker.</i></p> <p><u>Period: Feb 2024 to April 2024.</u></p>	<i>S.V. Prashant</i>
11	SC	Shisupal Sing	<p><i>Soil monitoring, secondary data collection on soil type, soil management practices, utilization of topsoil.</i></p> <p><u>Period: Feb 2024 to April 2024.</u></p>	<i>Shisupal Sing</i>
12	GEO	Valliappan Meyyappan	<p><i>Geological map, stability of quarry and dump, management plan for mine stability, after use of mining quarry and geological feature of the area.</i></p> <p><u>Period: Feb 2024 to April 2024.</u></p>	<i>Valliappan Meyyappan</i>

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU. K. ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A AND 415A/2A LOCATED AT VILLAGE - PALAMADAI, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.


TM-FAE:

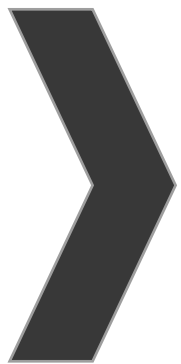
S.No	Name of TM (FAE)	Functional Area	Approved FAE (to work under)	Period of involvement	Type of work	Signature
1	S. Kamaraj	GEO	Mr.Valliappan	<u>Period: Feb 2024 to April 2024.</u>	Associated with FAE in preparing Geological map, stability of quarry and dump, management plan for mine stability, after use of mining quarry and geological feature of the area	
2	M.Prabu	LU	T.Srilatha	<u>Period: Feb 2024 to April 2024. .</u>	Associated with FAE in preparing Land use map based on satellite imagery, Land use classification and analysis, Impact prediction on surrounding land environment	
		HG	Ashok Kumar		Associated with FAE in studying hydrogeological pattern of study area, Studying ground water and the impact of the project on ground water	
3	M. Manikandan	EB	S.Saravanan	<u>Period: Feb 2024 to April 2024.</u>	Associated with the expert in baseline data collection related to	

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU. K. ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A AND 415A/2A LOCATED AT VILLAGE - PALAMADAI, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

					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	
4	Suresh	WP	Abirami Kaliaperumal		Air quality modeling utilizing the area source model. Predication of the ground level concentration of the dust. Suggesting suitable mitigation measures. <u>Period: Oct 2023 to Dec 2023.</u>	M. Suresh D
		AP	Dhanalakshmi Ramanathan	<u>Period: Feb 2024 to April 2024.</u>	Ambient noise study of the area. Incremental noise generation due to quarry operation and impact of the noise due to the project. <u>Period: Oct 2023 to Dec 2023.</u>	

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU. K. ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A AND 415A/2A LOCATED AT VILLAGE - PALAMADAI, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

5	S.Kamaraj	SC	Shishupal Singh	<u>Period: Feb 2024 to April 2024.</u>	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



THIRU.A.R. RAHUL NADH, I.A.S.,
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY –TAMILNADU

3rd Floor, Panagal Maaligai,
No.1 Jeenis Road, Saidapet,
Chennai – 600015
Tele phone No : 044-2435 9970

TERMS OF REFERENCE (ToR)

Lr No.SEIAA-TN/F.No.10524/2023/SEAC/ToR- 1672/2024 Dated: 08.02.2024.

To

Thiru.K.Anantha Perumal,
S/o.Kanniah,
No.160D/8, Polepettai West,
Thoothukudi District-628001

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference with public Hearing (ToR) for the Proposed Rough stone & Gravel quarry lease over an extent of 6.60.5Ha at SF.Nos. 414/1, 415A/1A & 415A/2A of Palamadai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu by Thiru.K.Anantha Perumal - 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/451228/2023, dated:06.11.2023.
 2. Your application submitted for Terms of Reference dated:09.11.2023.
 3. Minutes of the 436th SEAC meeting held on 29.12.2023.
 4. Minutes of the 693rd SEIAA meeting held on 08.02.2024.

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

The proponent, Thiru.K.Anantha Perumal has submitted application for Terms of Reference (ToR) in Form-I, Pre- Feasibility report for the Proposed Rough stone & Gravel quarry lease over an extent of 6.60.5Ha at SF.Nos. 414/1, 415A/1A & 415A/2A of Palamadai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.

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SEIAA-TN

Discussion by SEAC and the Remarks:-

Proposed Rough stone & Gravel quarry lease over an extent of 6.60.5Ha at SF.Nos. 414/1, 415A/1A & 415A/2A of Palamadai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu by Thiru.K.Anantha Perumal - For Terms of Reference.

(SIA/TN/MIN/451228/2023, Dated:06.11.2023)

The proposal was placed in the 436th SEAC Meeting held on 29.12.2023. The details of the project furnished by the proponent are given on the website (parivesh.nic.in).

The SEAC noted the following:

1. The Project Proponent, Thiru.K.Anantha Perumal has applied for Terms of Reference for the Proposed Rough stone & Gravel quarry lease over an extent of 6.60.5Ha at SF.Nos. 414/1, 415A/1A & 415A/2A of Palamadai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
2. The project/activity is covered under Category "B1" of Item 1(a) " Mining of mineral Projects" of the Schedule to the EIA Notification, 2006.
3. The lease period is for 10 years. The mining plan is for the period of five years & the production should not exceed 9,26,070m³ of rough stone & 1,03,074m³ of Gravel with an ultimate depth of mining is 27m BGL. The annual peak production is 1,85,660m³ of rough stone & 78,474m³ of Gravel.

Based on the presentation and details furnished by the project proponent, **SEAC decided to grant Terms of Reference (TOR) with Public Hearing** subject to the following 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 leave 100m safety distance for railway line and shall furnish the modified mining plan duly approved by competent authority at the time of EIA presentation.
2. The PP shall prepare and submit a conceptual plan for working of quarry starting from south towards north showing the initial box cut.
3. The PP shall submit a comprehensive study on the behaviour of Gangaikondan spotted deer and the implications of the proposed activity on the eco system of the sanctuary by involving the research institutions such as ICFRE - Indian Council of Forestry Research and Education, Coimbatore (or) The Forest College and Research Institute (FC & RI), Coimbatore.
4. The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m & upto 1km 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.


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5. The study on impact of the proposed quarrying operations on the surrounding environment which includes water bodies, Odai etc.,
6. The Project Proponent shall furnish the revised EMP based on the study carried out on impact of the dust & other environmental impacts due to proposed quarrying operations on the nearby agricultural lands for remaining life of the mine in the format prescribed by the SEAC considering the cluster situation.
7. In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following:
 - (i) Original pit dimension
 - (ii) Quantity achieved Vs EC Approved Quantity
 - (iii) Balance Quantity as per Mineable Reserve calculated.
 - (iv) Mined out Depth as on date Vs EC Permitted depth
 - (v) Details of illegal/illicit mining
 - (vi) Violation in the quarry during the past working.
 - (vii) Quantity of material mined out outside the mine lease area
 - (viii) Condition of Safety zone/benches
 - (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.
8. 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.
9. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.
10. 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.
11. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.
12. 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.


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13. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.
14. However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.
15. 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.
16. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.
17. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.
18. 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,
19. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
20. Quantity of minerals mined out.
 - Highest production achieved in any one year
 - Detail of approved depth of mining.
 - Actual depth of the mining achieved earlier.




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- Name of the person already mined in that leases area.
 - If EC and CTO already obtained, the copy of the same shall be submitted.
 - Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
21. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
 22. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,
 23. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
 24. The Project Proponent shall provide the 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.
 25. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
 26. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.
 27. 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.



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28. 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.
29. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
30. 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.
31. 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.
32. 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.
33. 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.
34. Impact on local transport infrastructure due to the Project should be indicated.
35. 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.
36. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
37. 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.


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38. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
39. Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner
40. A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
41. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
42. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
43. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
44. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
45. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
46. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.


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47. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.
48. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.
49. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.

Appendix -I

List of Native Trees Suggested for Planting

1. *Aeglemarmelos*-Vilvam
2. *Adenaantherapavonina*-Manjadi
3. *Albizialebbeck*-Vaagai
4. *Albiziaamara*-Usil
5. *Bauhinia purpurea* - Mantharai
6. *Bauhinia racemosa* - Aathi
7. *Bauhinia tomentosa*-Iruvathi
8. *Buchananiaaillaris*-Kattuma
9. *Borassusflabellifer*- Panai
10. *Buteamonosperma* - Murukkamaram
11. *Bobaxceiba*- Ilavu, Sevvilavu
12. *Calophylluminophyllum* - Punnai
13. *Cassia fistula*- Sarakondrai
14. *Cassia roxburghii*- Sengondrai
15. *Chloroxylonsweitenia* - Purasamaram
16. *Cochlospermumreligiosum*- Kongu, Manjalllavu
17. *Cordiadichotoma*- Mookuchalimaram
18. *Cretevaadansonii*-Mavalingum
19. *Dilleniaindica*- Uva, Uzha
20. *Dilleniapentagyna*- SiruUva, Sitruzha
21. *Diospyrosebenum*- Karungali
22. *Diospyroschloroxylon*- Vaganai
23. *Ficusamplissima*- Kalltchi
24. *Hibiscus tiliaceous*-Aatrupoovarasu
25. *Hardwickiabinata*- Aacha
26. *Holopteliaintegrifolia*-Aayili
27. *Lanneacoromandelica* - Odhiam
28. *Lagerstroemia speciosa* - Poo Marudhu



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29. *Lepisanthustetraphylla*- Neikottaimaram
30. *Limoniaacidissima* - Vila maram
31. *Litseaglutinosa*-Pisinpattai
32. *Madhucalongifolia* - Illuppai
33. *Manilkarahexandra*-UlakkaiPaalai
34. *Mimusopselengi* - Magizhamaram
35. *Mitragynaparvifolia* - Kadambu
36. *Morindapubescens*-Nuna
37. *Morindacitrifolia*- VellaiNuna
38. *Phoenix sylvestre*-Eachai
39. *Pongamiapinnata*-Pungam
40. *Premnamollissima*- Munnai
41. *Premnaserratifolia*- Narumunnai
42. *Premnatomentosa*-PurangaiNaari, PudangaNaari
43. *Prosopiscinerea* - Vannimaram
44. *Pterocarpusmarsupium* - Vengai
45. *Pterospermumcanescens*-Vennangu, Tada
46. *Pterospermumxylocarpum* - Polavu
47. *Puthranjivaroxburghii*-Puthranjivi
48. *Salvadorapersica*- Ugaamaram
49. *Sapindusemarginatus*- Manipungan, Soapukai
50. *Saracaasoca* - Asoca
51. *Streblusasper*- Pirayamaram
52. *Strychnosnuxvomica*-Yetti
53. *Strychnopotatorum* - Therthang Kottai
54. *Syzygiumcumini* - Naval
55. *Terminaliabellerica*- Thandri
56. *Terminalia arjuna*- Venmarudhu
57. *Toona ciliate* - Sandhanavembu
58. *Thespesiapopulnea*- Puvarasu
59. *Walsuratrifoliata*-valsura
60. *Wrightiatinctoria*- Veppalai
61. *Pithecellobium dulce* - Kodukkapuli

Discussion by SEIAA and the Remarks:-

The subject was placed in the 693rd Authority meeting held on 08.02.2024. The Authority noted that the subject was appraised in the 436th SEAC meeting held on 29.12.2023. 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 and conditions in **Annexure 'B'** of this minutes.


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1. The PP shall submit a comprehensive study on the behaviour of Gangaikondan spotted deer and the implications of the proposed activity on the eco system of the sanctuary by involving the research institutions such as ICFRE - Indian Council of Forestry Research and Education, Coimbatore (or) The Forest College and Research Institute (FC & RI), Coimbatore (or) Wildlife Institution of India, Dehradun (or) Salim Ali Institute, Coimbatore.

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.

Impact study of mining



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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
- Soil health & soil biological, physical land chemical features .
 - Climate change leading to Droughts, Floods etc.
 - Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
 - Possibilities of water contamination and impact on aquatic ecosystem health.
 - Agriculture, Forestry & Traditional practices.
 - Hydrothermal/Geothermal effect due to destruction in the Environment.
 - Bio-geochemical processes and its foot prints including environmental stress.
 - Sediment geochemistry in the surface streams.

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.
21. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.



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

Mine Closure Plan


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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/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.

Others

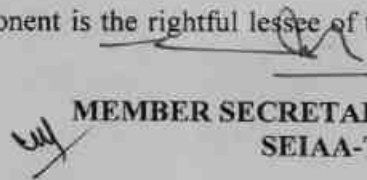
39. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.

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.

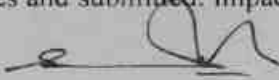
A. STANDARD TERMS OF REFERENCE

- 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


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mine should be given.

- 3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
- 4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
- 5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
- 6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
- 7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.
- 8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
- 9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
- 10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if


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any, of change of land use should be given.

- 11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
- 12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
- 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
- 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
- 15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
- 16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
- 17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
- 18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing

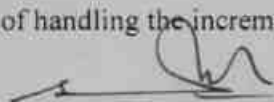

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the same should be made as part of the project cost.

- 19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.
- 20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
- 21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
- 22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
- 23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating


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- the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.
- 24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
 - 25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
 - 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
 - 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
 - 28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.
 - 29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
 - 30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
 - 31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
 - 32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental


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load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.

- 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
- 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
- 35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
- 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
- 37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
- 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
- 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
- 40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
- 41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
- 42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
- 43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
- 44) Besides the above, the below mentioned general points are also to be followed:-
 - a) Executive Summary of the EIA/EMP Report



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- b) All documents to be properly referenced with index and continuous page numbering.
- c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
- d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.
- e) Where the documents provided are in a language other than English, an English translation should be provided.
- f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.
- g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA. II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.
- h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the ToR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.
- i) As per the circular no. J-11011/618/2010-IA. II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the Environment Clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.
- j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

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

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

1. Project name and location (Village, District, State, Industrial Estate (if applicable)).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.



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



MEMBER SECRETARY
SEIAA-TN

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

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

- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
- d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.
- e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J -11013/77/2004-IA-II(I) dated 2nd December, 2009, 18th March 2010, 28th May 2010, 28th June 2010, 31st December 2010 & 30th September 2011 posted on the Ministry's website <http://www.moef.nic.in/> may be referred.


MEMBER SECRETARY
SEIAA-TN

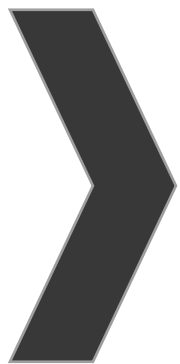
- After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above mentioned points, the proponent will take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 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.



MEMBER SECRETARY
SEIAA-TN

Copy to:

1. The Additional Chief Secretary to Government, Environment & Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi 110032.
3. The Member Secretary, 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 110003
6. The District Collector, Tirunelveli District.
7. Stock File.



ANNEXURE-2



From

Thiru.L.Suresh.,
Joint Director/
Assistant Director (i/c),
Geology and Mining,
Tirunelveli.

To

Thiru.K.Anantha Perumal,
S/o.Kanniah,
160D/8, Polepettai West,
Thoothukudi District.

Roc.No.M2/214/2023

Dated. 19.09.2023

Sir,

Sub: **Mines and Quarries** - Minor Minerals - Tirunelveli District - Quarry lease application preferred by Thiru.K.Anantha Perumal, S/o.Kanniah for quarrying and transportation of Roughstone and Gravel - over an extent of 6.60.5 hectares of patta land in SF. Nos. 414/1, 415A/1A & 415A/2A of Palamadai Village, Tirunelveli Taluk - Precise area communicated - Approved Mining Plan - Called for - Reg.

- Ref:**
1. Quarry lease application preferred by Thiru.K.Anantha Perumal, S/o.Kanniah, dated. 13.03.2023.
 2. The Revenue Divisional Officer, Tirunelveli Letter No.K.Dis.A5/779/2023, dated. 30.06.2023.
 3. Representation received from the applicant on 13.07.2023.
 4. Inspection report of the Assistant Geologist of Geology and Mining, Tirunelveli, dated. 15.09.2023.
- *****

Thiru.K.Anantha Perumal, S/o.Kanniah, 160D/8, Polepettai West, Thoothukudi District has applied for grant of quarry lease for quarrying Roughstone and Gravel over an extent of 6.60.5 hectares of patta land in SF. Nos. 414/1 (3.09.0), 415A/1A (2.71.0) & 415A/2A (0.80.0) of Palamadai Village, Tirunelveli Taluk, Tirunelveli District for a period of 10

u. Anantha Perumal

years under Rule 19 (1) of Tamil Nadu Minor Mineral Concession Rules, 1959 vide reference 1st and 3rd cited.



2. The Revenue Divisional Officer, Tirunelveli and the Assistant Geologist of Geology and Mining, Tirunelveli has furnished their reports in the reference 2nd and 4th cited respectively and recommended for grant of quarry lease in the applied area subject to certain conditions.

3. Based on the recommendations of the Revenue Divisional Officer, Tirunelveli and the Assistant Geologist of Geology and Mining, Tirunelveli the application preferred by Thiru.K.Anantha Perumal, S/o.Kannaiah for grant of quarry lease for quarrying roughstone and gravel in the subject area is considered for grant for a period of 10 years and precise area is hereby communicated over an extent of 6.60.5 hectares of patta land in SF. Nos.414/1 (3.09.0), 415A/1A (2.71.0) & 415A/2A (0.80.5) of Palamadai Village, Tirunelveli Taluk, Tirunelveli under Rule 19 of the Tamil Nadu Mineral Concession Rule 1959 and communicated to the applicant as per the power conferred under amended Rule 41(4) Tamil Nadu Minor Mineral Concession Rules, 1959 subject to following condition.

- i. A Safety distance of 7.5 meters should be provided to the adjoining patta lands and should not cause any hindrance to them while quarrying and transportation of minerals.
- ii. 50 meters safety distance shall be maintained to the railway lines located on south - eastern side of the applied area.

Thiru. Anantha Perumal
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- iii. 50 meters safety distance shall be maintained located on western side of the applied area.
- iv. Environmental Clearance should be obtained from the State Level Environment Impact Assessment Authority, Chennai.



4. In view of the above, you are hereby directed to submit mining plan duly prepared by a Recognized Qualified Person in respect of the precise area communicated for approval of the Joint Director/Assistant Director(i/c) of Geology and Mining, Tirunelveli within a period of 90 days from the date of receipt of this notice as required under rule 41 (5) of Tamil Nadu Minor Mineral Concession Rules, 1959.

5. You are further directed to produce Approved Mining Plan and Environmental Clearance obtained from the State Level Impact Assessment Authority (SEIAA) as required under Rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 for grant of quarry lease for quarrying Roughstone and Gravel in respect of the precise area communicated.

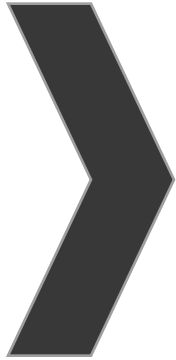

 Joint Director/
 Assistant Director(i/c),
 Geology and Mining,
 Tirunelveli.

Copy to:

The Chairman
 State Level Environmental
 Impact Assessment Authority,
 Chennai.

Copy
17/9/23

H. A. ...



ANNEXURE-3



APPROVAL MINING PLAN

From

Thiru.L.Suresh., M.Sc.,
Joint Director/
Assistant Director(i/c),
Geology and Mining,
Tirunelveli.

To

Thiru.K.Ananthaperumal,
S/o.Kanniah,
160D/8, Polepettai West,
Thoothukudi District.

Rc.No.M2/214/2023 dated.20.09.2023

Sir,

Sub: Mines and Minerals - Minor Minerals - Roughstone and Gravel - Tirunelveli District - Quarry lease application preferred by Thiru.K.Anantha Perumal, S/o.Kannaiah for quarrying and transportation of Roughstone and Gravel - over an extent of 6.60.5 hectares of patta lands in SF. Nos. 414/1, 415A/1A & 415A/2A of Palamadai Village, Tirunelveli Taluk - precise area communicated - Mining plan submitted - Approval accorded - Reg.

- Ref :**
1. Quarry lease application preferred by Thiru.K.Anantha Perumal, S/o.Kanniah, dated. 13.03.2023.
 2. Precise Area Communication letter in Rc. No.M2/214/2023, dated. 19.09.2023.
 3. Letter received from the applicant Thiru.K.Anantha Perumal, dated. 19.09.2023.

Thiru.K.Anantha Perumal, S/o.Kannaiah, 160D/8, Polepettai West, Thoothukudi District has applied for grant of quarry lease for quarrying Roughstone and Gravel over an extent of 6.60.5 hectares of patta land in SF. Nos. 414/1 (3.09.0), 415A/1A (2.71.0) & 415A/2A (0.80.0) of Palamadai Village, Tirunelveli Taluk, Tirunelveli District for a period of 10 years under Rule 19 (1) of Tamil Nadu Minor Mineral Concession Rules, 1959.

h. Anantha Perumal

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2. Based on the recommendations of the Revenue Divisional Officer, Tirunelveli and the Assistant Geologist of Geology and Mining, Tirunelveli precise area was communicated to Thiru.K.Anantha Perumal, S/o.Kannaiah for grant of quarry lease for quarrying and transportation of Roughstone and Gravel over an extent of 6.60.5 hectares of patta lands in SF. Nos.414/1 (3.09.0), 415A/1A (2.71.0) & 415A/2A (0.80.5) of Palamadai Village, Tirunelveli Taluk, Tirunelveli District for a period of 10 years vide reference 2nd cited.

3. In response to the precise area communicated, the applicant has submitted three copies of draft Mining Plan duly prepared by a Qualified Person and requested for approval of the same vide reference 3rd cited.

4. The draft Mining Plan submitted in respect of the precise area communicated have been verified with reference to field conditions. All the conditions stipulated in the precise area communicated have been incorporated in the Mining Plan. The required safety distance of 7.5 meters to the adjacent patta lands and 50 meters to the railway lines located on south - eastern side and 50 meters to the odai located on western side of the applied area have been clearly demarcated.

5. In exercise of the powers vested under sub rule (2) and (5) of Rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959, I hereby approve the mining plan subject to the following conditions:-

h. Anantha Perumal

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- i. The mining plan is approved without prejudice to any other order or direction from any court of contempt jurisdiction.
- ii. 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.
- iii. 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, Indian Explosives Act, 1884 (Central Act IV of 1884) and the Rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.
- iv. Quarrying operations should be carried out in accordance with the Approved Mining Plan.
- v. The applicant is entitled for production of 13,22,445 cbm of Roughstone, 1,03,074 cbm of Gravel upto a depth of 47 meters for a period of 10 years as per the Mining Plan.
- vi. A safety distance of 7.5 meters should be provided to the adjoining patta lands and should not cause any hindrance to them while quarrying and transportation of minerals.
- vii. 50 meters safety distance shall be maintained to the railway lines located on south - eastern side of the applied area.
- viii. 50 meters safety distance shall be maintained to odai located on western side of the applied area.
- ix. No hindrance shall be caused to the adjoining pattadars' lands while carrying out quarrying operations.

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x. Environmental Clearance should be obtained from the State Level Environment Impact Assessment Authority, Chennai.

6. As directed by the Joint Director/Assistant Director(i/c) of Geology and Mining, Tirunelveli in the reference 2nd cited, you are hereby requested to produce Environmental Clearance obtained from the State Level Environment Impact Assessment Authority (SEIAA), Chennai as applicable under Rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 for grant of quarry lease, in respect of the precise area communicated.

Encl: Approved Mining plan.


Joint Director/
Assistant Director(i/c),
Geology and Mining,
Tirunelveli.


20/1/2023



MINING PLAN FOR PALAMADAI 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 : TIRUNELVELI
TALUK : TIRUNELVELI
VILLAGE : PALAMADAI
S.F.NOS : 414/1, 415A/1A AND 415A/2A
EXTENT : 6.60.5Ha

ECO-FRIENDLY



SUSTAINABILITY



SAFETY



FOR APPLICANT

THIRU. K.ANANTHA PERUMAL,
S/o.Kanniah,
160D/8, Polepettai West,
Thoothukudi District.

PREPARED BY

N.Ravinthiran, M.Sc.,(App.Geo)

Qualified Person

1699 / 1 - Madurai Road,
Opp. Abcoy Garden,
Sankar Nagar & (Po) - 627357.
Tirunelveli District.
Cell : 98421 26699 & 97502 23535.



(PPE)

N. Ravinthiran

90 247

K.Anantha Perumal,
S/o.Kanniah,
160D/8, Polepettai West,
Thoothukudi District.



CONSENT LETTER FROM THE APPLICANT

The Mining Plan in respect of **Rough Stone and Gravel** quarry over an extent of 6.60.5hectares of Patta lands in S.F.Nos. 414/1, 415A/1A and 415A/2A of Palamadai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu State has been prepared by

N.Ravinthiran, M.Sc.,(App.Geo)

Qualified Person

I request the Joint Director / Assistant Director (i/c), Department of Geology and Mining, Tirunelveli District to make further correspondence regarding modifications of the Mining Plan with the said Qualified Person on this following address.

N.Ravinthiran, M.Sc.,(App.Geo)

Qualified Person

1699 / 1 – Madurai Road,
Opp. Abcoy Garden,
Sankar Nagar & (Po) – 627357.
Tirunelveli District.
Cell : 98421 26699 & 97502 23535.

I hereby undertake that all modifications so made in the Mining Plan by the Qualified Person may be deemed to have been made with my knowledge and consent and shall be acceptable to me and building on me in all respects.

Signature of the Applicant

K. Anantha Perumal

K.Anantha Perumal

Place: Tirunelveli

Date: 20.09.2023

K. Anantha Perumal

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K.Anantha Perumal,
S/o.Kanniah,
160D/8, Polepettai West,
Thoothukudi District.



DECLARATION

The Mining Plan in respect of **Rough Stone and Gravel** quarry over an extent of 6.60.5hectares of Patta lands in S.F.Nos. 414/1, 415A/1A and 415A/2A of Palamadai Village, Tirunelveli Taluk, Tirunelveli 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

A handwritten signature in black ink, appearing to read "K. Anantha Perumal".

K.Anantha Perumal

Place: Tirunelveli

Date: 20.09.2023

A handwritten signature in black ink, appearing to read "K. Anantha Perumal".

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N.Ravinthiran, M.Sc.,(App.Geo)

Qualified Person

1699 / 1 - Madurai Road,
Opp. Abcoy Garden,
Sankar Nagar & (Po) - 627357.
Tirunelveli District.
Cell : 98421 26699 & 97502 23535.



CERTIFICATE

This is to certify that, the provisions of under rules 41 & 42 as Amended in under Tamil Nadu Minor Mineral Concession Rules, 1959, have been observed in the Mining Plan for the grant of **Rough Stone and Gravel** quarry lease over an extent of 6.60.5hectares of Patta lands in S.F.Nos. 414/1, 415A/1A and 415A/2A of Palamadai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu State applied by Thiru.K.Anantha Perumal, 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.

A handwritten signature in black ink, appearing to read "N. Ravinthiran".

N.Ravinthiran, M.Sc.,(App.Geo)

Qualified Person

Place: Tirunelveli

Date: 26.09.2023

W. Anantha Perumal

N.Ravinthiran, M.Sc.,(App.Geo)

Qualified Person

1699 / 1 – Madurai Road,

Opp. Abcoy Garden,

Sankar Nagar & (Po) – 627357.

Tirunelveli District.

Cell : 98421 26699 & 97502 23535.



CERTIFICATE

Certified that, in preparation of Mining Plan for **Rough Stone and Gravel** quarry over an extent of 6.60.5hectares of Patta lands in S.F.Nos. 414/1, 415A/1A and 415A/2A of Palamadai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu State for Thiru.K.Anantha Perumal, 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.

N.Ravinthiran, M.Sc.,(App.Geo)

Qualified Person

Place: Tirunelveli

Date: 20.09.2023

W.A. Anantha Perumal

CERTIFICATE



Certified that I, N.Ravinthiran, residing at 1699 / 1 – Madurai Road, Opp. Abcoy Garden, Sankar Nagar & (Po) – 627357. Tirunelveli District. I am a Post graduate in Geology (App.Geo) from university of Madras 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 6.60.5hectares of Patta land in S.F.Nos. 414/1, 415A/1A and 415A/2A of Palamadai Village, Tirunelveli Taluk, Tirunelveli District, by Thiru. K.Anantha Perumal, for a period of Ten 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.

N.Ravinthiran, M.Sc.,(App.Geo)

Qualified Person

Place: Tirunelveli

Date: 26/09.2023

W. Anantha Perumal



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2.0	General Information	5
3.0	Location	6
4.0	Geology and Mineral Reserves	8
5.0	Mining	10
6.0	Blasting	14
7.0	Mine Drainage	15
8.0	Other Permanent Structures	16
9.0	Employment Potentials & Welfare Measures	17
10.0	Environment Management Plan	19
11.0	Mine Closure Plan	22
12.0	Any Other Details Intend to furnish by the Applicant	23

Handwritten signature



Annexure

S. No.	Description	Annexure No.
1.0	Precise Area Communication letter issued by the Joint Director / Assistant Director (i/c) Department of Geology and Mining,	I
2.0	Copy of FMB	II
3.0	Copy of village map	III
4.0	Copy of Patta	IV
5.0	Copy of Adangal	V
6.0	Copy of A Register	VI
7.0	Copy of Consent Documents	VII
8.0	Copy of Identity Proof	VIII
9.0	Copy of QP Certificate	IX

LIST OF PLATES

S. No.	Description	Plate No.
1.0	Location Plan	I
2.0	Environmental Plan	I-A
3.0	Satellite imagery map	I-B
4.0	Topo sketch of Quarry lease applied area for 10Km Radius	I-C
5.0	Key Plan	I-D
6.0	Quarry lease & Surface plan	II
7.0	Topography, Geological, Year wise Development and Production Plan & Section	III
8.0	Progressive Quarry Closer Plan & Sections	IV
9.0	Conceptual Plan & Section	V

W. Anil Kumar



MINING PLAN FOR MINOR MINERALS

ROUGH STONE AND GRAVEL

Over an extent of 6.60.5 hectares of Patta land in S.F.Nos. 414/1, 415A/1A and 415A/2A of Palamadai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu State.

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

1.0 Introduction and Executive Summary:

1. The present Mining Plan is prepared for Thiru.K.Anantha Perumal, S/o.Kanniah, residing at 160D/8, Polepettai West, Thoothukudi District.
2. The application was processed by the Joint Director / Assistant Director(i/c) Department of Geology and Mining, Tirunelveli, and passed an order vide Roc.No.M2/214/2023 dated 19.09.2023 directing the applicant to produce approved Mining Plan under Rule 41(5) of the Tamil Nadu Minor Mineral Concession Rules, 1959 and Environmental Clearance Certificate under Rule 42 from the State Level Environmental Impact Assessment Authority (SEIAA) for the grant of quarry lease to quarry **Rough Stone and Gravel** over an extent of 6.60.5 hectares of Patta lands in S.F.No.414/1, 415A/1A and 415A/2A, of Palamadai Village, Tirunelveli Taluk, Tirunelveli District of Tamil Nadu State for a period of ten 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 of 7.5m should be provided to the adjoining patta land and should not cause any hindrance to them while quarrying and transportation of minerals.

L. A. S. S. S.



- b) 50m safety distance shall be maintained to the railway lines located on south eastern side of the applied area.
- c) 50m safety distance shall be maintained to the odai located on western side of the applied area.
- d) Environment clearance should be obtained from the State Level Environmental Impact Assessment Authority, Chennai.
4. Geological Resources is estimated at 29,67,300m³ of Rough stone and 1,31,880m³ of gravel formation and Mineable Reserves is estimated at 13,22,445m³ of Rough Stone, 1,03,074m³ 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 9,26,070m³ of Rough Stone, 1,03,074m³ of gravel formation for the period of first five years.
6. The applicant ensured that, child labours under 18 years of age will not be engaged for quarrying operation.
7. The applicant ensure that will appoint should have valid certified persons (Mines Manager, Foreman, Mate) during quarrying operation.
8. Environmental parameters,
- The area does not attract the Forest Conservation Act, 1980 as there is no forest around 1.5Km radius.
 - There is no interstate boundary around 10Kms radius.
 - There is no wild life animal sanctuary within 1.5Km 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).

U. Anitha Prasad

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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.

H. Ananta Kumar



EXECUTIVE SUMMARY:

a.	Name of the Village Panchayat	:	Palamadai
b.	Name of the Panchayat Union	:	Tirunelveli
c.	The proposed total Movable Reserves	:	13,22,445m ³ of Rough Stone, 1,03,074m ³ of gravel formation
d.	The proposed quantity of reserves (level of production) for five years to be mined is(Recoverable reserves)	:	9,26,070m ³ of Rough Stone, 1,03,074m ³ of gravel formation
e.	Total extent of the area	:	6.60.5Ha
f.	Proposed Period of mining	:	Five years
g.	Existing depth	:	It is fresh quarry lease applied area
h.	Proposed Depth of mining	:	27m (below ground level) for the proposed mining plan.
i.	Method of mining/level of mechanization	:	Opencast, Semi-mechanized Mining with a bench height of 5m and bench width of 5m is proposed.
j.	Types of Machineries used in the quarry	:	Machineries like Tractor mounted compressor attached with Jack hammers, Excavators are proposed to deploy for quarrying operation.
k.	Cost of the Project A. Fixed Assets Cost B. Operational Cost C. EMP Cost		Rs. 42,63,000/- Rs. 82,50,000/- Rs. 7,20,000/- Total Project cost(A+B+C) = Rs. 1,32,33,000/-
l.	The area applied for lease is bounded by eleven corners and the coordinates are clearly marked in plate no II.		
	Co-ordinates		Distance between the corners
Corners	Latitude	Longitude	
1	08° 48' 11.61"N	77° 45' 06.12"E	1-2 = 8.0m
2	08° 48' 11.84"N	77° 45' 06.01"E	2-3 = 68.8m
3	08° 48' 14.08"N	77° 45' 06.12"E	3-4 = 90.6m
4	08° 48' 17.02"N	77° 45' 06.10"E	4-5 = 90.2m
5	08° 48' 19.95"N	77° 45' 06.30"E	5-6 = 232.6m
6	08° 48' 27.47"N	77° 45' 07.11"E	6-7 = 141.6m

H. Ananta Kumar



7	08° 48' 24.91"N	77° 45' 10.96"E	7-8 =	170.8m
8	08° 48' 17.54"N	77° 45' 10.87"E	8-9 =	5.0m
9	08° 48' 12.00"N	77° 45' 11.28"E	9-10 =	66.0m
10	08° 48' 11.97"N	77° 45' 11.12"E	10-11 =	108.0m
11	08° 48' 10.57"N	77° 45' 09.49"E	11-1 =	

2.0 General Information:

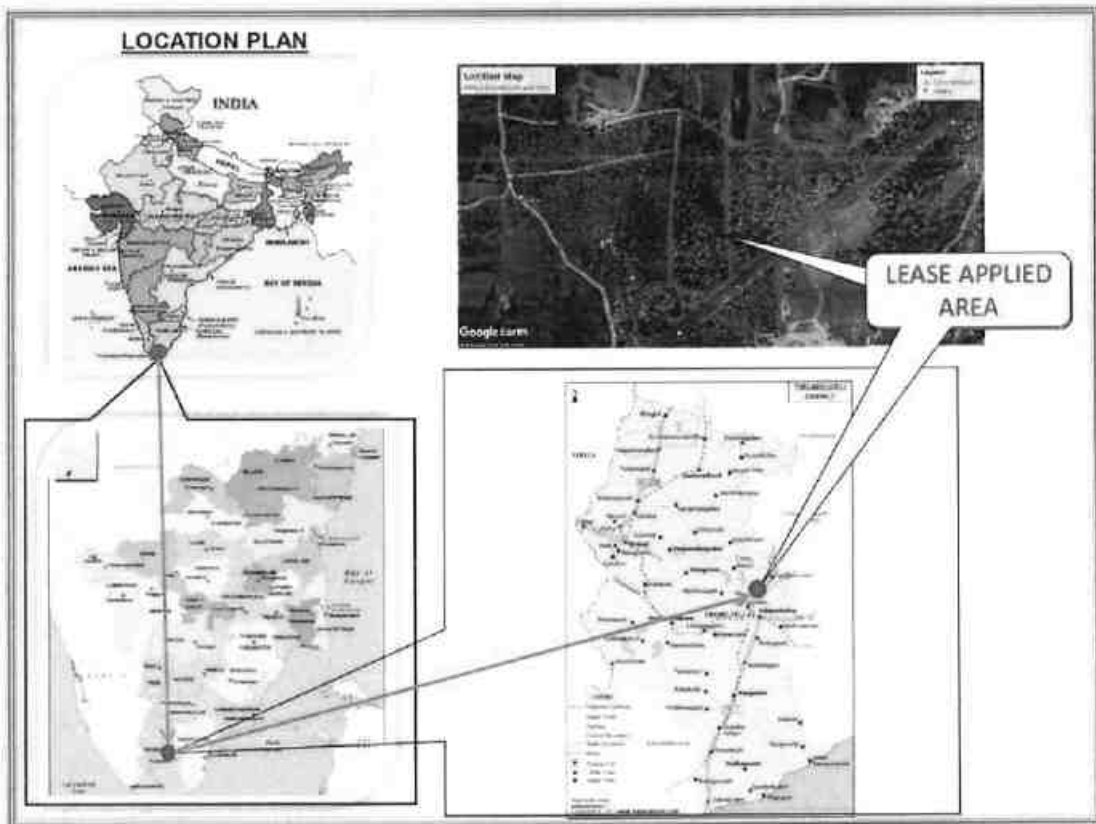
2.1	a.	Name of the Applicant	:	Thiru. K.Anantha Perumal,
	b.	Address of the Applicant with phone No and e-mail id if any	:	S/o. Kanniah, 160D/8, Polepettai West, Thoothukudi District, Pin Code- 628 001 Cell No.:98426 04292
	c.	Status of the Applicant	:	Individual
2.2	a.	Mineral Which the applicant intends to mine	:	Rough Stone and Gravel.
	b.	Precise area communication letter No.	:	Precise area communication letter received from the Joint Director / Assistant Director(i/c), Department of Geology and Mining, Tirunelveli, Roc.No.M2/214/2023 dated 19.09.2023
	c.	Period of permission / lease granted	:	Joint Director / Assistant Director(i/c), Department of Geology and Mining, Tirunelveli, has grant of lease period for Ten years.
	d.	Name and Address of the QP preparing Mining Plan	:	N.Ravinthiran, M.Sc.,(App.Geo) Qualified Person 1699 / 1 – Madurai Road, Opp. Abcoy Garden, Sankar Nagar & (Po) – 627357. Tirunelveli District. Cell : 98421 26699 & 97502 23535.

W. Anantha Perumal



3.0 Location:

S.No	Details of the Area:	
1	Corner Coordinates	Latitude :08°48'10.57"N to 08°48'27.47"N Longitude :77°45'06.01E to 77°45'11.28"E
2	Toposheet Number	58 H/13
3	The altitude of the area	97m (MSL)
4	Extent	6.60.5Ha
5	Survey Nos	414/1, 415A/1A and 415A/2A
6	Village	Palamadai
7	Taluk	Tirunelveli
8	District	Tirunelveli
9	State	Tamil Nadu



W. A. Subramanian



a.	Classification of the Area (Ryotwari / poramboke / others)	:	Patta land
b.	Ownership / Occupancy of the Applied area (Surface rights)	:	It is patta land registered in the name of Thiru.Mohammed Hakkim, and Applicant vide patta nos.1098, 1105 and 1111, the applicant has obtained consent from the pattadar, Please refer Annexure No: IV & VII.
c.	Toposheet No. with Latitude and Longitude	:	Topo Sheet No: 58 H/13 Latitude :08°48'10.57"N to 08°48'27.47"N Longitude :77°45'06.01E to 77°45'11.28"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 Gangaikondan - Thalaiyuthu road on Northwestern side of the area. The Nearest Railway line is Tirunelveli - Thoothukudi line which is about 69m on the Southeastern side of the area.

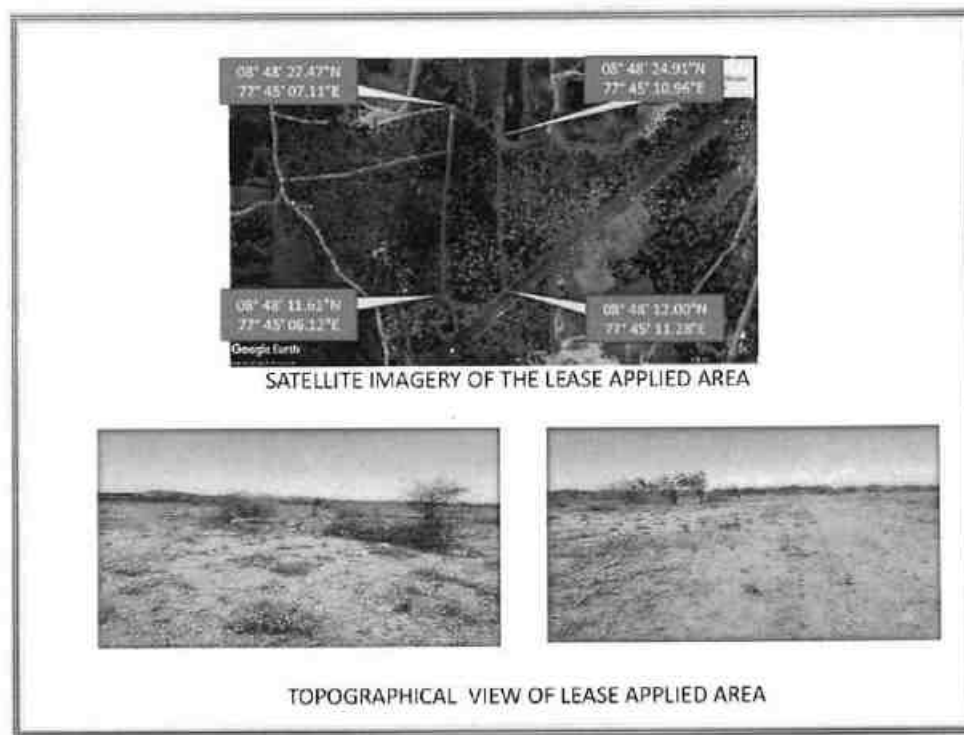


Fig. Location of the lease Applied Area

W. Arun Kumar



PART - A

4.0 Geology and Mineral Reserves:

4.1	a. Topography	<p>: ➤ The area applied for quarry lease is exhibits almost plain topography covered by Gravel formation. The massive Charnockite formation is noticed below 2m (Avg) Gravel formation and sloping towards Southeastern side of the area, the altitude of the area is above 97m (maximum) from MSL.</p> <p>➤ No major river is found nearby the lease applied area.</p> <p>➤ Water table is found at a depth of 62m in summer and 59m in rainy seasons.</p> <p>➤ Temperature of the area is reported to be 18°C to a maximum of 42°C during summer.</p> <p>➤ Rainfall of this area is about 800mm to 900 mm during the both NE & SW monsoons.</p>
	b. General Geology of the Area	<p>: The area is underlain by the wide range of metamorphic rocks of peninsular gneissic complex. These rocks are extensively weathered and overlain by the recent valley fills and alluvium at places. The geological formations found in the district are Archaean rocks like Gneisses, Granites, Charnockites basic granulites and calc-gneisses. The younger formations are Quartz veins and pegmatite.</p> <p>The rock type noticed in the area for lease is Charnockite which contains mostly Quartz and Feldspar with some ferromagnesian minerals. The Charnockite is part of peninsular Gneisses, a high grade metamorphic rock.</p> <p>The strike of the Charnockite formation is N45°E -S45°W with dipping towards SE60°.</p>

K. Ananta Kumar



			<p>The general geological succession of the area is given as under.</p> <table border="0"> <tr> <td style="text-align: left;">AGE</td> <td style="text-align: center;">-</td> <td style="text-align: left;">ROCK TYPE</td> </tr> <tr> <td>Recent</td> <td></td> <td>Gravelly soil</td> </tr> <tr> <td></td> <td style="text-align: center;">Unconformity</td> <td></td> </tr> <tr> <td>Archaean</td> <td></td> <td>Dolerite dyke Charnockite. Peninsular Gneissic complex and Calc Gneiss</td> </tr> </table>	AGE	-	ROCK TYPE	Recent		Gravelly soil		Unconformity		Archaean		Dolerite dyke Charnockite. Peninsular Gneissic complex and Calc Gneiss
AGE	-	ROCK TYPE													
Recent		Gravelly soil													
	Unconformity														
Archaean		Dolerite dyke Charnockite. Peninsular Gneissic complex and Calc Gneiss													
4.2		Details of Exploration already carried out if any	No exploration was carried out, as the Rough stone formations are clearly visible from adjacent existing quarry pit.												
4.3	a.	Estimation of Reserves	<p>The Geological and Recoverable reserves are estimated by cross sectional method.</p> <p>Two sections have been drawn, one section drawn length wise as (X-Y) and another one section drawn width wise as (A-B), to cover maximum area considered for lease.</p> <p>The Plans and Sections have been drawn with a scale of 1:1000 and 1:500 respectively. Please refer plate No.III.</p>												

a. Geological Resources

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

Table No-1

Section	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Gravel formation in m ³	Geological Resources of Rough stone in m ³
XY-AB	471	140	2	131880	131880	
	471	140	45	2967300		2967300
Total					131880	2967300

Gravel Formation : 1,31,880m³

The Geological Resources of Rough stone : 29,67,300m³

W. Anish Kumar



b. Mineable Reserve

The mineable reserve calculated by deducting 7.5m 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	Mineable Reserves of Rough stone in m ³
XY-AB	I	419	123	2	103074	103074	
	II	413	117	5	241605		241605
	III	403	107	5	215605		215605
	IV	393	97	5	190605		190605
	V	383	87	5	166605		166605
	VI	373	77	5	143605		143605
	VII	363	67	5	121605		121605
	VIII	353	57	5	100605		100605
	IX	343	47	5	80605		80605
	X	333	37	5	61605		61605
Total						103074	1322445

The mineable reserve is computed as 13,22,445m³ of Rough stone 1,03,074m³ of Gravel formation upto a depth of 47m below ground level only.

5.0 Mining:

5.1	Method of Mining	:	<ol style="list-style-type: none"> 1. Opencast method of semi mechanized mining with 5.0m height 5m width of the bench. 2. However, as far as the quarrying of Rough stone is concerned, observance of the provisions of Regulation 106(2) (b) as above is seldom possible due to various inherent petrogenetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the above regulation from the Director of mines safety for which necessary provision is available with the regulation 106 (2) (b) of MMR-1961, under Mine Act-1952.
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5.2	Mode of Working	<p>: The rough stone is proposed to quarry 5m bench height, 5m width with conventional opencast semi-Mechanized method.</p> <p>The quarry operation involves shallow jack hammer drilling, slurry blasting, excavation, Loading and transportation of Rough stone to the needy buyers. The production of Rough stone in this quarry involves the following method which is typical for Rough Stone quarrying in contrast to other major mineral mining.</p> <p>Splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy crushers / other buyers.</p> <p>Occasionally hydraulic excavators are attached with rock breakers for fragmentation to avoid secondary blasting.</p> <p>The primary boulders thus splitted are removed from the pits by excavators and further made to smaller sizes by rock breakers attached in excavators. It is a conventional opencast semi mechanized method of mining.</p>
5.3	Proposed bench height & Width	<p>: Quarrying of Rough Stone is proposed bench height of 5m and bench width of 5m.</p>
5.4	Details of Overburden / Mineral Production proposed for the first 5 years.	<p>: The overburden in the form of Gravel, after the excavation of Gravel and Rough stone will be directly loaded into tipper to the needy crushers/other buyers for road project and construction works for filling and leveling of low lying areas.</p>

W. Arun Kumar



The Yearwise Production and Development Table

Table No -3

Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Gravel in m ³	Mineable reserve of Rough stone in m ³
I	XY-AB	I	319	123	2	78474	78474	
		II	316	117	5	184860		184860
	Total							78474
II	XY-AB	I	100	123	2	24600	24600	
		II	97	117	5	56745		56745
		III	240	107	5	128400		128400
	Total							24600
III	XY-AB	III	163	107	5	87205		87205
		IV	203	97	5	98455		98455
	Total							
IV	XY-AB	IV	190	97	5	92150		92150
		V	214	87	5	93090		93090
	Total							
V	XY-AB	V	169	87	5	73515		73515
		VI	290	77	5	111650		111650
	Total							
Grand Total							103074	926070

The mineable reserve is estimated as 13,22,445m³ of Rough stone 1,03,074m³ of Gravel formation upto a depth of 47m below ground level only but the applicant has proposed to carry out 9,26,070m³ of Rough stone 1,03,074m³ of Gravel formation upto a depth of 27m below ground level for the period of first five years.

5.5	Machineries to be used							
a.	Drilling			:	It is proposed to use following machineries for quarrying rough stone			
	S.No	Type	Nos	Dia Hole mm	Make	Motive power		
	1	Jack hammer	15	32	Atlas Copco	Compressed air		
	2	Compressor	4	-	Atlas Capco	Diesel Drive		
b.	Loading			:	Excavator of 0.90m ³ bucket capacity (with Rock breaker attachment) (2No).			
c.	Transportation			:	Tipper 6Nos (5/10Ts) capacity.			

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5.6	Disposal of Overburden	: The overburden in the form of Gravel after the excavation gravel will be directly loaded into tipper to the needy buyers for road project and construction works for filling and leveling of low lying areas.																								
5.7	Brief Note on Conceptual Mining Plan for the entire lease period	<p>Conceptual Mining Plan is prepared with an object of ten years of systematic development of bench lay outs, selection of ultimate pit limit, depth of quarrying, ultimate pit slope, selection of sites for construction of infrastructures etc.</p> <p>Ultimate pit size is designed based on certain practical factors such as the economical depth of mining, safety zones, permissible areas etc.</p> <p>Ultimate Pit dimension is given as under,</p> <table border="1" data-bbox="735 1122 1417 1503"> <thead> <tr> <th colspan="4">Ultimate Pit dimension (M) end of Mining plan Period</th> </tr> <tr> <th>Pit No</th> <th>Length (max) in (m)</th> <th>Width (Avg) in (m)</th> <th>Depth(max) in(m)</th> </tr> </thead> <tbody> <tr> <td>I</td> <td>419</td> <td>123</td> <td>27</td> </tr> <tr> <th colspan="4">Ultimate pit dimension End of the lease period</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>419</td> <td>123</td> <td>47</td> </tr> </tbody> </table> <p>Afforestation has been proposed on all along the boundary barrier by planting trees.</p> <p>All the baseline information studies like Air Quality monitoring, Noise and Vibration monitoring, Water Analysis studies will be carried out every year as per the MOEF norms.</p>	Ultimate Pit dimension (M) end of Mining plan Period				Pit No	Length (max) in (m)	Width (Avg) in (m)	Depth(max) in(m)	I	419	123	27	Ultimate pit dimension End of the lease period				Pit No	Length (max) in (m)	Width (Avg) in (m)	Depth(max) in(m)	I	419	123	47
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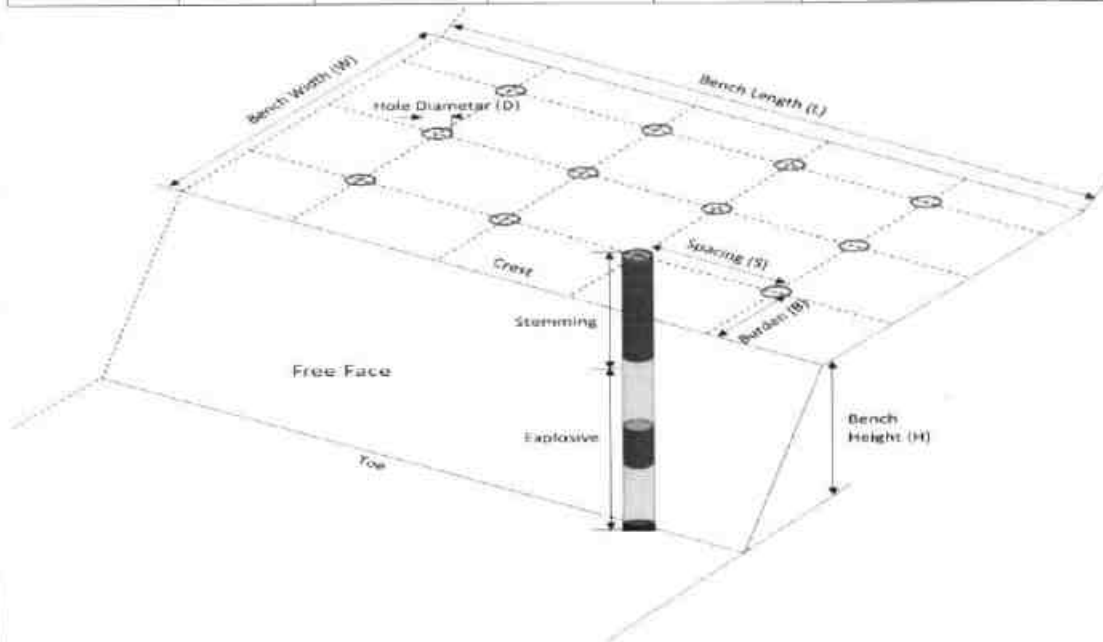
U. Ananta Kumar



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.

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6.3	Measures proposed to minimize ground vibration due to blasting	<p>➤ Controlled blasting measures will be adopted for minimizing ground vibration and fly rock.</p> <p>➤ Shallow depths jackhammer drilling and blasting is proposed to be carried out with minimum use of explosive mainly to give shattering effect in rough stone for easy excavation and to control fly rock.</p> <table border="1" data-bbox="794 600 1369 810"> <tr> <td>Number of holes</td> <td>: 534</td> </tr> <tr> <td>Powder factor</td> <td>: 6Ts/Kg of explosives</td> </tr> <tr> <td>Total explosive required</td> <td>: 267Kg 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	: 534	Powder factor	: 6Ts/Kg of explosives	Total explosive required	: 267Kg slurry explosives	Charge / hole	: 0.5Kg	Blasting time	: 12-2 Pm
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Powder factor	: 6Ts/Kg of explosives											
Total explosive required	: 267Kg slurry explosives											
Charge / hole	: 0.5Kg											
Blasting time	: 12-2 Pm											
6.4	Storage of Explosives and safety measures to be taken while blasting.	<p>➤ The applicant will engage an authorized explosive agency to carry out the small amount of blasting and it will be supervised by competent and statutory foreman/ mines manager.</p> <p>➤ The applicant ensure that will appoint the Mate (Should have Valid Blaster Certificate) during Blasting Operation.</p>										
7.0 Mine Drainage:												
7.1	Depth of Water table	<p>The ground water table is reported as 62m below ground level. In the proposed mining plan only 27m below ground level and 47m 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.</p>										
7.2	Arrangement and Places where the mine water is finally proposed to be discharged	<p>The ground water may not rise immediately in this type of mining. However, the rain water percolation and collection of water from the seepage shall be less than 300lpm and it shall be pumped about periodically by a stand by diesel powered Centrifugal pump motivated with 7.5H.P.Motor. The quality of water is potable and it is not contaminated with any hazardous things. Hence, water stored in the quarry pit will be pumped into the adjacent agricultural fields. Further the water stored in the old pit will also be used for plantation purposes</p>										

H. A. S. Kumar



8.0 Other Permanent Structures:		
8.1	Habitations / Village	: There are no habitations within a radius of 300m.
8.2	Power lines (HT/LT)	: There is no Power lines (HT/LT) within a radius of 50m.
8.3	Water bodies (River, Pond, Lake, Odai, Channel etc)	: There is odai passing on western side and is 50m safety distance maintained from odai, there is another odai passing on western and northern side of the area and is 340m and 350m away from the area, there is one tank situated on northeastern side of the area and is 420m away from the area.
8.4	Archaeological / Historical Monuments	: There are no Archeological / Historical Monuments within a radius of 50m.
8.5	Road (NH, SH, Village Road etc)	: There is no Archeological / historical monuments within 500m radius from 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

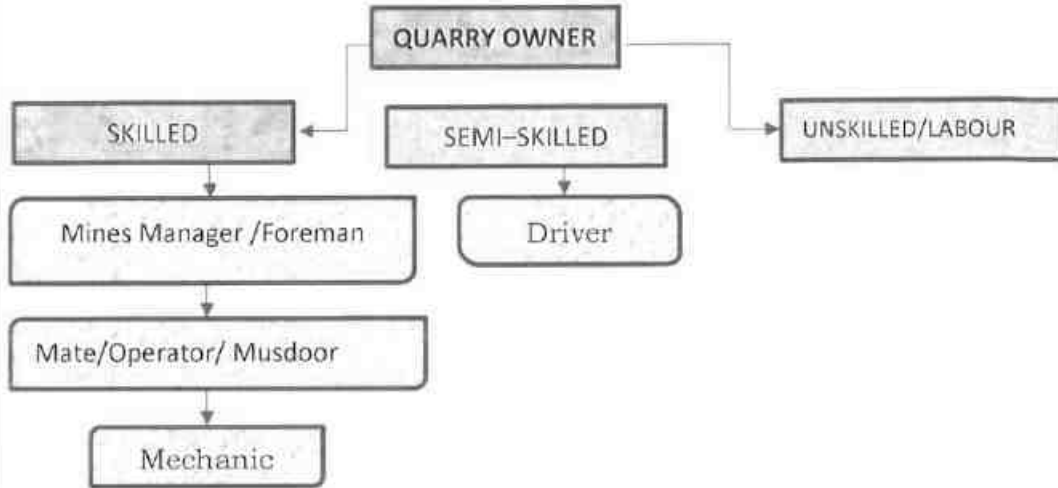
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9.0 Employment Potential & Welfare Measures:

9.1 Employment Potential (Management & Supervisory personal)

The proposed organization chart



1.	Skilled	Mines Manager	1 No.
		Foreman / Mate	3 No.
		Operator	14 No.
		Mechanic	1 No.
2.	Semi-skilled	Driver	6 No.
3.	Unskilled	Labours.	15Nos
Total =			39Nos

Allowing 10% absentee, the no. of men of roll will be around 35.

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 Thathanuthu village which is about 800m on Western side of the area.

H. Aravind 17



b.	Sanitary facilities	:	Semi-permanent latrines & urinals shall be maintained at convenient places for use of labours as per the provisions of Rule (33) of the Mines Rules, 1960 separately for males and females. Washing facilities shall also be arranged as per rule (36) of the Mines Rules, 1960.
c.	First Aid Facility	:	First aid kits are kept in Mines office room, in case of such eventualities the victim will be given first aid immediately at the site and injured person will be taken to the hospital. Hospital is available at distance of 8.5Km (S) in Tirunelveli 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.



W. A. S. Kumar



PART - B

10.0 Environmental Management Plan:

10.1	Existing Land Use Pattern :	<p>1. The area exhibits almost plain topography covered by Gravel formation.</p> <p>2. Quarrying operation is proposed up to a depth of 27m below ground level for the proposed mining plan period.</p> <p>3. Fluctuation of Water table in this area is in between 62m and 59m during a year.</p> <p>4. This region receives the average annual rainfall of 800mm to 900mm. The surrounding area is practiced by the seasonal cultivation.</p> <p>The existing land use pattern is given as under.</p> <p align="center">Table No-4</p> <table border="1" data-bbox="699 913 1425 1176"> <thead> <tr> <th>Sl. No.</th> <th>Land Use</th> <th>Present Area (Ha)</th> <th>Area in use during the quarrying period (Ha)</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Quarrying Pit</td> <td>Nil</td> <td>5.15.5</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>1.43.0</td> </tr> <tr> <td>5.</td> <td>Unutilized</td> <td>6.60.5</td> <td>Nil</td> </tr> <tr> <td colspan="2">Total =</td> <td>6.60.5</td> <td>6.60.5</td> </tr> </tbody> </table>	Sl. No.	Land Use	Present Area (Ha)	Area in use during the quarrying period (Ha)	1.	Quarrying Pit	Nil	5.15.5	2.	Infrastructure	Nil	0.01.0	3.	Roads	Nil	0.01.0	4.	Green Belt	Nil	1.43.0	5.	Unutilized	6.60.5	Nil	Total =		6.60.5	6.60.5
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5.	Unutilized	6.60.5	Nil																											
Total =		6.60.5	6.60.5																											
10.2	Water Regime :	<p>Water table in this area is noticed at a depth of 62m and presently, in the proposed mining plan only 27m Below ground level and 47m 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.</p>																												
10.3	Flora and Fauna :	<p>Except acacia bushes, no other valuable trees are noticed in the applied area. Further, neither flora of botanical interest nor fauna of zoological interest is noticed in this area.</p>																												
10.4	Climatic conditions :	<p>Generally subtropical climatic condition prevails throughout the year and there is no sharp variation in climate.</p> <p>This District receives rain both in south west and north east monsoon.</p> <p>The average rainfall is about 800mm to 900mm and the temperature ranges from 18°C during winter and to a maximum of 42°C during the summer.</p>																												

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10.5	Human Settlement	<p>The nearest habitations with the population is given as under.</p> <p style="text-align: center;">Table No-5</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">S. No</th> <th style="width: 35%;">Name of the Village</th> <th style="width: 30%;">Approximate distance & Direction from lease applied area</th> <th style="width: 30%;">Approximate population</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Pappankulam</td> <td>1.2km - NE</td> <td>400</td> </tr> <tr> <td>2.</td> <td>Gangaikondan</td> <td>1.7km - NW</td> <td>300</td> </tr> <tr> <td>3.</td> <td>Palamadai</td> <td>1.2Km - SE</td> <td>600</td> </tr> <tr> <td>4.</td> <td>Pandarkulam</td> <td>2.0Km-SW</td> <td>400</td> </tr> </tbody> </table>	S. No	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population	1.	Pappankulam	1.2km - NE	400	2.	Gangaikondan	1.7km - NW	300	3.	Palamadai	1.2Km - SE	600	4.	Pandarkulam	2.0Km-SW	400
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3.	Palamadai	1.2Km - SE	600																			
4.	Pandarkulam	2.0Km-SW	400																			
10.6	Plan for Air, Dust Suppression	<p>Air or dust expected to be generated from drilling process, hauling roads, places of excavation etc., will be suppressed by periodical wetting of land by water spraying. Wet drilling and dust extractor arrangements will be provided to drilling units so as to control raise of dust from the site of drilling. Operators, those exposed directly to such conditions will be provide such protective equipment like mask, ear plug, helmet, gloze etc., as per the Mines Act.</p>																				
10.7	Plan for Noise Control	<p>Quarrying of Rough Stone will be carried out by drilling and blasting by using low power explosives, and hence, noise will be very minimum. However, periodical noise level monitoring will be carried out to check the noise level in and around the quarry site. Nowhere the noise level should exceed the permissible limit of 80db during the quarry working hours.</p>																				
10.8	Environmental Impact Assessment Statement Describing Impact on mining on the next five years	<p>The mining plan proposed is for a small production of Rough stone without involving deep hole drilling and heavy blasting. Such limited mining activity is not likely to cause any impact adversely on environment as far as pollution of air, water and noise is concerned, anyhow environmental impact studies will be conducted as per EIA notification issued by MOEF.</p>																				
10.9	Proposal for Waste Management	<p>There is no waste anticipated in this rough stone quarry operation.</p>																				

Li. A. Anand



10.10	Proposal of Reclamation of Land affected during mining activities and at the end of mining.	: In the proposed mining plan 27m ² (below ground level) and 47m depth has been envisaged as workable depth for safe & economic mining during the lease period. Hence, after quarry reaches ultimate pit limit (for this lease period) of 47m 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 50m safety distance along the lease boundary has been identified to be utilized for afforestation. Appropriate native species of Neem/Pungan trees will be planted in the first year. Nearly 14300Sqm area is proposed to use under afforestation by planting 1716nos of Neem/Pungan trees during first year with an anticipated survival rate of 80%. The Quarry landuse, layout and afforestation plan is shown in Plate No.III.
10.12	Proposed Financial Estimate / Budget for (EMP) Environment Management	
A.Fixed Asset Cost:		
1. Land Cost (600000/1Ha)=		: Rs. 39,63,000
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.42,63,000/-
B. Operational Cost:		
1. Machineries		: Rs.80,00,000-
2. Fencing cost		: Rs. 2,50,000
Total		: Rs.82,50,000/-

W. Anitha Kumar 21



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

N. Ravinthiran, M.Sc., (App. Geo)

Qualified Person

Place : Tirunelveli

Date : 20/09/23

This Mining Plan is approved Subject to the
Conditions / Stipulation Indicated in the Mining
Plan Approval
Letter Rec.No. M2/214/2023
Dated 20.09.2023

Regional Joint Director
Assistant Director (I/C)
Geology and Mining
Tirunelveli

20/9/23

H. Ananth Kumar 23

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From

Thiru.L.Suresh.,
Joint Director/
Assistant Director (i/c),
Geology and Mining,
Tirunelveli.

To

Thiru.K.Anantha Perumal,
S/o.Kanniah,
160D/8, Polepettai West,
Thoothukudi District.

Roc.No.M2/214/2023

Dated. 19.09.2023

Sir,

Sub: **Mines and Quarries** - Minor Minerals - Tirunelveli District - Quarry lease application preferred by Thiru.K.Anantha Perumal, S/o.Kanniah for quarrying and transportation of Roughstone and Gravel - over an extent of 6.60.5 hectares of patta land in SF. Nos. 414/1, 415A/1A & 415A/2A of Palamadai Village, Tirunelveli Taluk - Precise area communicated - Approved Mining Plan - Called for - Reg.

- Ref:**
1. Quarry lease application preferred by Thiru.K.Anantha Perumal, S/o.Kanniah, dated. 13.03.2023.
 2. The Revenue Divisional Officer, Tirunelveli Letter No.K.Dis.A5/779/2023, dated. 30.06.2023.
 3. Representation received from the applicant on 13.07.2023.
 4. Inspection report of the Assistant Geologist of Geology and Mining, Tirunelveli, dated. 15.09.2023.

Thiru.K.Anantha Perumal, S/o.Kanniah, 160D/8, Polepettai West, Thoothukudi District has applied for grant of quarry lease for quarrying Roughstone and Gravel over an extent of 6.60.5 hectares of patta land in SF. Nos. 414/1 (3.09.0), 415A/1A (2.71.0) & 415A/2A (0.80.0) of Palamadai Village, Tirunelveli Taluk, Tirunelveli District for a period of 10

U. Ananthanarayanan

years under Rule 19 (1) of Tamil Nadu Minor Mineral Concession Rules, 1959 vide reference 1st and 3rd cited.



2. The Revenue Divisional Officer, Tirunelveli and the Assistant Geologist of Geology and Mining, Tirunelveli has furnished their reports in the reference 2nd and 4th cited respectively and recommended for grant of quarry lease in the applied area subject to certain conditions.

3. Based on the recommendations of the Revenue Divisional Officer, Tirunelveli and the Assistant Geologist of Geology and Mining, Tirunelveli the application preferred by Thiru.K.Anantha Perumal, S/o.Kannaiah for grant of quarry lease for quarrying roughstone and gravel in the subject area is considered for grant for a period of 10 years and precise area is hereby communicated over an extent of 6.60.5 hectares of patta land in SF. Nos.414/1 (3.09.0), 415A/1A (2.71.0) & 415A/2A (0.80.5) of Palamadai Village, Tirunelveli Taluk, Tirunelveli under Rule 19 of the Tamil Nadu Mineral Concession Rule 1959 and communicated to the applicant as per the power conferred under amended Rule 41(4) Tamil Nadu Minor Mineral Concession Rules, 1959 subject to following condition.

- i. A Safety distance of 7.5 meters should be provided to the adjoining patta lands and should not cause any hindrance to them while quarrying and transportation of minerals.
- ii. 50 meters safety distance shall be maintained to the railway lines located on south - eastern side of the applied area.

By Anantha Perumal

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- iii. 50 meters safety distance shall be maintained from the quarry located on western side of the applied area.
- iv. Environmental Clearance should be obtained from the State Level Environment Impact Assessment Authority, Chennai.



4. In view of the above, you are hereby directed to submit mining plan duly prepared by a Recognized Qualified Person in respect of the precise area communicated for approval of the Joint Director/Assistant Director(i/c) of Geology and Mining, Tirunelveli within a period of 90 days from the date of receipt of this notice as required under rule 41 (5) of Tamil Nadu Minor Mineral Concession Rules, 1959.

5. You are further directed to produce Approved Mining Plan and Environmental Clearance obtained from the State Level Impact Assessment Authority (SEIAA) as required under Rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 for grant of quarry lease for quarrying Roughstone and Gravel in respect of the precise area communicated.


 Joint Director/
 Assistant Director(i/c),
 Geology and Mining,
 Tirunelveli.

Copy to:

The Chairman
 State Level Environmental
 Impact Assessment Authority,
 Chennai.

2019/19/9/23

H. A. M. K. S. S. S.



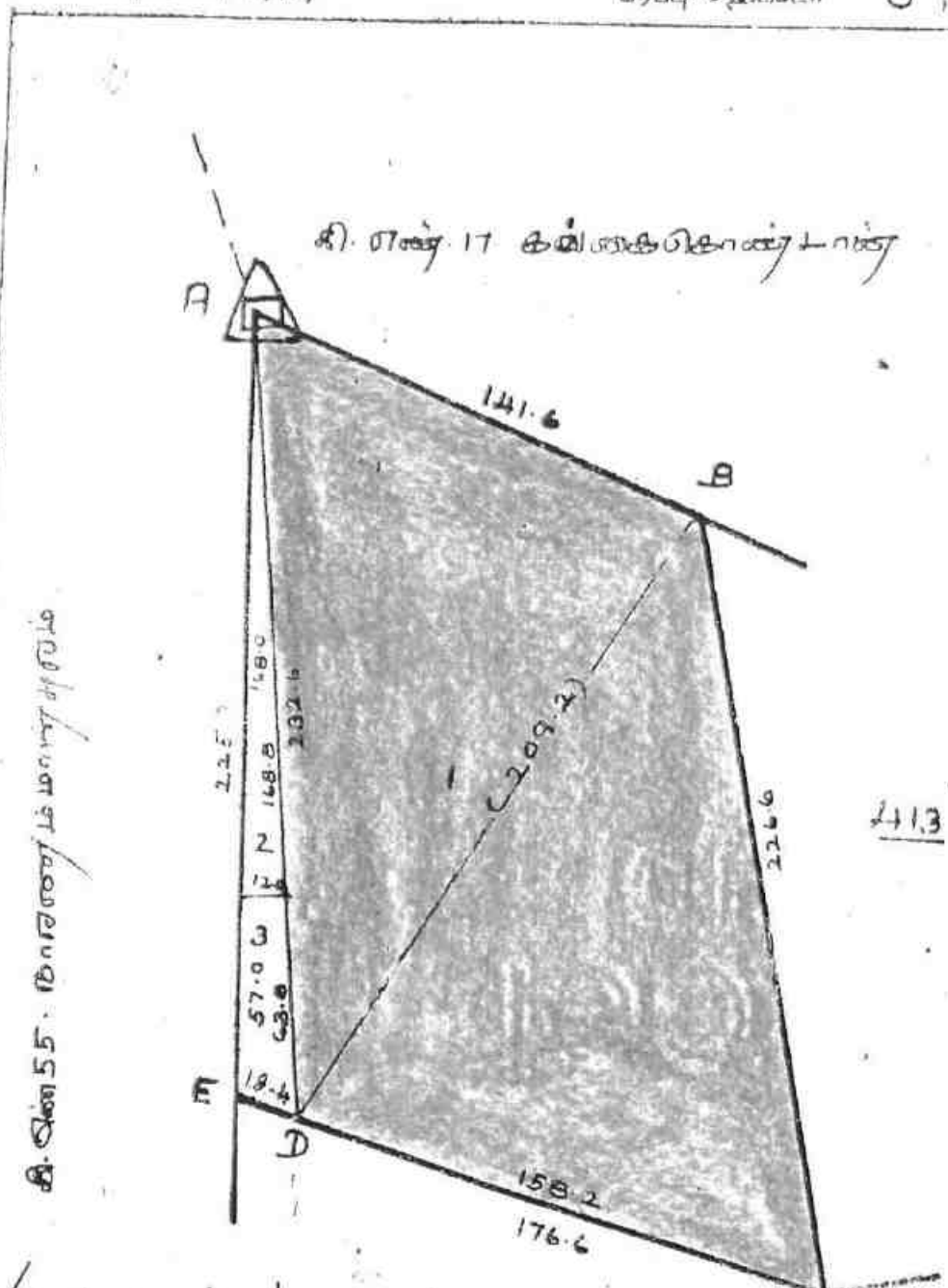
வட்டம் திருநெல்வேலி

வட்டம் திருநெல்வேலி

புல எண். 414

பரப்பு: செ.மீ. 3

கி. எண். 17 கமிசன்கொண்டி + ராஜ்



கி. எண் 55 - நெடுவரை மடமன்ற அமைதி

413

Zirionlamai

கி. சிவராஜ் / 03.05.23

கிராம நிர்வாக அலுவலர்
பாலாமடை கிராமம்
திருநெல்வேலி வட்டம்

415
A

412
B

LEASE APPLIED AREA

Handwritten signature

யுத்தரகல் :
சி. சிவராஜ்

அளவு: 1மி.மீ : 2.000மி.மீ

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சுட்டி - திருநெல்வேலி

சுட்டி - திருநெல்வேலி

புள்ளி 415/A

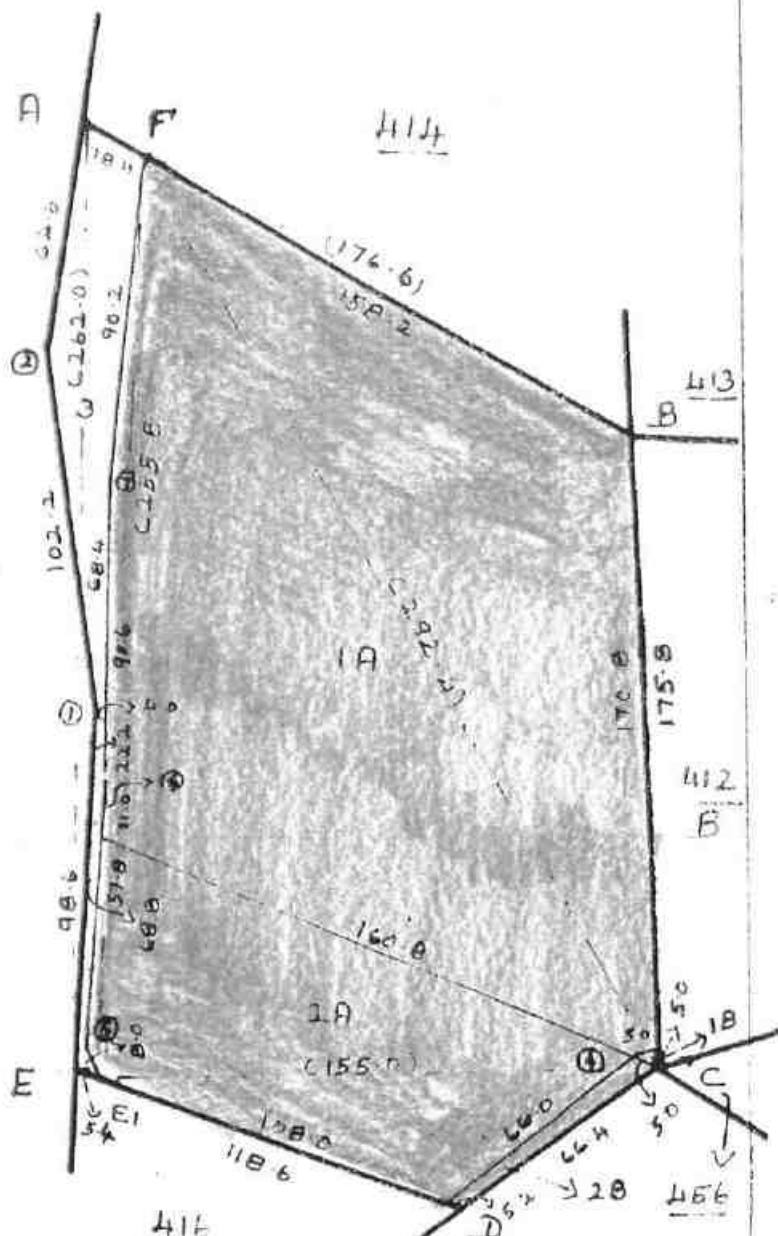


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81-0

35 - 15



F	(257.0)
A	145.8
B	75.4
C	7.0
E	
F	(242.4)
A	5.0
C	
A	(262.0)
A	253.0
F	16.4
A	199.2
A	97.2
E	4.2
E	(155.0)
A	54.4
C	

சுட்டி - திருநெல்வேலி
 03.05.23
 கிராம நிர்வாக அலுவலர்
 பாலாமடை கிராமம்

LEASE APPLIED AREA

சுட்டி - திருநெல்வேலி வட்டம்
 22-7-86

H. Arunth Kumar
 125



தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருநெல்வேலி

வட்டம் : திருநெல்வேலி

வருவாய் கிராமம் : பாலாமடை

பட்டா எண் : 1098

உரிமையாளர்கள் பெயர்

1. முகம்மது மீசான்

மகன்

முகம்மது ஹக்மீம்

புல் எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புகள்
		பரப்பு	நீர்வை	பரப்பு	நீர்வை	பரப்பு	நீர்வை	
		ஹெக்ட - ஏர்	சூ - டை	ஹெக்ட - ஏர்	சூ - டை	ஹெக்ட - ஏர்	சூ - டை	
414	1	3 - 9.00	1.94	--	--	--	--	2023/0103 /29/341276-- -- 03-02-2023
		3 - 9.00	1.94					

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் தகவல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தரங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 29/01/2021/01098 / 10198 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இம் தகவல்கள் 14-02-2023 அன்று 10:31:39 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படிப்பாசி மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்.

Dr. Anurag Kumar



தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருநெல்வேலி

வட்டம் : திருநெல்வேலி

வருவாய் கிராமம் : பாலாமடை

பட்டா எண் : 1105

உரிமையாளர்கள் பெயர்

1. கண்ணையா மகன் ஆனந்த பெருமாள்

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	
415A	1A	2 - 71.00	1.69	--	--	--	--	2023/0103/29/344963- -- -- 07-03-2023
		2 - 71.00	1.69					

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 29/01/021/01105/10167 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 15-08-2023 அன்று 04:15:40 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

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சென் 2

1432 ஆய்வு மசூதித் திட்டம் சுதேசிமி கையாள் மசூதித் திட்டம் சுதேசிமி கையாள் மசூதித் திட்டம் 21. சிவசபை

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பகுதி எண்	பகுதி விவரம்					பகுதி எண்
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20	308	309	310	311	312	313
21	314	315	316	317	318	319
22	320	321	322	323	324	325
23	326	327	328	329	330	331
24	332	333	334	335	336	337
25	338	339	340	341	342	343
26	344	345	346	347	348	349
27	350	351	352	353	354	355
28	356	357	358	359	360	361
29	362	363	364	365	366	367
30	368	369	370	371	372	373
31	374	375	376	377	378	379
32	380	381	382	383	384	385
33	386	387	388	389	390	391
34	392	393	394	395	396	397
35	398	399	400	401	402	403
36	404	405	406	407	408	



ANNEXURE VI

Zingalambath

03.05.23

கிராம நிர்வாக அலுவலர்
பாலாமடை கிராமம்
திருநெல்வேலி வட்டம்

புல உட்பிரிவு எண்	புல எண்	பகுதி	அரசு	நிலத்தின் பரபரம்	பாசன திட்டம்	மண் வளம்	மண் தீர்வை	புல உட்பிரிவு எண்	பகுதி	அரசு	நிலத்தின் பரபரம்	பாசன திட்டம்	மண் வளம்	மண் தீர்வை	புல உட்பிரிவு எண்
411	2	2	ரயத்துவாரி	புஞ்சை	புஞ்சை	புஞ்சை	புஞ்சை	411	2	2	ரயத்துவாரி	புஞ்சை	புஞ்சை	புஞ்சை	411
TOTAL FOR PARAVU SUBBER-411															
412A	1	112A	அரசு	புறம்போக்கு	புறம்போக்கு	புறம்போக்கு	புறம்போக்கு	412	1	112A	அரசு	புறம்போக்கு	புறம்போக்கு	புறம்போக்கு	412
412B	1	112B	அரசு	புறம்போக்கு	புறம்போக்கு	புறம்போக்கு	புறம்போக்கு	412	1	112B	அரசு	புறம்போக்கு	புறம்போக்கு	புறம்போக்கு	412
412C	1	112C	அரசு	புறம்போக்கு	புறம்போக்கு	புறம்போக்கு	புறம்போக்கு	412	1	112C	அரசு	புறம்போக்கு	புறம்போக்கு	புறம்போக்கு	412
TOTAL FOR PARAVU SUBBER-412															
413	1	413	அரசு	புறம்போக்கு	புறம்போக்கு	புறம்போக்கு	புறம்போக்கு	413	1	413	அரசு	புறம்போக்கு	புறம்போக்கு	புறம்போக்கு	413
414	1	414-1	ரயத்துவாரி	புஞ்சை	புஞ்சை	புஞ்சை	புஞ்சை	414	1	414-1	ரயத்துவாரி	புஞ்சை	புஞ்சை	புஞ்சை	414
414	2	-2	ரயத்துவாரி	புஞ்சை	புஞ்சை	புஞ்சை	புஞ்சை	414	2	-2	ரயத்துவாரி	புஞ்சை	புஞ்சை	புஞ்சை	414
414	3	-3	ரயத்துவாரி	புஞ்சை	புஞ்சை	புஞ்சை	புஞ்சை	414	3	-3	ரயத்துவாரி	புஞ்சை	புஞ்சை	புஞ்சை	414
TOTAL FOR PARAVU SUBBER-414															
415A	1B	-1B	அரசு	புறம்போக்கு	புறம்போக்கு	புறம்போக்கு	புறம்போக்கு	415	1B	-1B	அரசு	புறம்போக்கு	புறம்போக்கு	புறம்போக்கு	415
415A	2B	-2B	அரசு	புறம்போக்கு	புறம்போக்கு	புறம்போக்கு	புறம்போக்கு	415	2B	-2B	அரசு	புறம்போக்கு	புறம்போக்கு	புறம்போக்கு	415
TOTAL FOR PARAVU SUBBER-415a															
415A	1A	415A-1A	ரயத்துவாரி	புஞ்சை	புஞ்சை	புஞ்சை	புஞ்சை	415A	1A	415A-1A	ரயத்துவாரி	புஞ்சை	புஞ்சை	புஞ்சை	415A
415A	2A	-2A	ரயத்துவாரி	புஞ்சை	புஞ்சை	புஞ்சை	புஞ்சை	415A	2A	-2A	ரயத்துவாரி	புஞ்சை	புஞ்சை	புஞ்சை	415A
415A	3	-3	ரயத்துவாரி	புஞ்சை	புஞ்சை	புஞ்சை	புஞ்சை	415A	3	-3	ரயத்துவாரி	புஞ்சை	புஞ்சை	புஞ்சை	415A
415A	4	-4	ரயத்துவாரி	புஞ்சை	புஞ்சை	புஞ்சை	புஞ்சை	415A	4	-4	ரயத்துவாரி	புஞ்சை	புஞ்சை	புஞ்சை	415A
TOTAL FOR PARAVU SUBBER-415A															
415B	-	-415B	அரசு	புறம்போக்கு	புறம்போக்கு	புறம்போக்கு	புறம்போக்கு	415B	-	-415B	அரசு	புறம்போக்கு	புறம்போக்கு	புறம்போக்கு	415B
415B	1B	-1B	அரசு	புறம்போக்கு	புறம்போக்கு	புறம்போக்கு	புறம்போக்கு	415B	1B	-1B	அரசு	புறம்போக்கு	புறம்போக்கு	புறம்போக்கு	415B
415B	2B	-2B	அரசு	புறம்போக்கு	புறம்போக்கு	புறம்போக்கு	புறம்போக்கு	415B	2B	-2B	அரசு	புறம்போக்கு	புறம்போக்கு	புறம்போக்கு	415B
TOTAL FOR PARAVU SUBBER-415B															
415C	1A	415C-1A	ரயத்துவாரி	புஞ்சை	புஞ்சை	புஞ்சை	புஞ்சை	415C	1A	415C-1A	ரயத்துவாரி	புஞ்சை	புஞ்சை	புஞ்சை	415C
415C	2A	-2A	ரயத்துவாரி	புஞ்சை	புஞ்சை	புஞ்சை	புஞ்சை	415C	2A	-2A	ரயத்துவாரி	புஞ்சை	புஞ்சை	புஞ்சை	415C
TOTAL FOR PARAVU SUBBER-415C															

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என்னவென்றால், இதன் துபசில் சொத்தை நம்மில் 1 வது பார்ட்டியான திரு.M.முகம்மது ஹக்கீம் அவர்கள் பெயருக்கு கங்கைகொண்டான் சாப்திவாஸ் அலுவலகம் 1 புத்தகம் 275/2023 ம் எண்ணாக பதிவு செய்யப்பட்ட கிரைய ஆவணத்தின் படி கிரையர் பெற்றும் மேலும் நம்மில் 1 வது பார்ட்டியான திரு.M.முகம்மது ஹக்கீம் அவர்கள் பெயருக்கு பாண்டமல கிராமம் தனி பட்டா எண் 1098 ஏற்பட்டும் நாளது தேதி வரை சர்க்கார் தீர்வைகள் செலுத்தி சர்வதந்திரமாக சகல உரிமைகளுடன் ஆண்டிபவித்து வரும் இதன் துபசில் கண்ட சொத்தை "அரசு அனுமதி பெற்ற கல்குவாரி கனிமம்" சார்ந்த தொழில் செய்வதற்காக நம்மில் 2 வது பார்ட்டியான திரு.K.ஆனந்த பெருமாள் அவர்கள் குத்தகைக்கு வேண்டும் என கேட்டு கொண்டதை ஏற்று நாளது தேதி முதல் வரும் ஒன்றுக்கு ரூபாய்.5,000/- (ரூபாய் ஐந்தாயிரம் மட்டும்) குத்தகை தொகையாக தீர்ணயித்து 15 வருடங்களுக்கு (பதினைந்து வருடம் மட்டும்) அதாவது உயர்திரு.மாவட்ட ஆட்சித்தலைவர் அவர்கள் கனிம உரிமம் வழங்கும் தேதியிலிருந்து 15 வருடங்களுக்கு (பதினைந்து வருடம் குத்தகைக்கு விதிவதாக ஒப்புக்கொண்டு நாளது தேதியில் நம்மில் 1 வது பார்ட்டி முன்பணம் ரூ.50,000/- ததை ரொக்கமாக பெற்றுக்கொண்டு நம்மில் 2 வது பார்ட்டியும் சம்மதித்து கீழ்கண்ட நிபந்தனைகளின் படி இந்த குத்தகை ஒப்பந்த பத்திரத்தை எழுதி நாம் இரு பார்ட்டிகளும் சேர்ந்து மணம் ஒத்து கையெழுத்து செய்திருக்கிறோம்.

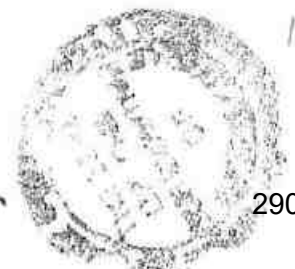
குத்தகைக்கு கொடுப்பவர் குத்தகை பெறுபவர்

M. Mohan Rajan

Li. Ananta Nayak

14/05/2023	பதிவு செய்து
14	தலைவரின் கையெழுத்து
2	வது நாம்
	பதிவு அலுவலகம்

Li. Ananta Nayak



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நிபந்தனைகள்

1. வருடம் ஒன்றுக்கு ரூ.5,000/- மீட்டர் (தரந்தரம்) வரையில் 2 வது நம்பி நம்பில் 1 வது துருக்கு தவறாமல் செலுத்தி வர வேண்டியது.
2. இந்த குத்தகை ஒப்பந்தம் நாளது தேதியான 24.02.2023 முதல் 27.02.2038 ி தேதி வரை பதினெந்து வருட காலத்திற்கு மாட்டு அரிஜிதத்தில் இருந்து வர வேண்டியது.
3. நம்பில் 2 வது பார்ட்டி கல்குவாமிக்கு தேவையான புதிய மெஷின்கள், மோட்டர்கள் ஆகியவற்றை தன் சொந்த செலவில் வாங்கி வைத்துக்கொள்ளவேண்டியது.
4. நம்பில் 1 வது பார்ட்டி ஒத்துழைப்புடன் நம்பில் 2 வது பார்ட்டி தன் சொந்த செலவில் கல்குவாமி நடத்துவதற்கு தேவையான மாக கட்டுப்பாட்டு வாரியம், கிராம நிர்வாகம் மற்றும் தேவையான அங்க அலுவலகங்களில் அனுமதி பெற்றுக்கொள்ள வேண்டியது.
5. நம்பில் 2 வது பார்ட்டி தான் உபயோகிக்கும் காலத்திற்குரிய மின்கட்டணத்தை தவறாமல் செலுத்தி வரவேண்டியது.
6. நம்பில் 1 வது பார்ட்டி இதன் தரையில் கண்ட சொத்திற்குரிய அரசுத்தீர்வையை தவறாமல் செலுத்தி வரவேண்டியது.
7. குத்தகை காலம் முடிந்தவுடன் நம்பில் 2 வது பார்ட்டியின் செலவுத்தொகையுடன் நம்பில் 1 வது பார்ட்டியின் மோட்டர்கள், மெஷின்கள் அனைத்தையும் அமைத்துக்கொடுத்து விடவேண்டியது.

குத்தகைக்கு கொடுப்பவர்

குத்தகை பெறுபவர்

M. Mohan Haveli -

K. Anthe Narend

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K. Anthe Narend

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8. நம்மில் 2 வது பார்ட்டி நடத்தி வரும் காவல் நிறுவனத்தின் உரிமம் போன்றவைகளை நம்மில் 2 வது பார்ட்டியில் காவல் அந்தந்த சம்பவங்களில் புதுப்பித்து நாள்கண்டிப்பது நம்மில் 1 வது பார்ட்டியில் பொறுப்பாகும்.

9. நம்மில் 2 வது பார்ட்டிக்கு அரசு விதிகளின் மீது நம்மில் 2 வது பார்ட்டி பெயரில் அரசு மற்றும் அதனைச்சேர்ந்த U.S.I. எடுத்துக்கொள்ள நம்மில் 1 வது பார்ட்டிக்கு எந்தவித ஆட்சேபமும் இல்லை.

10. இந்த குத்தகை காலம் முடிந்தவுடன் அமெரிக்காவில் அமைந்துள்ள நம்மில் 2 வது பார்ட்டி அமைத்துள்ள மெஷின்கள் துவைத்தையும் நம்மில் 2 வது பார்ட்டி எடுத்துச்செல்ல 2 வது பார்ட்டிக்கு முழு உரிமையும் உண்டு.

11. நம்மில் 2 வது பார்ட்டி நடத்தும் குவாரி நிறுவனத்தின் திடம் சம்பந்தமாக ஏதாவது கடன்பட்டிருந்தால் அதற்கு 1 வது பார்ட்டிக்கு எந்த விதமான பொறுப்பும் கிடையாது.

12. நம்மில் 2 வது பார்ட்டியால் நிறுவப்படும் அனைத்து குவாரி மெஷின்களுக்கு மற்றும் அனைத்து வகை மெஷின்களுக்கும் 2 வது பார்ட்டியே முழு உரிமையாளர் ஆவார்.

13. நம்மில் 2 வது பார்ட்டி மாத குத்தை பணத்தை நம்மில் 1 வது பார்ட்டிக்கு தொடந்து மூன்று மாதங்கள் செலுத்தாத பட்சத்தில் நம்மில் 1 வது பார்ட்டி நம்மில் 2 வது பார்ட்டி மீது எடுக்கும் சகல சட்ட நடவடிக்கைகளுக்கும் கட்டுப்பட்டவர் ஆவார். நம்மில் 2 வது பார்ட்டி மாத குத்தகை பணத்தை நம்மில் 1 வது பார்ட்டிக்கு மாதந்தோறும் செலுத்திவரும் பட்சத்தில் தவணை காலம் முடியும் வரை நம்மில் 1 வது பார்ட்டி நம்மில் 2 வது பார்ட்டிக்கு எந்தவிதமான இடையூறும் செய்யக்கூடாது.

குத்தகைக்கு கொடுப்பவர்

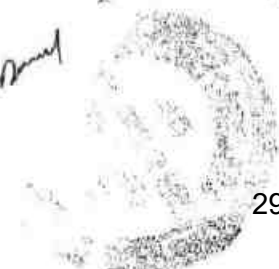
குத்தகை பெறுபவர்

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H. Anand Reddy

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H. Anand Reddy



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14. நம்பில் 2 வது பாட்டி தான் ஊர் கண்ட இடமும் தோக்கத்தை தவிர தான் உபயோகிக்கும் காலத்தில் வேறு நடவடிக்கை தான் இடைத்திற்கு உள்ள வாடகைக்கு விடலாம், வேறு நடவடிக்கை குத்தகைக்கு விடலாம் கூடாது.

15. இந்த ஒப்பந்தத்தை 1 வது பாட்டியோ 2 வது பாட்டியோ ரத்து செய்யலாம். கிரவுரை நம்பில் 2 வது பாட்டிக்கு தேவையில்லாத போது 3 மாதத்திற்கு முன் நம்பில் 1 வது பாட்டிக்கு தெரிவிக்கவேண்டியது. அது போல 1 வது பாட்டிக்கு தேவையற்றபோது 3 மாதத்திற்கு முன் நம்பில் 2 வது பாட்டிக்கு தெரிவிக்கவேண்டியது.

16. தவணை காலம் முடிந்தவுடன் நம்பில் 2 வது பாட்டி தற்சமயம் உள்ள நிலையில் எந்தவித பழகும் ஒன்றியம் நம்பில் 1 வது பாட்டி வசம் ஒப்படைத்து விடவேண்டியது. உபயடி ஒப்படைக்கும் சமயம் பட்சத்தில் அதனால் நம்பில் 1 வது பாட்டி அடையும் சகல கண்ட நடவடிக்கையும் 2 வது பாட்டி பொறுப்புதான்யாவும்.

17. நம்பில் 2 வது பாட்டி தான் கொடுத்த முன்னணம் ரூ.50,000/- ததை தவணை காலம் முடிந்த பின்னர் நம்பில் 2 வது பாட்டி எந்தவிதமான வட்டியும் இல்லாமல் திரும்ப பெற்றுக்கொள்ள வேண்டியது.

மேலே சொல்லப்பட்ட அனைத்து நிபந்தனைகளையும் நாம் இருநாற்களம் மனபூர்வமாக ஏற்றுக்கொண்டு கையெழுத்து செய்திருக்கிறோம்.

குத்தகைக்கு கொடுப்பவர்

குத்தகை பெறுபவர்

M. Mohan Reddy

G. Anita Rani

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G. Anita Rani

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தபசில் சொத்து விபரம்:

275/2023 கிராம ஆளுகாட்சி திருநெல்வேலி பதிவு மாவட்டம், கங்கைகொண்டான் சாம்பதிவாள் கிராம, திருநெல்வேலி மாவட்டம், திருநெல்வேலி வட்டம், பாலாமடை கிராமம் : பி.ச எண் 1098 ல் உள்ள ஆபன் பஞ்சை சர்வே எண் 414 நம்பர் 1 லைப் ஹெக்டேர் 3.09.00 க்கு ஏக்கர் 7 செண்டு 63.25 பரப்பளவுள்ள புஞ்சை நிலத்திற்கு இத்தடன் இணைக்கப்பட்டுள்ள வரைபடத்தின் படி எல்லை விபரம் :-
வடக்கே :- கிராம கணக்கு எண் 12 (கங்கைகொண்டான் கிராம எல்லை)
கிழக்கே :- சர்வே எண் 413 நம்பர் புஞ்சை நிலம்
தெற்கே :- சர்வே எண் 415A நம்பர் புஞ்சை நிலம்
தெற்கே :- சர்வே எண் 414 நம்பர் 2 லைப் புஞ்சை நிலம் மற்றும்

சர்வே எண் 414 நம்பர் 3 லைப் புஞ்சை நிலம்

இம்மாலுக்குள்பட்ட ஹெக்டேர் 3.09.00 க்கு ஏக்கர் 7 செண்டு 63.25 பரப்பளவுள்ள புஞ்சை நிலமும் அதை சார்ந்த கடை மரபுல் றைட்டும் உள்பட தபசில் விபரம் சரி. இதன் தபசில் கண் சொத்து மானார் ஊராட்சி ஒன்றியம், பாலாமடை ஊராட்சி மன்ற எல்லைக்குள்பட்டது.

குத்தகைக்கு கொடுப்பவர்

குத்தகை பெறுபவர்

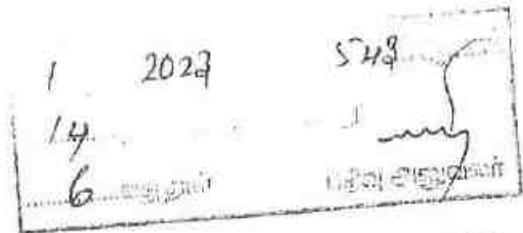
சாட்சிகள்:

1. A. சுவாமிநாதன் (A.சுவாமிநாதன்) த.பெ.அறுமுகம், கதவு எண் 9/137E, வேதகோபில் தெரு, தெரு, ராஜபதி, கங்கைகொண்டான், (ஆதார் எண் 4275 5805 3904)
2. M. சீமர் (M.சீமர்) த.பெ.முருகன், கதவு எண் 146F செல்வி அம்பன் கோவில் தெரு, சங்கரநகர், நாரணம்மாள்புரம், ஆதார் எண் 3085 5570 8479)

Drafted By Me With instruction of Parties



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P.Krishnan B.A.B.L.,
Advocate, M.S.1318/2003,
1/141B, Perumal Sannathi Street,
Gangaikondan, Tirunelveli, Cell: 98651 -70780



M. Mohan Reddy

L. Anita Kumar

L. Anita Kumar



R/கங்கைகொண்டான்/புத்தகம்-1/543/2023

1899ம் ஆண்டு இந்திய முத்திரைச் சட்டம் 42வது பிரிவின கீழான சான்று

2023ம் ஆண்டு வரிசை எண் 375

கதவு எண் 2341, N.G. & new colony, ஜவஹர் நகர், பெருமாள்புரம், பாளையங்கோட்டை, பாளையங்கோட்டை, திருநெல்வேலி, தமிழ்நாடு, இந்தியா. 627002ல் வசிக்வும் திரு முகம்மது துர்க்கீம் என்பவரிடமிருந்து ₹ 300/- ரூபாய் முந்நாறு மட்டும் இந்த ஆவணத்திற்காக இந்திய முத்திரைச் சட்டம் 41வது பிரிவின படி குறைவாயிருந்த முத்திரைக் கட்டணம் வசூலிக்கப்பட்டது என நான் இதன் மூலம் சான்றளிக்கிறேன்.

(Handwritten signature)

சார்பதிவாளர் கங்கைகொண்டான்
நாள்: 29/02/2023

சார்பதிவாளர் மற்றும் இந்திய முத்திரைச் சட்டம் பிரிவு
எண் படி ஆட்சியர்.

2023 ஆம் ஆண்டு பிரிவரி மாதம் 28ம் தேதி பி.பி. 6137 மணியளவில் கங்கைகொண்டான் சார்பதிவாளர் அலுவலகத்தில் தாக்கல் செய்து கட்டணம் ₹ 1,005/- செலுத்தியவர்

இடது பெருவிரல்



M. Mohamed Hakkim
கூடுதல் விவரங்கள் ஆவண வாசகத்தில் உள்ளபடி.

2023

(Handwritten notes and stamps)

எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர்
இடது பெருவிரல்



M. Mohamed Hakkim
"சம்மதத்துடன் கூடிய ஆதார அங்கீகாரம்" என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேசை மூலம் ஆதார ஆணையத்துடன் சரிபார்க்கப்பட்டது. ஒப்பீட்டு எண் UKC:480494a673b3c46a4843b59720fc788d8d194c (Details from UIDAI : Mohamed Hakkim C/O: Mohamed Mearan, 24-05-1970, xxxxxxxx9854)



எழுதி வாங்கியதாக ஒப்புக் கொண்டவர்
இடது பெருவிரல்



K. Anantha Perumal K
"சம்மதத்துடன் கூடிய ஆதார அங்கீகாரம்" என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேசை மூலம் ஆதார ஆணையத்துடன் சரிபார்க்கப்பட்டது. ஒப்பீட்டு எண் UKC:4271154678565542c24440e13ced9eed1890d (Details from UIDAI : Anantha Perumal K C/O Kanniah,



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R/கங்கைகொண்டான்/புத்தகம்-1/543/2023

17-04-1989, xxxxxxxx6907)

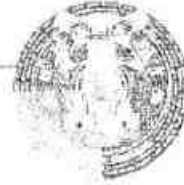
2023 ஆம் ஆண்டு பிரிவுரி மாதம் 28ம் நாள்

ராமசுப்ரமணியன்
சார்பதிவாளர்
கங்கைகொண்டான்

R/கங்கைகொண்டான்/புத்தகம்-1/543/2023 எண்ணாகப் பதிவு செய்யப்பட்டது

நாள் 28/02/2023
கங்கைகொண்டான்

ராமசுப்ரமணியன்
சார்பதிவாளர்



17-04-1989, xxxxxxxx6907)
2023 ஆம் ஆண்டு பிரிவுரி மாதம் 28ம் நாள்
R/கங்கைகொண்டான்/புத்தகம்-1/543/2023
எண்ணாகப் பதிவு செய்யப்பட்டது
ராமசுப்ரமணியன்
சார்பதிவாளர்



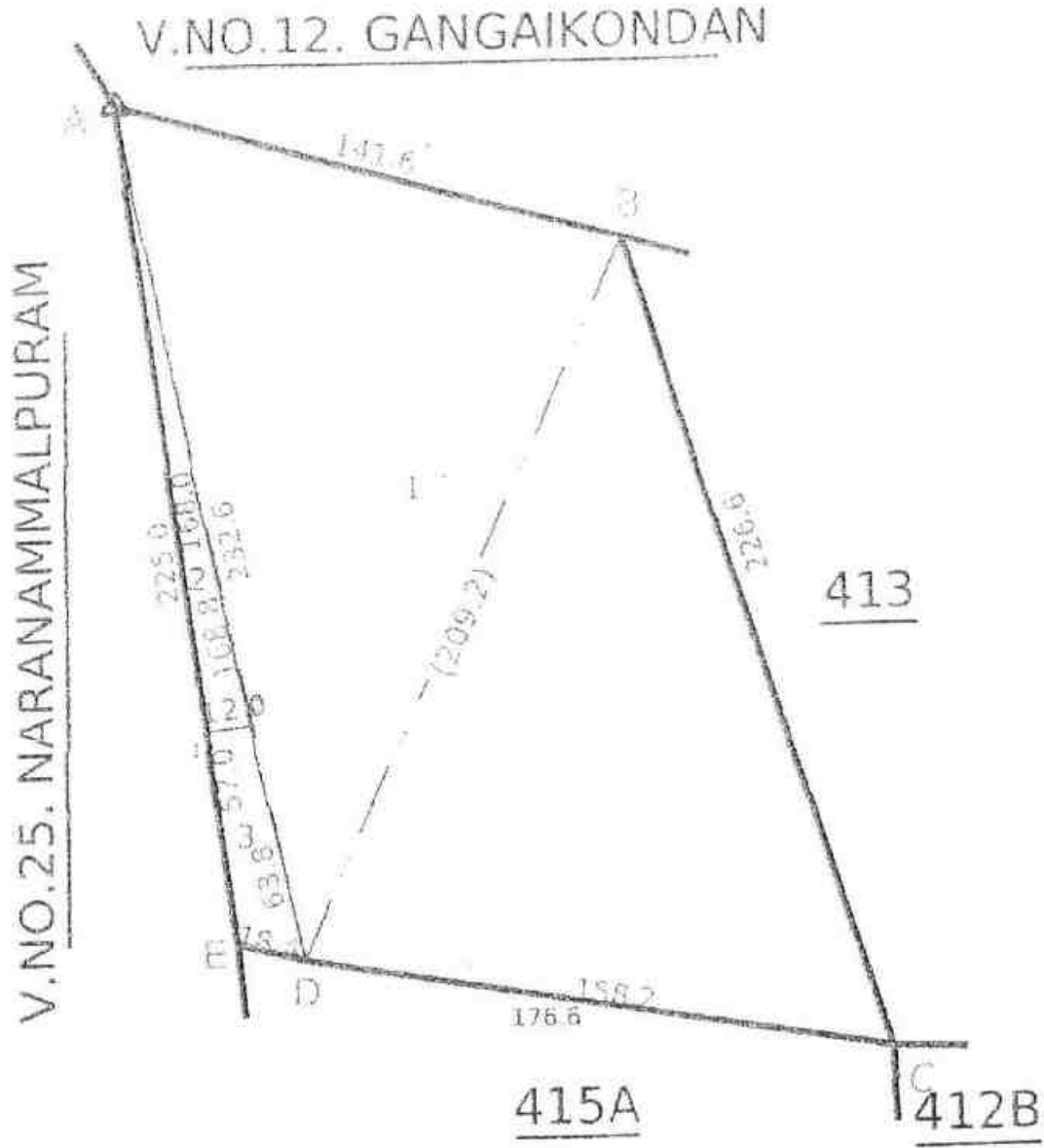
U. Anthe Ramiah

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District : Tirunelveli
Taluk : Tirunelveli
Village : Palamadai [21]

Survey No : 414
Area : Hect 03 Ares 29.50
Scale : 1 : 1846



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W. Anand Kumar

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W. Anand Kumar
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இந்திய அரசாங்கம்
Government of India
 முகவரர் ஹக்மீம்
 Mohamed Hakim
 தந்தை முகம்மது நிரான்
 Father - Mohamed Nisran
 பிறந்த நாள் / Year of Birth 1979
 ஆண்டாள் / Male

5517 8688 9854

ஆதார - சாதாரண மனிதனின் அதிகாரம்


Unique Identification Authority of India
 முகவரர்
 மூ. முகம்மது நிரான் 23A1, என்
 ஜி ஓ நியூ காலனி, ஜவகர் நகர்
 பழையக்கோட்டை,
 திருநெல்வேலி, தமிழ்நாடு
 627007

Address
 S/O Mohamed Nisran, 23A1, N
 G O NEW COLONY, JAWAGAR
 NAGAR, Palayamkottai,
 Tirunelveli, Perumalapuram, Tamil
 Nadu, 627007

5517 8688 9854


M. Mohan: Jela

h. Anita Ramesh

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பரிசீலாட்டு எண் / Enrolment No.: 0655/36499/25146

To
 Anantha Perumal K
 C/O Kinniah
 1600/8
 Polpettai West
 Theothukudi
 Theothukudi Tamil Nadu - 628001
 9042604292

Signature: 


உங்கள் ஆதார் எண் / Your Aadhaar No.:
6160 8413 6995
 VID : 9165 4065 9209 8970

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- உங்கள் சேவைகளை மறுபரிசீலனை செய்ய உதவின ஆதார் மறுபரிசீலனை செய்யப்படும்.

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 ஆண் / MALE

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எனது ஆதார் எனது அடையாளம்




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Address:
 C/O Kinniah, 1600/8, Polpettai West,
 Theothukudi, Theothukudi,
 Tamil Nadu - 628001



6160 8413 6995
 VID : 9165 4065 9209 8970

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

nanohattdo

1. 2023
 14
 12

Anantha Perumal
 K Anantha Perumal





Government of India
 Card No. = 42750053904
 Vankatesha Perumal
 Unique ID No. = 42750053904
 Aadhaar / MHA

4275 5805 3904

मेरा आधार, मेरी पहचान

M. Mohan Kumar

Unique Identification Authority of India
 Address: S/O Anantharam, 9/137 E,
 VEDHA KOVIL, SOUTH STREET,
 RAJAPATHY, Gangakondan,
 Tirunelveli, Tamil Nadu, 527352

4275 5805 3904

1847 | info@uidai.gov.in | www.uidai.gov.in

U. Anantharam

A. Anantharam

1. 15/05/2023
 14.
 13.
 15/05/2023



U. Anantharam



இந்திய சர்க்காருக்கு
 Government of India

மயாசூர்
 Mayanur
 காவல் துறை
 Police Station

3085 5570 8479

ஆதார - சாதாரண மனிதனின் அதிகாரம்

Unique Identification Authority of India

Address: S/O. Sivanan,
 148F, SELVAMMAN KOVIL
 STREET,
 SIVAKAMARAJAR,
 NIKANMATHURAN,
 Sankarpettai, Tirunelveli,
 Tamil Nadu, 627357

3085 5570 8479

to Anthee...

...

M. Mayanur



1 2023
 14
 14



543
 my



to Anthee... 145




பதிவு செய்துள்ள / Enrolment No.: 0656/36499/25146

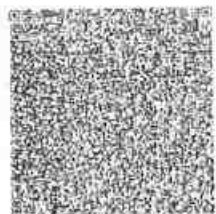
To:
 ஆனந்த பெருமாள் K
 C/O Kanniah,
 160D/8
 Polepattai West

Download Date: 29/02/2020

Issue Date: 15/02/2019



Thoothukkudi
 Tufcom
 Thoothukkudi Tamil Nadu - 629001
 9842694292

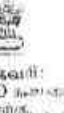
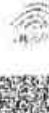
Signature: 



உங்கள் ஆதார் எண் / Your Aadhaar No. :
6160 8413 6995
 VID : 9160 5968 9703 5092

எனது ஆதார் எனது அடையாளம்


உங்கள் ஆதார் எண் / Enrolment No.: 0656/36499/25146

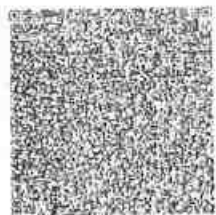
To:
 ஆனந்த பெருமாள் K
 C/O Kanniah,
 160D/8
 Polepattai West

Download Date: 29/02/2020

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Thoothukkudi
 Tufcom
 Thoothukkudi Tamil Nadu - 629001
 9842694292

Signature: 



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எனது ஆதார் எனது அடையாளம்




உங்கள் ஆதார் எண் / Enrolment No.: 0656/36499/25146

To:
 ஆனந்த பெருமாள் K
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உங்கள் ஆதார் எண் / Your Aadhaar No. :
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எனது ஆதார் எனது அடையாளம்




உங்கள் ஆதார் எண் / Enrolment No.: 0656/36499/25146

To:
 ஆனந்த பெருமாள் K
 C/O Kanniah,
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Thoothukkudi
 Tufcom
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உங்கள் ஆதார் எண் / Your Aadhaar No. :
6160 8413 6995
 VID : 9160 5968 9703 5092

எனது ஆதார் எனது அடையாளம்

உங்கள் ஆதார் அடையாளத்தினை மாற்று தயாரிப்பதை கலை

மாற்றுவதற்கு சமீபத்தில் ஆய்வை XML ஆய்வை அங்கீகரிக்கப்பட்டுள்ள அடையாளத்தை சரிபார்க்கவும்

இது எவகாட் எனக் செயல்முறை மூலம் தயாரிக்கப்பட்ட ஆதாராகும்.

INFORMATION

Aadhaar is a proof of identity, not of citizenship.

Verify identity using Secure QR Code/ Offline XML/ Online Authentication

This is electronically generated letter.

உங்கள் ஆதார் அடையாளத்தை மாற்றுவதற்கான

மாற்றுவதற்கு சமீபத்தில் ஆய்வை XML ஆய்வை அங்கீகரிக்கப்பட்டுள்ள அடையாளத்தை சரிபார்க்கவும்

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உங்கள் ஆதார் எண் / Enrolment No.: 0656/36499/25146

To:
 ஆனந்த பெருமாள் K
 C/O Kanniah,
 160D/8
 Polepattai West

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Thoothukkudi
 Tufcom
 Thoothukkudi Tamil Nadu - 629001
 9842694292

Signature: 



உங்கள் ஆதார் எண் / Your Aadhaar No. :
6160 8413 6995
 VID : 9160 5968 9703 5092

எனது ஆதார் எனது அடையாளம்

Handwritten signature: K. Anantha Perumal



आयकर विभाग
INCOME TAX DEPARTMENT

भारत सरकार
GOVT. OF INDIA

ANANTHA PERUMAL

KANNIAH

17/04/1989

Permanent Account Number

BQVPA4991C

L. Anantha Perumal

Signature



72015

L. Anantha Perumal

147



870899

சென்னைப் பல்கலைக் கழகம் University of Madras

Renewed up to 2020

அறிவியல் புலம்
FACULTY OF SCIENCE

Regional Controller of Examinations
INDIAN BUREAU OF MINES

சென்னைப் பல்கலைக் கழகப் பேரவை 1989 ஆம் ஆண்டு
ஏப்ரல் மாதம் நடந்த பயிற்சிறைக் கணிமவியல்

தேர்ப்பு முதுகு அறிவியல் நிறைஞர் எனவும் பட்டத்தை அளந்தது
பயிற்சிறைக் கணிமவியல் படிப்பில் தேர்ச்சி பெற்றவர் என்று தக்க தேர்ப்புரைகள்
அறிவியல் நிறைஞர் எனவும் பட்டத்தை அளந்தது
பயிற்சிறைக் கணிமவியல் படிப்பில் தேர்ச்சி பெற்றவர் என்று தக்க தேர்ப்புரைகள்

The Senate of the UNIVERSITY OF MADRAS hereby —
makes known that N. Ravinthiran has
been admitted to the Degree of Master of Science, he/she
having been certified by duly appointed Examiners to be qualified
to receive the same in Applied Geology and
was placed in the First Class, at the Examination
held in April 1989



Given under the Seal of the University.

சென்னை, திருப்புக.
தேர்ப்புரை, Madras.
திகதி: Dated 19.12.1991

திரு. இளங்குடி
பதிவாளர்.
Registrar.

Handwritten signature and stamp of the Registrar, with the number 148 and 305.



T. N. G. S. T. No. 6040126
C. S. T. No. 488148 dt. 30-5-73

Tel : JANATHACEM"
P. B. No. 45
Phone : 30710
(4 lines)
Quarry : 84761

Janathacem Industries Limited

Mfrs : Janathacem Wall Coat

Factory & Admn :
488 / 1, Sankarankoil Road,
RAJAPALAYAM - 626 117.

30.09.2000

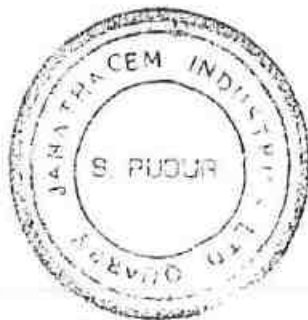
TO WHOMSOEVER IT MAY CONCERN

This is to certify that Sri.N.RAVINTHIRAN,M.Sc.,(Applied Geologist) S/O. R.NARAYANASAMY residing at 3-105,Kannithevanpatti village, Keelarajogularam an (Post) Rajapalayam (Taluk) Virudhunagar Dist. Pin code 626136, was employed as a Geologist from 01.09.1993 to 30.09.2000 at Our THENMALAI LIMESTONE MINES OF M/S. JANATHACEM INDUSTRIES LIMITED (formerly M/S.LIMENAPH CHEMICALS) RAJAPALAYAM.

He has been vested with the work involving prospecting, Collecting samples, Knowing the chemicals analysis etc. He was also Supervising various Mining operation including drilling, blasting and excavation by powershovel. He has been successfully carrying out his duties and has proven himself a quite efficient, competent, sincere and hard working official in the company.

He has got a total of seven years post graduate experience in the Mechanised mining field.

He deserves all the encouragement and I wish him all the success in his carrier.



For JANATHACEM INDUSTRIES LIMITED,
(FORMARLY LIMENAPH CHEMICALS)

(R. SARGUNAM)

DEPUTY GENERAL MANAGER (MINES)
THENMALAI LIMESTONE MINE



L. Anandaram

149

T. N. G. S. T. No. 6040126
C. S. T. No. 488148 dt. 30-5-73



Janathacem Industries Limited

Phone : 30710
(4 lines)
Quarry : 84761

Factory & Admn :
488 / 1, Sankarankoil Road,
RAJAPALAYAM - 626 117.

Mfrs : Janathacem Wall Coat

30.09.2000

TO WHOMSOEVER IT MAY CONCERN.

This is to certify that Sri.N.RAVINTHIRAN, M.Sc., (Applied Geology) S/O.R.Narayanasamy, joined in our Organisation as Geologist on 01.09.1993. Due to his Personnel reasons he submitted his resignation and the same was accepted with regret. He was releaved from his duties with effect from 30.09.2000.

During his tenure his conduct and character was good, and he carried out his duties to the best satisfaction of his superiors and Management.

We wish him all success in his life.

For JANATHACEM INDUSTRIES LTD.


(T.VENKATARA JAGOPALAN)
GENERAL MANAGER

 Janathacem®

h. Antelund

150



**GOVERNMENT OF INDIA
MINISTRY OF LABOUR & EMPLOYMENT
DIRECTORATE GENERAL OF MINES SAFETY**

Certificate of practical experience granted by the Manager to a candidate for a **MANAGER'S/SURVEYOR'S/FOREMAN'S/MATE'S** Certificate of competency examination under the Metalliferous Mines Regulations 1961.

R.SARGUNAM being the Manager of **THENMALAI LIMESTONE MINES, S.PUDUR** belonging to **M/S.LIMENAPH CHEMICALS, RAJAPALAYAM** do hereby certify that **Sri N.RAVINTHIRAN S/O.R.NARAYANASAMY** (whose signature appended) worked in the above Mine from 01.09.1993 to 09.08.96 and is still working. During his term of work aforesaid he has obtained practical experience as detailed overleaf. The duties connected with his work have involved his continuous attendance at the Mine and have been efficiently performed by him.

I believe him to be of good character and a fit and proper Person to be examined for a certificate of competency.

[Signature]
10/8/96
SIGNATURE OF **MANAGER** (with date)
Thenmalai Limestone Mines
(Owners: Limenaph Chemicals)
Senthattapuram Pudur
THENMALAI POST-627770.

[Signature]
Signature of the candidate
Note: Delete if not applicable
State name of Mineral: **LIMESTONE**

Sl No.	Particulars of practical Experience	Place of Experience (B)	Period of practical Experience (C)		Total Experience		
			From	To	Y	M	D
1.	Drilling(Rock drills)	Machanised open cast	01.09.93	15.04.94	--	7	14
2.	Blasting (small dia)	"	16.04.94	20.11.94	--	7	14
3.	Wagon drilling	"	21.11.94	10.08.95	--	8	19
4.	Blasting(long&large dia holes)	"	11.08.95	08.03.96	--	6	26
5.	Supervision (All mining activities)	"	09.03.96	09.08.96	--	5	---
(Still working) Grand total							

Two years eleven months and thirteen days only. 02. 11. 13

d. Average monthly output during the above period : 5000 Tons

e. Average daily employment of Men&Machinery in H.P. during the period is given below:

In below ground working	In opencast	working	In all
-- Nil --	Men	126+17	143
	Machinery	1559 H.P.	

[Signature]
Signature of the candidate

[Signature]
10/8/96
SIGNATURE OF **MANAGER** (with date)
Thenmalai Limestone Mines
(Owners: Limenaph Chemicals)
Senthattapuram Pudur
THENMALAI POST-627770.



**GOVERNMENT OF INDIA
MINISTRY OF LABOUR & EMPLOYMENT
DIRECTORATE GENERAL OF MINES SAFETY**

Certificate of practical experience granted by the Manager to a candidate for a **MANAGER'S/SURVEYOR'S/FOREMAN'S/MATE'S** Certificate of competency examination under the Metalliferous Mines Regulations 1961.

R.SARGUNAM being the Manager of **THENMALAI LIMESTONE MINES, S.PUDUR** belonging to **M/S.LIMENAPH CHEMICALS, RAJAPALAYAM** do hereby certify that **Sr.N.RAVINTHIRAN S/O.R.NARAYANASAMY** (whose signature appended) worked in the above Mine from 01.09.1993 to 09.08.96 and is still working. During his term of Work aforesaid he has obtained practical experience as detailed overleaf. The Duties connected with his work have involved his continuous attendance at the Mine and have been efficiently performed by him.

I believe him to be of good character and a fit and proper Person to be examined for a certificate of competency.

[Signature]
30.09.2000
SIGNATURE of **MANAGER (MINES)**
Thenmalai Limestone Mines
(Owners: Limenaph Chemicals)
Senthattapuram Pudur
THENMALAI POST-627770.

[Signature]
Signature of the candidate
Note: Delete if not applicable
State name of Mineral: **LIMESTONE**

Sl No.	Particulars of practical Experience	Place of Experience (B)	Period of practical Experience (C)		Total Experience		
			From	To	Y	M	D
1.	Mining mate	Semi-Mechanised open cast working	10.08.96	15.06.99	2	10	5
2.	Mining Foreman	..	16.06.99	30.09.2000	1	3	14

Four years one month Nineteen days and Grand total *04. 01. 19*

d. Average monthly output during the above period : 4000 Tons
e. Average daily employment of Men & Machinery in H.P. during the period is given below:

In below ground working	In opencast working	In all
Men	102+13	115
Machinery	1559 H.P.	

[Signature]
Signature of the candidate

[Signature]
30.09.2000
Signature of **MANAGER (MINES)** (date)
Thenmalai Limestone Mines
(Owners: Limenaph Chemicals)
Senthattapuram Pudur
THENMALAI POST-627770.

H. Anand Kumar



Suprabhraman
REGIONAL CONTROLLER OF MINES.
INDIAN BUREAU OF MINES
CHENNAI

CERTIFICATE OF RECOGNITION AS QUALIFIED PERSON TO PREPARE MINING PLANS

(Under Rule 22C of Mineral Concession Rules, 1960)

Shri N.RAVINTHIRAN resident

of 3/105, Kannithevanpatti, Keelarakulamaraman (PO), Virudhunagar dt.

of R.NARAYANASAMY, having given satisfactory

evidence of his qualifications and experience is hereby granted recognition under Rule 22C of the Mineral Concession Rules, 1960 as a Qualified Person to prepare Mining Plans.

His registration number is RQP/MAS/130/98/A

This recognition is valid for a period of two years
ending 21.12.2000

M. K. A. Murali
Regional Controller of Mines
Indian Bureau of Mines
Chennai

Place : CHENNAI
Date : 21.12.98

W. R. S. Srinivasan
310
153



PLATE NO: I
DATE OF ISSUE: 20/07/2002

APPLICANT: Tirunelveli District
THIRU.KANANTHASUBRAMANIAM
S/o.KANNAN,
NO.160D/8, POLEPETTAI WEST,
THOOTHUKUDI DISTRICT.

QUARRY LEASE APPLIED AREA:
S.F.NOS : 414/1, 415A/1A & 415A/2A,
EXTENT : 6.60.5 HG.,
VILLAGE : PALAMADAI,
TALUK : TIRUNELVELI,
DISTRICT : TIRUNELVELI.

INDEX

Q. L. A. AREA : ●
TOPO SHEET NO : 58 H / 13

LATITUDE : 08°48'10.57"N to 08°48'27.47"N
LONGITUDE : 77°45'06.01E to 77°45'11.28"E

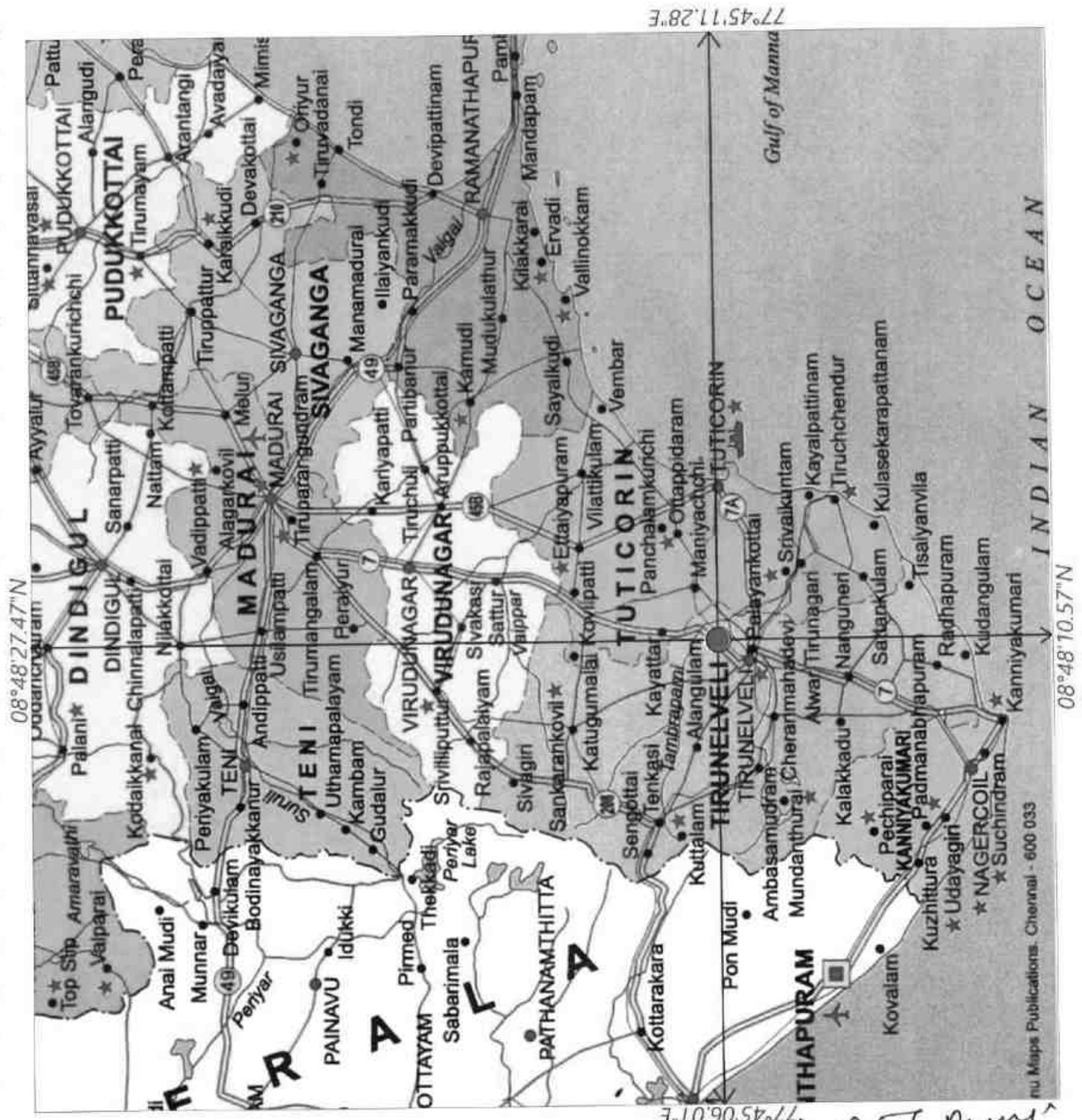
LOCATION PLAN

NOT TO SCALE

PREPARED BY :

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

[Signature]
N.RA VINTHIRAN, M.Sc., (App. Geol)
QUALIFIED PERSON



N. A. V. B. B. B.
154

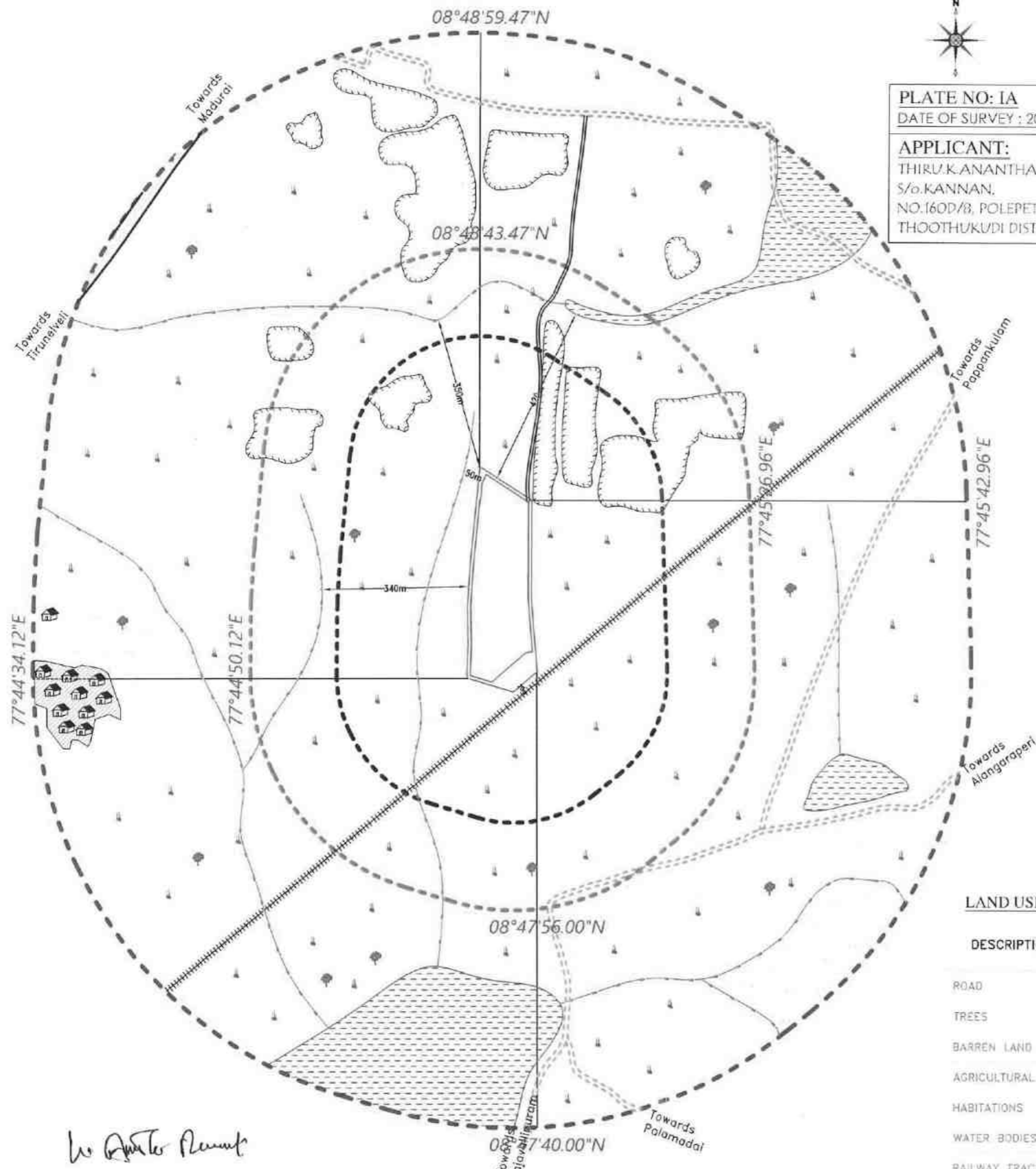


PLATE NO: IA
DATE OF SURVEY : 20.09.2023

APPLICANT:
 THIRU.K.ANANTHA PERUMAL,
 S/o.KANNAN,
 NO.160D/8, POLEPETTAI WEST,
 THOOTHUKUDI DISTRICT.

QUARRY LEASE APPLIED AREA:
 S.F.NOS : 414/1, 415A/1A & 415A/2A,
 EXTENT : 6.60.5 Ha,
 VILLAGE : PALAMADAI,
 TALUK : TIRUNELVELI,
 DISTRICT : TIRUNELVELI.

INDEX
 : 58, H/13
 Tirunelveli Dist

TOPO SHEET NO : 58, H/13
LATITUDE : 08°48'10.57"N to 08°48'27.47"N
LONGITUDE : 77°45'06.01E to 77°45'11.28"E



Q.L.A. AREA	
7.5m & 50m SAFETY	
300M RADIUS	
500M RADIUS	
1KM RADIUS	
APPROACH ROAD	
PANCHAYAT ROAD	
NATIONAL HIGHWAY	
BARREN LAND	
TREES	
AGRICULTURAL LAND	
QUARRY PIT	
HABITATIONS	
ODAI	
TANK	
RAILWAY TRACK	

LAND USE PATTERN

DESCRIPTION	AREA IN (%)
ROAD	04
TREES	12
BARREN LAND	57
AGRICULTURAL LAND	10
HABITATIONS	03
WATER BODIES	12
RAILWAY TRACK	02

ENVIRONMENTAL PLAN
 SCALE 1:10,000

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

N.RAVINTHIRAN.M.Sc.,(App.Geo)
 QUALIFIED PERSON



PLATE NO: IB
DATE OF SURVEY : 20.07.2023

APPLICANT:
THIRU.K.ANANTHA PERUMAL,
S/o.KANNAN,
NO.160D/8, POLEPETTAI WEST,
THOOTHUKUDI DISTRICT.

QUARRY LEASE APPLIED AREA:
S.F.NOS : 414/1, 415A/1A & 415A/2A,
EXTENT : 6.60.5 Ha,
VILLAGE : PALAMADAI,
TALUK : TIRUNELVELI,
DISTRICT : TIRUNELVELL.

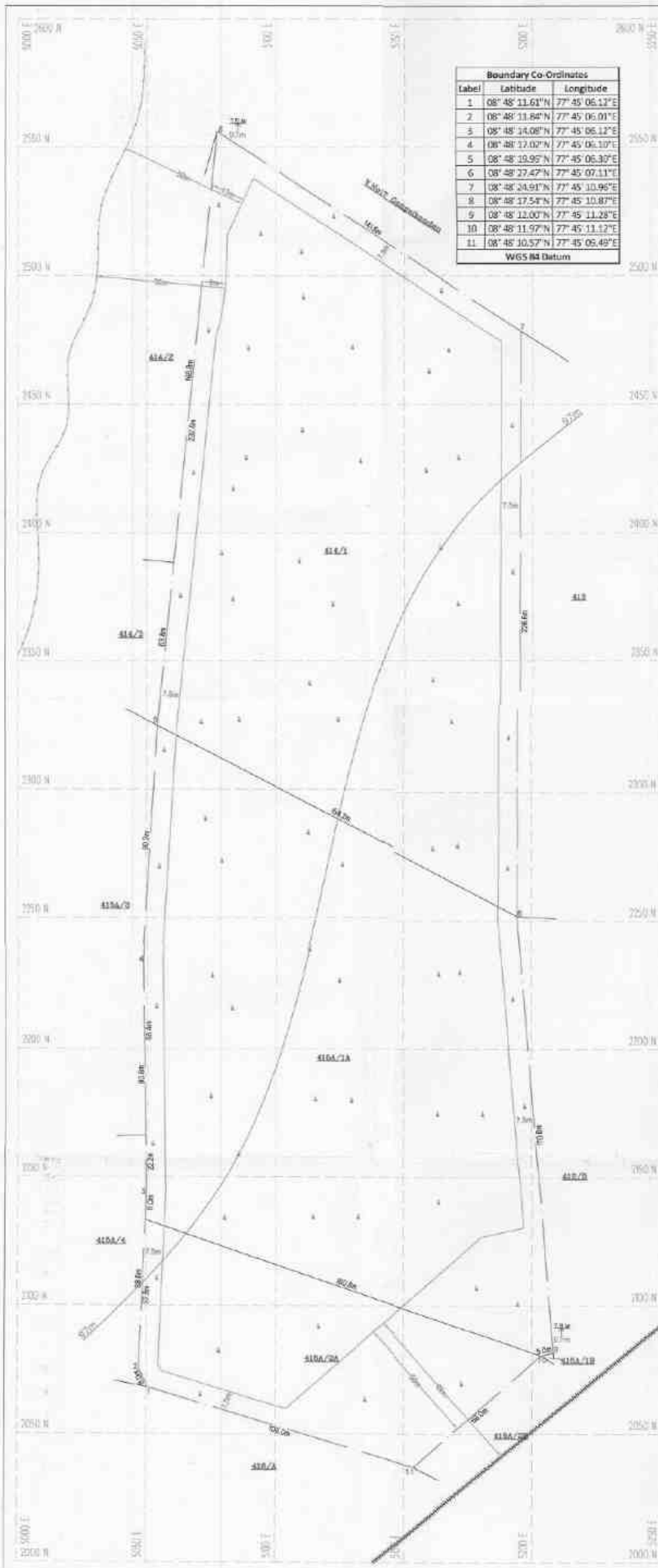
INDEX
TOPO SHEET NO : 58 H / 13
LATITUDE : 08°48'10.57"N to 08°48'27.47"N
LONGITUDE : 77°45'06.01E to 77°45'11.28"E

Q.L.A. AREA	
7.5m & 50m SAFETY	
300M RADIUS	
500M RADIUS	
1KM RADIUS	
APPROACH ROAD	
PANCHAYAT ROAD	
NATIONAL HIGHWAY	

SATELLITE IMAGERY MAP
SCALE 1:10,000

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

N.RAVINTHIRAN, M.Sc., (App. Geo)
QUALIFIED PERSON 314



Boundary Co-Ordinates		
Label	Latitude	Longitude
1	08° 48' 11.61" N	77° 45' 06.12" E
2	08° 48' 11.84" N	77° 45' 06.01" E
3	08° 48' 14.08" N	77° 45' 06.12" E
4	08° 48' 12.02" N	77° 45' 06.10" E
5	08° 48' 19.95" N	77° 45' 06.30" E
6	08° 48' 27.47" N	77° 45' 07.11" E
7	08° 48' 24.91" N	77° 45' 10.96" E
8	08° 48' 17.54" N	77° 45' 10.87" E
9	08° 48' 12.00" N	77° 45' 11.28" E
10	08° 48' 11.97" N	77° 45' 11.12" E
11	08° 48' 10.57" N	77° 45' 05.49" E

WGS 84 Datum



PLATE NO. II
 DATE OF SURVEY : 20.09.2023

APPLICANT
 THIRUKANANTHA PERUMAL,
 S/O KANNAN,
 NO. 160/1, POSETTU WEST,
 THOOTHUKUDU DISTRICT

QUARRY APPLIED LEASE AREA
 S.F NOS - 414/A, 415A/1A & 415A/2A,
 EXTENT - 6.60.5 Ha,
 VILLAGE - PALAMADAL,
 TALUK - TIRUNELVELI,
 DISTRICT - TIRUNELVELI.

INDEX

- Q.L. APPLIED BOUNDARY
- 7.5m & 50m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- APPROACH ROAD
- RAILWAY TRACK
- CONTOUR
- SCREE
- ODM

QUARRY LEASE & SURFACE PLAN
 SCALE : 1 : 1000

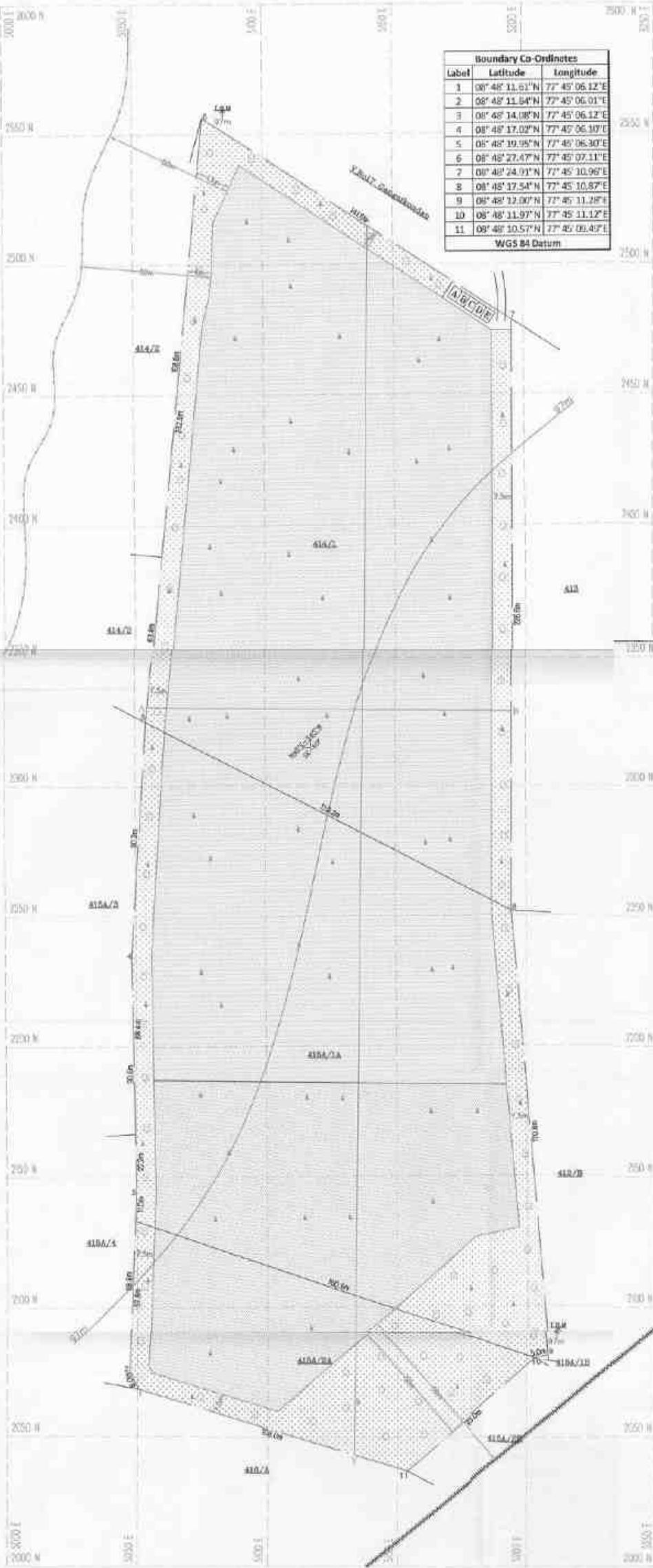
PREPARED BY:
 THIS IS TO CERTIFY THAT THE INFORMATION
 IN THIS PLAN IS TRUE AND CORRECT TO
 THE BEST OF MY KNOWLEDGE BASED UPON
 THE LEASE MAP AUTHENTICATED BY STATE
 GOVERNMENT

316
 K. RAVITHARAN M.S. Appal Rao
 QUALIFIED PERSON



Label	Latitude	Longitude
1	08° 48' 11.61" N	77° 45' 06.12" E
2	08° 48' 11.84" N	77° 45' 06.01" E
3	08° 48' 14.08" N	77° 45' 06.12" E
4	08° 48' 17.02" N	77° 45' 06.30" E
5	08° 48' 19.95" N	77° 45' 06.30" E
6	08° 48' 27.47" N	77° 45' 07.11" E
7	08° 48' 24.91" N	77° 45' 10.96" E
8	08° 48' 17.54" N	77° 45' 10.87" E
9	08° 48' 12.00" N	77° 45' 11.28" E
10	08° 48' 11.97" N	77° 45' 11.12" E
11	08° 48' 10.57" N	77° 45' 09.43" E

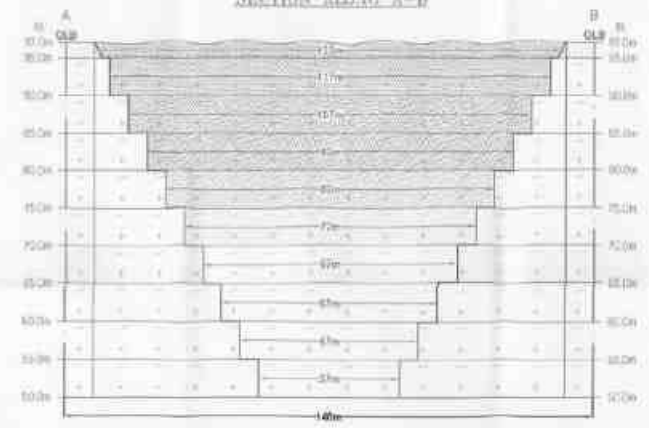
WGS 84 Datum



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

- PROPOSED MIN SERVICES**
- A - OFFICE
 - B - STORE ROOM
 - C - TRUCK AND ROOM
 - D - REST SHED/TOILET
 - E - TRUCK
 - F - MAGAZINE

SECTION ALONG A-B



SECTION ALONG X-Y

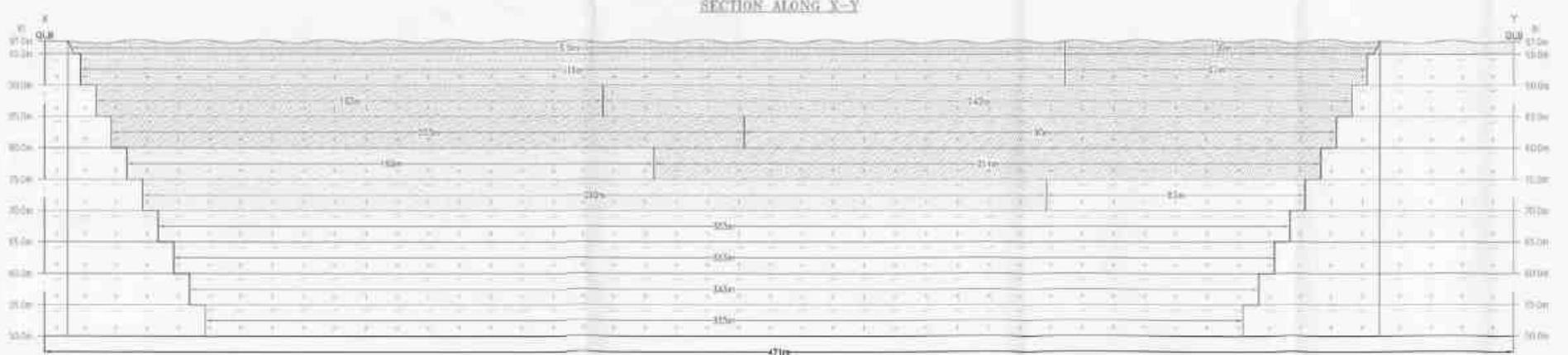


PLATE NO-III
DATE OF SURVEY: 20.09.2023

APPLICANT:
THIRU K. ANANTHA PERUMAL
SAS. KANNAN
NO.100/6, POLEPITAL WEST,
THOODUNDI DISTRICT

QUARRY APPLIED LEASE AREA:
SF NOS : 41A/1, 41A/2A & 41A/2B
EXTENT : 6.60.5 Hrs.
VILLAGE : PALAMADAI
TALUK : TRUNELVELI
DISTRICT : TRUNELVELI

INDEX

- Q.L. AFFIUED BOUNDARY [Pattern]
- 7.5m & 50m SAFETY DISTANCE [Pattern]
- TEMPORARY BENCH MARK [Symbol]
- APPROACH ROAD [Pattern]
- RAILWAY TRACK [Pattern]
- CONTOUR [Symbol]
- SCOUR [Symbol]
- ODM [Symbol]
- GRAVEL [Pattern]
- ROUGH STONE [Pattern]
- STRIKE & DIP [Symbol]

TOPOGRAPHY, GEOLOGICAL & YEARWISE DEVELOPMENT & PRODUCTION PLAN & SECTIONS
SCALE 1:1000
SECTIONS HOR 1:1000, VER 1:500

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

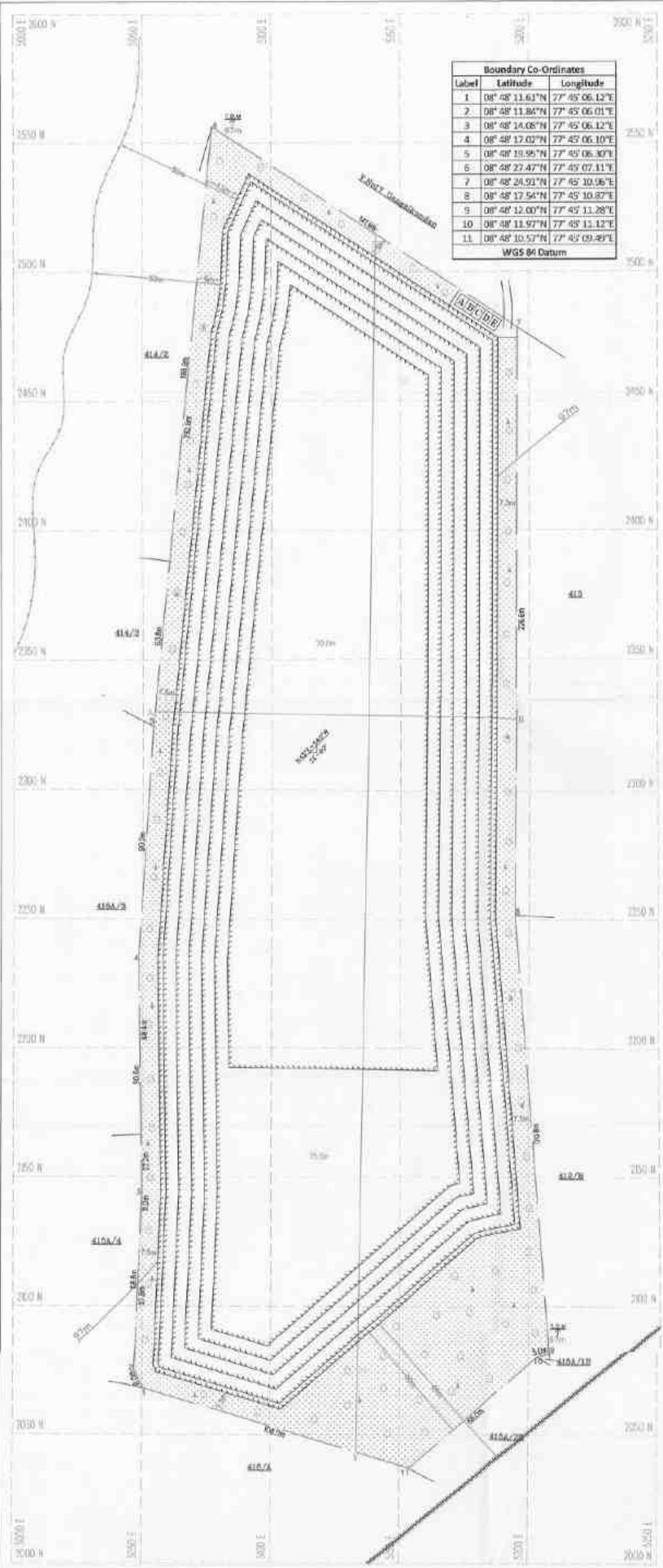
317
H. A. S. R. M. S. (Asst. Dir.)
TRUNELVELI DISTRICT

H. A. S. R. M. S. 160



Boundary Co-Ordinates		
Label	Latitude	Longitude
1	08° 48' 11.61"N	77° 45' 06.12"E
2	08° 48' 11.84"N	77° 45' 06.01"E
3	08° 48' 14.08"N	77° 45' 06.12"E
4	08° 48' 17.07"N	77° 45' 06.10"E
5	08° 48' 19.95"N	77° 45' 06.30"E
6	08° 48' 27.47"N	77° 45' 07.11"E
7	08° 48' 29.92"N	77° 45' 10.96"E
8	08° 48' 17.54"N	77° 45' 10.87"E
9	08° 48' 12.00"N	77° 45' 11.28"E
10	08° 48' 11.97"N	77° 45' 11.12"E
11	08° 48' 10.57"N	77° 45' 09.49"E

WGS 84 Datum



ULTIMATE PIT DIMENSION OF END OF THE MINING PLAN PERIOD
 L418m(Max)x12.5m,avg3037m(Max)

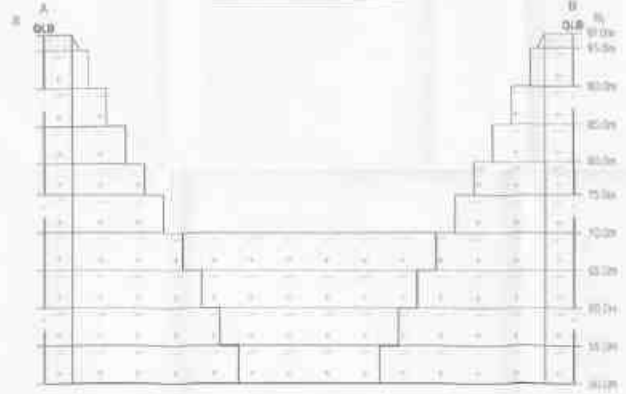
Proposed area to be mined

- PROGRESSIVE BENCHES**
- A - OFFICE
 - B - STORE ROOM
 - C - FIRST AID ROOM
 - D - REST SHELTER
 - E - TOILET
 - F - WASHING

PRESENT & POST LAND USE PATTERN

DESCRIPTION	PRESENT AREA (Ha)	AREA AT THE END OF THE QUARRYING PERIOD (Ha)
AREA UNDER QUARRYING	Nil	0.18.0
INFRASTRUCTURE	Nil	0.01.0
ROADS	Nil	0.01.0
GREEN BELT	Nil	1.43.0
UN-UTILIZED AREA	8.40.3	Nil
GRAND TOTAL	8.40.3	0.60.3

SECTION ALONG A-B



SECTION ALONG X-Y

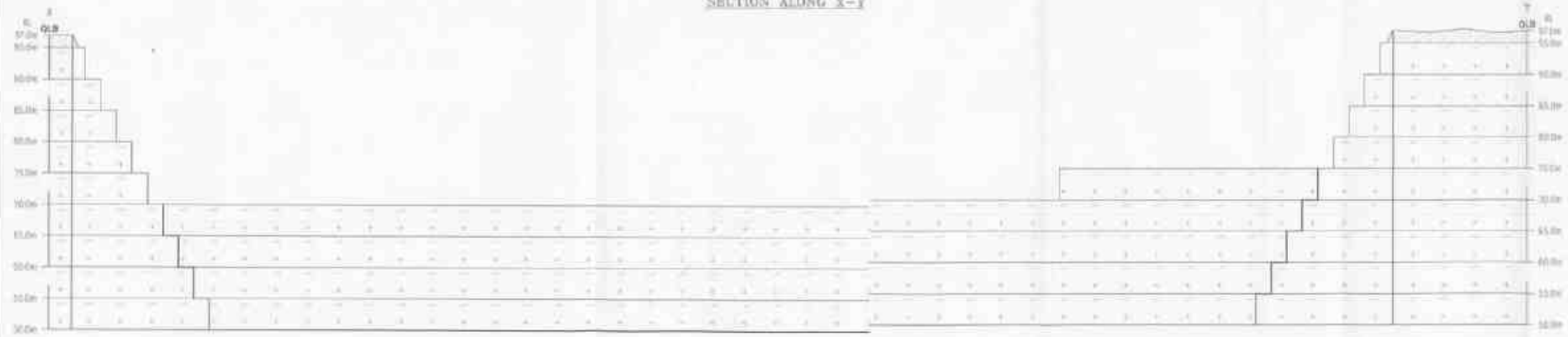


PLATE NO-IV
 DATE OF SURVEY : 20.09.2023

APPLICANT:
 THERY KANANTHA PERUMAL,
 S/O KANNAN,
 NO 5600/1, PO: ERETTAI WEST,
 THOOTHANUR/DISTRICT

QUARRY APPLIED LEASE AREA:
 S.F.NOS - 41A/1, 41A/1A & 41A/2A,
 EXTENT : 6.60.5 Ha,
 VILLAGE : PALAMADAI,
 TALUK : TRUNELVEL,
 DISTRICT : TRUNELVEL

INDEX

- Q.L APPLIED BOUNDARY
- 7.5m & 50m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- APPROACH ROAD
- RAILWAY TRACK
- CONTOUR
- SCRUB
- QDAI
- GRAVEL
- ROUGH STONE
- STRIKE & DIP
- PROPOSED QUARRY PIT

PROGRESSIVE QUARRY CLOSER
PLAN & SECTIONS
 SCALE 1:1000
 SECTIONS HOW 1:1000, VER 1:500

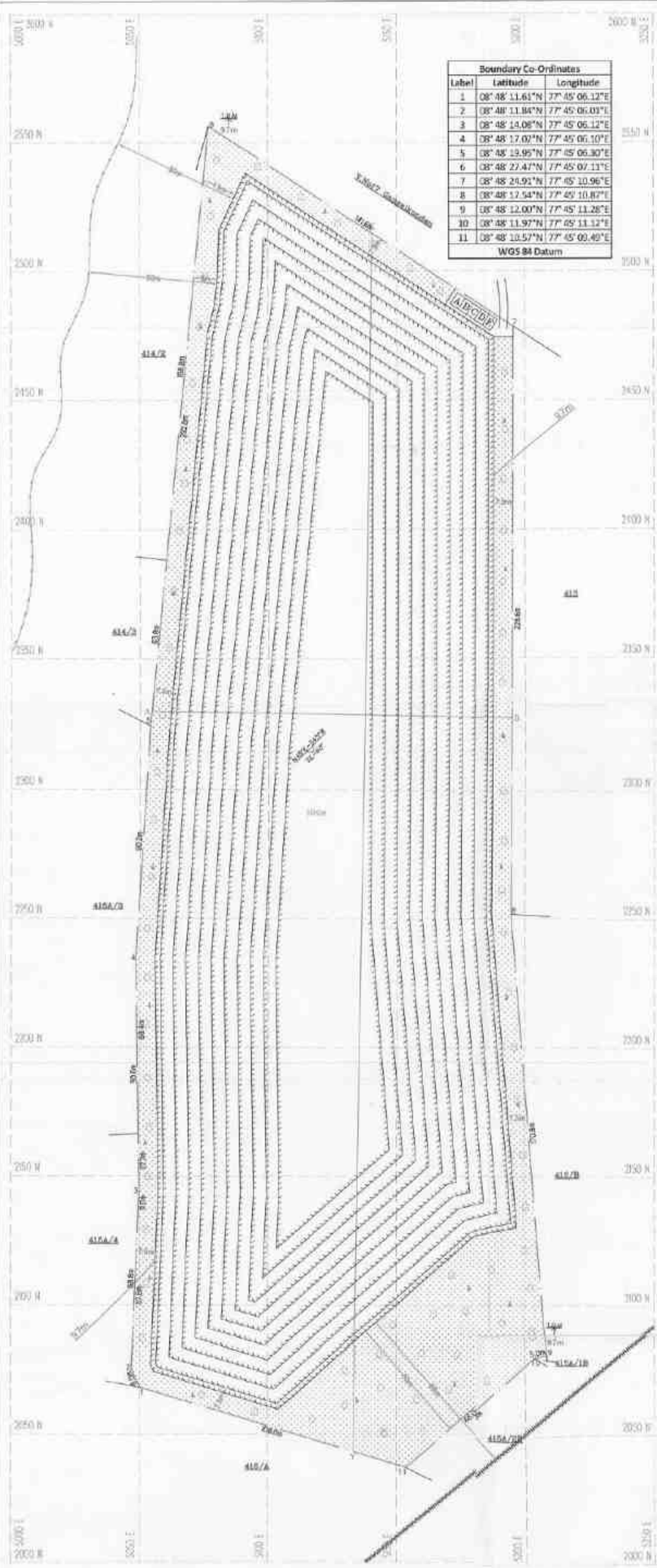
PREPARED BY:
 THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

KRA VEDITHARAN M.Sc., App.Gov
 QUALIFIED PERSON



Boundary Co-Ordinates		
Label	Latitude	Longitude
1	08° 48' 11.61"N	77° 45' 06.12"E
2	08° 48' 11.84"N	77° 45' 06.03"E
3	08° 48' 14.08"N	77° 45' 06.12"E
4	08° 48' 17.07"N	77° 45' 06.10"E
5	08° 48' 19.95"N	77° 45' 06.30"E
6	08° 48' 27.47"N	77° 45' 07.13"E
7	08° 48' 29.91"N	77° 45' 10.96"E
8	08° 48' 32.54"N	77° 45' 10.87"E
9	08° 48' 32.00"N	77° 45' 11.28"E
10	08° 48' 31.97"N	77° 45' 11.12"E
11	08° 48' 30.57"N	77° 45' 09.49"E

WGS 84 Datum

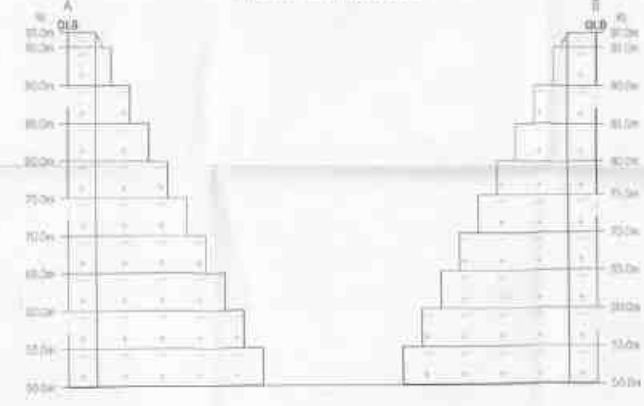


ULTIMATE FIT DIMENSION OF END OF THE LEASE PERIOD
1410m(Max) x 123m(Avg) (2047m(Max))

Proposed area to be Planted

- PROPOSED SITE SERVICES**
- A - OFFICE
 - B - STORE ROOM
 - C - FIRST AID ROOM
 - D - REST SHELTER
 - E - TOILET
 - M - MAGAZINE

SECTION ALONG A-B



SECTION ALONG X-Y

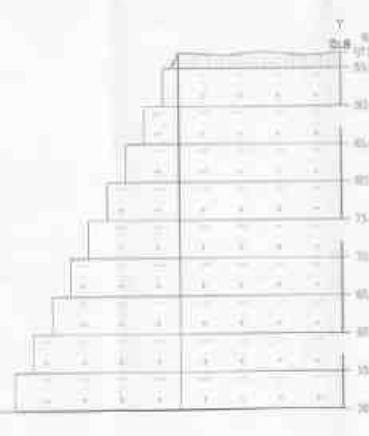
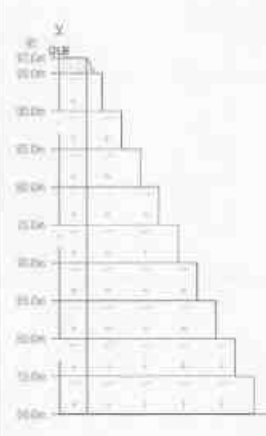


PLATE NO-V
DATE OF SURVEY : 20.09.2022

APPLICANT:
THIRU KANNANHA PERUMAL,
5/5 KANNAN,
NO 500/9, PO FETTAI WEST,
TRICHYUR DISTRICT

QUARRY APPLIED LEASE AREA:
S.F NOS : 414/1, 415A/1A & 415A/2A,
EXTENT : 5.665 HCT,
VILLAGE : PALAMADAI,
TALUK : TRIRUNVELI,
DISTRICT : TRIRUNVELI

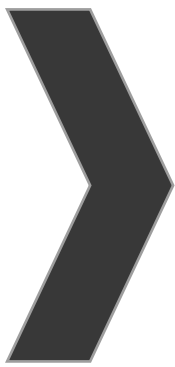
INDEX

- Q.L APPLIED BOUNDARY
- 7.5m & 30m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- APPROACH ROAD
- RAILWAY TRACE
- CONTOUR
- SCRUB
- ODAI
- GRAVEL
- ROUGH STONE
- STRIKE & DIP
- PROPOSED QUARRY PIT

CONCEPTUAL PLAN & SECTIONS
SCALE 1:1000
SECTIONS FOR 1:1000, VER 1:500

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

M. RAJIVITHARAN, M.S., (Appointed)
SUPERVISOR



ANNEXURE-4

From

Thiru.L.Suresh., M.Sc.,
Joint Director/
Assistant Director(I/c),
Geology and Mining,
Tirunelveli.

To

Thiru.K.Ananthaperumal,
S/o.Kanniah,
160D/8, Pole pettai West,
Thoothukudi District.

Rc.No.M2/214/2023, dated.20.09.2023

Sir,

Sub: Mines and Minerals - Minor Minerals - Roughstone and Gravel - Tirunelveli District - Quarry lease application preferred by Thiru.K.Anantha Perumal, S/o.Kanniah for quarrying and transportation of Roughstone and Gravel - over an extent of 6.60.5 hectares of patta lands in SF. Nos. 414/1, 415A/1A & 415A/2A of Palamadai Village, Tirunelveli Taluk - Certain Particulars requested - for obtaining Environmental Clearance - furnished - reg.

- Ref:**
1. Quarry lease application preferred by Thiru.K.Anantha Perumal, S/o.Kanniah, dated. 13.03.2023.
 2. Precise Area Communication letter in Rc. No.M2/214/2023, dated. 19.09.2023.
 3. Letter received from the applicant Thiru.K.Anantha Perumal, dated.19.09.2023.
 4. Mining Plan Approval letter No. M2/214/2023, dated. 20.09.2023.

Thiru.K.Anantha Perumal, S/o.Kanniah, 160D/8, Polepettai West, Thoothukudi District has applied for grant of quarry lease for quarrying Roughstone and Gravel over an extent of 6.60.5 hectares of patta land in SF. Nos. 414/1 (3.09.0), 415A/1A (2.71.0) & 415A/2A (0.80.0) of Palamadai Village, Tirunelveli Taluk, Tirunelveli District for a period of 10

h. Ananthaperumal

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years under Rule 19 (1) of Tamil Nadu Minor Mineral Concession Rules, 1959.

2. Based on the recommendations of the Revenue Divisional Officer, Tirunelveli and the Assistant Geologist of Geology and Mining, Tirunelveli precise area was communicated to Thiru.K.Anantha Perumal, S/o.Kannaiah for grant of quarry lease for quarrying and transportation of Roughstone and Gravel over an extent of 6.60.5 hectares of patta lands in SF. Nos. 414/1 (3.09.0), 415A/1A (2.71.0) & 415A/2A (0.80.5) of Palamadai Village, Tirunelveli Taluk, Tirunelveli District for a period of 10 years vide reference 2nd cited.

3. The Mining Plan submitted by the lessee, Thiru.K.Anantha Perumal, S/o.Kannaiah for quarrying roughstone has been approved vide this office letter No.M2/214/2023, dated.19.09.2023 for obtaining Environmental Clearance as per the newly introduced Rule Number 41 and 42 of Mineral Concession Rules 1959.

4. In the reference 4th cited, Thiru.K.Anantha Perumal, S/o.Kannaiah has requested to furnish certain particulars such as existing / proposed / abandoned mines within a radial distance of 500 meters from the periphery of the existing mining lease hold area for obtaining environmental clearance from the State Level Environment Impact Assessment Authority, Chennai.

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h. Anantha Perumal


5. The details of quarry leases falling within a radial distance of 500 meters from the subject leasehold area are furnished below:-

Sl. No	Name of the Lessee	Village & SF. No.	Extent - Hects	Lease status
a. Details of Abandoned Quarries				
1.	Thiru.Navaskhan, Sankar Nagar.	Tirunelveli TK, Gangaikondan (V), SF. Nos. 1663, etc.,	2.89.0	Abandoned quarry
2.	Thiru.P.K.S.Ahamed Meeran, Tirunelveli.	Tirunelveli TK, Gangaikondan (V), SF. Nos. 1671/1B, etc.,	2.14.0	Abandoned quarry
b. Details of Expired Quarries				
Nil				
c. Present Proposed Quarries				
1.	P.Arumugasundar, S/o.Paramasivan, 34, Maravar Colony Street, Rajavallipuram, Palayamkottai, Tirunelveli - 627359	SF. Nos. 402/1 & 402/2 of Palamadai Village, Tirunelveli Taluk	2.60.50	Proposed quarry
2.	Thiru.N.Mohammed Saleem Badhusha, S/o.Navaskhan, 1/19, Muthunagar, Sankarnagar, Tirunelveli District - 627357.	SF. No. 812(P), Naranammal puram Part - I village, Tirunelveli Taluk	1.95.0	Proposed quarry
3.	Thiru.K.Ananthaperu mal, S/o.Kanniah, 160D/8, Polepettai West, Thoothukudi District.	SF. Nos. 414/1, 415A/1A & 415A/2A, Palamadai Village, Tirunelveli Taluk	6.60.5	Instant proposal

h. Ananthaperumal

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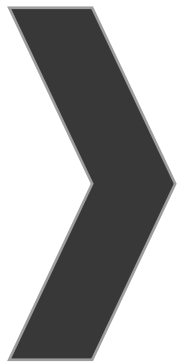
4.	Thiru.N.Mohideen Sheik Shahith, S/o.Navaskhan, 1/19, Muthu Nagar, Sankar Nagar, Tirunelveli - 627 357	SF. No. 807 of Naranammal puram Part - I village, Tirunelveli Taluk	1.94.50	Proposed quarry
5.	Thiru.A.Kothar Mydeen, S/o.Ahamed Meeran, Thenkulam, Tirunelveli.	SF.No.1660/4, Gangaikondan village, Tirunelveli Taluk	1.62.0	Proposed quarry
d. Existing quarry leases				
1.	Thiru.P.K.S.Ahamad Meeran, S/o. Mohamed Sultan, 18, Puthu Amman Kovil Street, Sindhupundhurai, Tirunelveli Taluk and District.	SF. No. 1665/1B, Gangaikondan Part -2 Village, Tirunelveli Taluk	2.10.5	06.10.2020 to 05.10.2025
2.	Thiru.C.Rasheed Ali, S/o.Chinna Sheik Rowther, 9/100, Mela Pallivasal Street, Mela Thalaiyuthu, Sankar Nagar, Tirunelveli - 627357	SF. No. 1662/1A(P) (0.38.0) & 1663/1A (1.21.5), Gangaikondan Part -2 Village, Tirunelveli Taluk	1.59.5	21.01.2022 to 20.01.2032


Joint Director
Assistant Director(i/c),
Geology and Mining,
Tirunelveli.

20/1/23

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h. Anu to Anand



ANNEXURE-5

சிறுவர்:

திருவள்ளூர் வட்டம்

பொருளாதார துறைமுகம் ஹாஸ்டல் ஹாஸ்டல்
414/1, 415A/1A, 415A/2A சிறுவர்

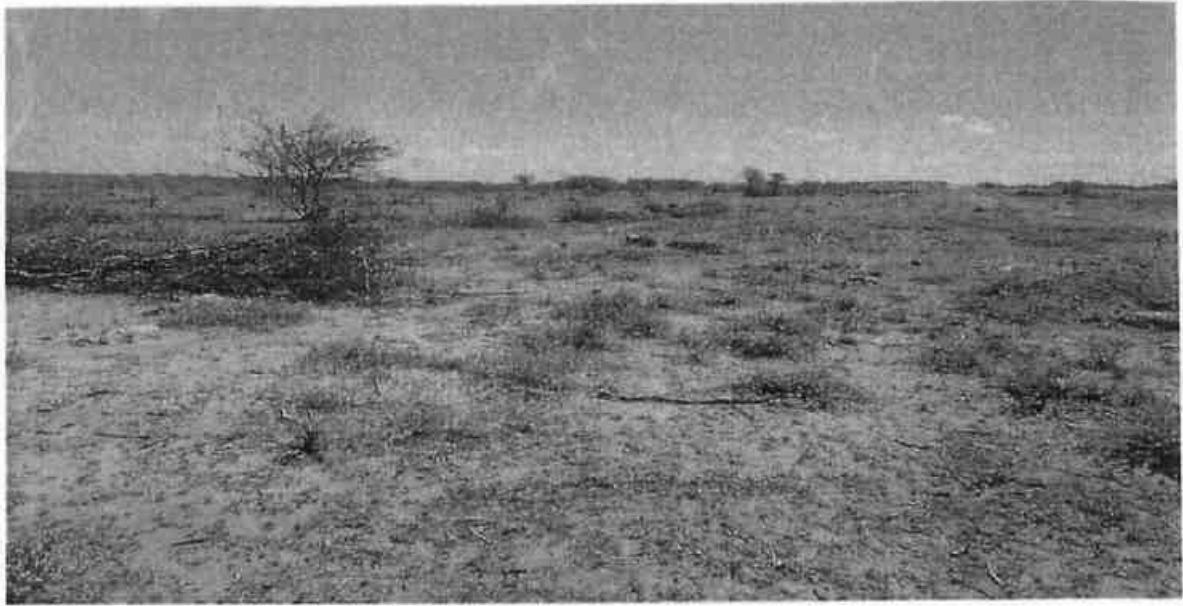
பெற்றோர்கள் 6.60.5 பகுதியில் பட்டியலில்
109800 கண்காணக மகன் சிறுவர் பெருமான்
பெயரில் பட்டியல் 1111 2 கண்காணக மகன்
சிறுவர் பெருமான் பெயரில் பட்டியலில்

109800 புகழ்ச்சி பட்டியல் மகன் புகழ்ச்சி.
-உயர்க்குப் பெயரில் திரைக் சிறுவர்
(இருவரும் கண்காணக) சிறுவர் ஹாஸ்டல் சிறுவர்
6.60.5 பகுதியில் உள்ளது. சிறுவர் ஹாஸ்டல்
பெருமான் உயர் மகன் சிறுவர் மகன் தலை
பெருமான். சிறுவர் ஹாஸ்டல் 300 பட்டியல்
சிறுவர் பெருமான் பெருமான் சிறுவர் பெருமான்
பெருமான் பெருமான் பட்டியல் பெருமான்
பெருமான் பெருமான் உயர் பெருமான். சிறுவர்
பெருமான் பெருமான் பட்டியல் சிறுவர் பெருமான்
பெருமான் பெருமான் பெருமான் பெருமான்
பெருமான் பெருமான் பெருமான் பெருமான்
பெருமான் பெருமான் பெருமான் பெருமான்

Dr. [Signature]
25.07.2022
சுராம நிர்வாக அலுவலர்
பாலாமடை கிராமம்
திருநெல்வேலி வட்டம்

Dr. [Signature]

**TOPOGRAPHICAL VIEW OF
PALAMADAI VILLAGE K.ANANTHAPERUMAL
ROUGHSTONE/ GRAVEL QUARRY LEASE APPLIED AREA**



LOCATION DETAILS

Name and Address of the
Applicant

: K.Ananthaperumal,
S/o Shri.Kanaiah,
No: 160D/8, Pole Pettai West,
Thoothukudi - 628 002

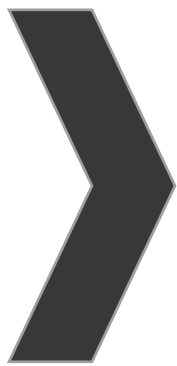
S.F.No : 414/1, 415A/1A & 415A/2A
Extent : 6.60.5 Ha
Village : Palamadai
Taluk : TIRUNELVELI
District : TIRUNELVELI
State : Tamilnadu.

C. Ananthaperumal
Attestation of the Village
Administrative Officer
தருநெல்வேலி வட்டம்
தருநெல்வேலி வட்டம்

K. Ananthaperumal
Signature of the Applicant

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K. Ananthaperumal



ANNEXURE-6



தமிழக அரசு

வருவாய்த் துறை



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

மாவட்டம் : திருநெல்வேலி

வட்டம் : திருநெல்வேலி

வருவாய் கிராமம் : பாலாமடை

பட்டா எண் : 1098

உரிமையாளர்கள் பெயர்

1. முகம்மது மீரான்

மகன்

முகம்மது ஹக்மீர்

புல. எண்	உட்பிரிவு	புனசேய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	
414	1	3 - 9.00	1.94	--	--	--	--	2023/0103 /29/341276--- -- 03-02-2023
		3 - 9.00	1.94					

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் தகவல் விவரங்கள் மின் பதிகேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தகவல்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 29/01/2021/01098 / 10198 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இம் தகவல்கள் 14-02-2023 அன்று 10:31:39 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவில் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS ஈழி இணையதளத்தில் சரிபார்க்கவும்

Dr. Anitha Kumar



தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருநெல்வேலி

வட்டம் : திருநெல்வேலி

வருவாய் கிராமம் : பாலாமடை

பட்டா எண் : 1105

உரிமையாளர்கள் பெயர்

I. கண்ணையா மகன் ஆனந்த பெருமாள்

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	
415A	1A	2 - 71.00	1.69	--	--	--	--	2023/0103/29/344963- -- -- 07-03-2023
		2 - 71.00	1.69					

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 29/01/2021/01105/10167 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 15-08-2023 அன்று 04:15:40 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

(Handwritten signature)

183



தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருநெல்வேலி

வட்டம் : திருநெல்வேலி

வருவாய் கிராமம் : பாலாமடை

பட்டா எண் : 1111

உரிமைபாளர்கள் பெயர்

1. கலையாசை மகன் ஆனந்தபெருமாள்

பட்டா எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	
415A	2A	0 - 80.50	0.50	--	--	--	--	2023/0103 /29/352751--- -- 28-04-2023
415A	1A	0 - 52.00	0.35	--	--	--	--	2023/0103 /29/352751--- -- 28-04-2023
		1 - 32.50	0.86					

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றுதழ் தகவல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 29/01/021/01111/10123 என்ற குறிப்பு என்னை உள்நீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்மீள் 05-06-2023 அன்று 10:30:37 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. ஸ்கான்பேசி கேமராவின் 2D barcode படப்பாள் மூலம் பயிற்று 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்.

L. Anand Kumar



₹. 500

FIVE HUNDRED RUPEES

पाँच सौ रुपये

Rs. 500



INDIA NON JUDICIAL

தமிழ்நாடு தமிழ்நாடு TAMILNADU

சென்னை

AU 576973

23.2.2023

K. ஆனந்த் பெருமாள்

[Signature]

தூத்துக்குடி

ச. கண்ணப்பன்
முத்தூர் தூர் கிழக்கு
கண்ணப்பன்
உரிமம் எண்: 1/27

குத்தகை ஆவணம்

2023 ம் ஆண்டு பிப்ரவரி மாதம் 28 ம் தேதி செவ்வாய்கிழமை

திருநெல்வேலி வட்டம், பாளையங்கோட்டை வட்டம், பாளையங்கோட்டை, பெருமாள்பாடம், ஜவஹர்நகர், எண்.ஜி.ஓ.காலனி, கதவு எண் 234/1 ம் எண் இல்லத்தில் குடியிருந்து வரும் திரு.முகம்மது யீரான் அவர்கள் குமாரர் வயது 52 உள்ள திரு.M.முகம்மது ஹக்கீம் - 1 வது பார்ட்டியாகவும் (குத்தகைக்கு கொடுப்பவர்) (ஆதார் எண்: 5517 8688 9854)

தூத்துக்குடி வட்டம், தூத்துக்குடி வட்டம், தூத்துக்குடி, போல்பேட்டை, கதவு எண் 160D/8 ம் எண் இல்லத்தில் குடியிருந்து வரும் திரு.கண்ணையா அவர்கள் குமாரர் வயது 36 உள்ள திரு.K.ஆனந்தபெருமாள் - 2 வது பார்ட்டியாகவும் (குத்தகை பெறுபவர்) (ஆதார் எண்: 6169 8413 6995) (செல் நம்பர் 9965531473) ஆக நாம் இருபார்ட்டிகளும் சேர்ந்து எழுதிகொள்ளும் குத்தகை ஆவணம்

குத்தகைக்கு கொடுப்பவர்

குத்தகை பெறுபவர்

M. Mohan Reddy

K. Ananta Kumar

Ananta Kumar

11/01/2023
14/01/2023
1 வது தூர்
புதிது குடிமான்



-2-

என்னவென்றால், இதன் தபசில் சொத்தை நமயில் 1 வது பார்ட்டியான திரு.M.முகமது ஹக்கீம் அவர்கள் ரொக்கக் கங்கைகொண்டான் சம்பதிவான் அலுவலகம் 1 புத்தகம் 275/2023 ம் எண்ணாக பதிவு செய்யப்பட்ட கிராம ஆவணத்தின் படி கிராமம் பெரும் மேலும் நம்மில் 1 வது பார்ட்டியான திரு.M.முகமது ஹக்கீம் அவர்கள் பெருக்கு பாலாமல கிராமம் தனி பட்டா எண் 1098 ஏற்பட்டும் நாளது தேதி வரை சர்க்கார் தீவைகள் செலுத்தி சர்வதந்திரமாக சகல உரிமைகளுடன் ஆண்டனுபவித்து வரும் இதன் தபசில் கண்ட சொத்தை "அரசு அனுமதி பெற்ற கங்கைவாரி கனிமம்" காந்த தொழில் செய்வதற்காக நமயில் 2 வது பார்ட்டியான திரு.K.ஆனந்த பெருமாள் அவர்கள் குத்தகைக்கு வேண்டும் என கேட்டு கொண்டதை ஏற்று நாளது தேதி முதல் வரடம் ஒன்றுக்கு ரூபாய்.5,000/- (ரூபாய் ஐந்தாயிரம் மட்டும) குத்தகை தொகையாக நிர்ணயித்து 15 வருடங்களுக்கு (பதினைந்து வருடம் மட்டும்) அதாவது உயர்திரு.மாவட்ட ஆட்சித்தலைவர் அவர்கள் கனிம உரிமை வழங்கும் தேதியிலிருந்து 15 வருடங்களுக்கு (பதினைந்து வருடம் குத்தகைக்கு விதிவதாக ஒப்புக்கொண்டு நாளது தேதியில் நம்மில் 1 வது பார்ட்டி முன்பணம் ரூ.50,000/- ததை ரொக்கமாக பெற்றுக்கொண்டு நம்மில் 2 வது பார்ட்டியும் சம்மதித்து கிழ்க்கண்ட நிபந்தனைகளின் படி இந்த குத்தகை ஒப்பந்த பத்திரத்தை எழுதி நாம் இரு பார்ட்டிகளும் சேர்ந்து மனம் ஒத்து கையெழுத்து செய்திருக்கிறோம்.

குத்தகைக்கு கொடுப்பவர் குத்தகை பெறுபவர்

M. Mohan Reddy

Li. Anantha Reddy

1	2027	3548
14	தலைவர் கையெழுத்து	
2	வதுவர்	பதிவு செய்தவர்





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நிபந்தனைகள்

1. வறாடம் ஒன்றுக்கு ரூ.5000/- மும் (ஐந்துபதின்ம) வீதம் நம்மில் 2 வது நயர் நம்மில் 1 வது நயருக்கு தவறாமல் செலுத்தி வர வேண்டியது.
2. இந்த குத்தகை ஒப்பந்தம் நாளை தேதியான 24.02.2023 முதல் 27.02.2023 ம் தேதி வரை பதினாந்து வரட காலத்திற்கு மட்டும் அனுமதிக்கில் இருந்து வர வேண்டியது.
3. நம்மில் 2 வது பார்ட்டி கல்குவாரிக்கு தேவையான புதிய மெஷின்கள், மோட்டார்கள் ஆகியவற்றை தன் சொந்த செலவில் வாங்கி வைத்துக்கொள்ளவேண்டியது.
4. நம்மில் 1 வது பார்ட்டி ஒத்துழைப்புடன் நம்மில் 2 வது பார்ட்டி தன் சொந்த செலவில் கல்குவாரி நடத்துவதற்கு தேவையான மூலக் கட்டுப்பாட்டு வாரியம், கிராம நிர்வாகம் மற்றும் தேவையான அங்க அலுவலகங்களில் அனுமதி பெற்றுக்கொள்ள வேண்டியது.
5. நம்மில் 2 வது பார்ட்டி தான் உபயோகிக்கும் காலத்திற்குரிய பின்கட்டணத்தை தவறாமல் செலுத்தி வரவேண்டியது.
6. நம்மில் 1 வது பார்ட்டி இதன் அபிவிருத்தி கண்ட சொத்திற்குரிய அரசுத்தீர்வையை தவறாமல் செலுத்தி வாணவேண்டியது.
7. குத்தகை காலம் முடிந்தவுடன் நம்மில் 2 வது பார்ட்டியின் செலவுத்தொகையுடன் நம்மில் 1 வது பார்ட்டியின் மோட்டார்கள், மெஷின்கள் அனைத்தையும் அமைத்துக்கொடுத்து விடவேண்டியது.

குத்தகைக்கு கொடுப்பவர்

M. Mohan Madhan

குத்தகை பெறுபவர்

K. Anitha Kumar

1. 2023	2. 14	3. 8
4. 2023	5. 14	6. 8
7. 2023	8. 14	9. 8

K. Anitha Kumar

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8. நம்மில் 2 வது பார்ட்டி நடத்தி காலம் முடியும் நிறுவனத்தின் உரிமை போன்றவைகளை நம்மில் 2 வது பார்ட்டியின் காலத்தில் அந்தந்த சமயங்களில் புதுப்பித்து தரவேண்டியது நம்மில் 1 வது பார்ட்டியின் பொறுப்பாகும்.

9. நம்மில் 2 வது பார்ட்டிக்கு அரசு விதிகளின் மீது நம்மில் 2 வது பார்ட்டி பெயரில் அரசு மற்றும் அதனைச்சேர்ந்த G.S.T. எடுத்துநடக்கவேண்டிய நம்மில் 1 வது பார்ட்டிக்கு எந்தவித ஆட்சேபமும் இல்லை.

10. இந்த குத்தகை காலம் முடிந்தபின் நிறுவனத்தில் அமைந்துள்ள நம்மில் 2 வது பார்ட்டி அமைந்துள்ள மெஷின்கள் அனைத்தையும் நம்மில் 2 வது பார்ட்டி எடுத்துச்செல்ல 2 வது பார்ட்டிக்கு முழு உரிமையும் உண்டு.

11. நம்மில் 2 வது பார்ட்டி நடத்தும் குவாரி நிறுவனத்தில் இடம் சம்பந்தமாக ஏதாவது கடன்பட்டிருந்தால் அதற்கு 1 வது பார்ட்டிக்கு எந்த விதமான பொறுப்பும் கிடையாது.

12. நம்மில் 2 வது பார்ட்டியால் நிறுவப்படும் அனைத்து குவாரி மெஷின்களும் மற்றும் அனைத்து வகை மெஷின்களுக்கும் 2 வது பார்ட்டியே முழு உரிமையாளர் ஆவார்.

13. நம்மில் 2 வது பார்ட்டி மாத குத்தை பணத்தை நம்மில் 1 வது பார்ட்டிக்கு தொடந்து மூன்று மாதங்கள் செலுத்தாத பட்சத்தில் நம்மில் 1 வது பார்ட்டி நம்மில் 2 வது பார்ட்டி மீது எடுக்கும் சகல சட்ட நடவடிக்கைகளுக்கும் கட்டுப்பட்டவர் ஆவார். நம்மில் 2 வது பார்ட்டி மாத குத்தகை பணத்தை நம்மில் 1 வது பார்ட்டிக்கு மாதந்தோறும் செலுத்திவரும் பட்சத்தில் தவணை காலம் முடியும் வரை நம்மில் 1 வது பார்ட்டி நம்மில் 2 வது பார்ட்டிக்கு எந்தவிதமான இடையூறும் செய்யக்கூடாது.

குத்தகைக்கு கொடுப்பவர்

குத்தகை பெறுபவர்

M. Mohan Reddy

H. Anand Reddy

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H. Anand Reddy

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14. நம்மில் 2 வது பார்ட்டி தான் வாடகைக்கு இடமும் தீதாகத்ததை தவிர தான் உபயோகிக்கும் காலத்தில் வேறு நபர்களுக்கு சன் இஷ்டத்திற்கு உள் வாடகைக்கு விடவே. வேறு நபர்க்கு குத்தகைக்கு விடவே கூடாது.

15. இந்த லப்பந்தத்தை 1 வது பார்ட்டியோ 2 வது பார்ட்டியோ ரத்து செய்யவும். சிவசுரை நம்மில் 2 வது பார்ட்டிக்கு தேவையில்லாத போது 3 மாதத்திற்கு முன் நம்மில் 1 வது பார்ட்டிக்கு தெரிவிக்கவேண்டியது. அது போல 1 வது பார்ட்டிக்கு தேவையற்றபோது 3 மாதத்திற்கு முன் நம்மில் 2 வது பார்ட்டிக்கு தெரிவிக்கவேண்டியது.

16. தவணை காலம் முடிந்தவுடன் நம்மில் 2 வது பார்ட்டி தற்சமயம் உள்ள நிலையில் எந்தவித படிதும் தவணியின் நம்மில் 3 வது பார்ட்டி வசம் லப்படைத்து விடவேண்டியது. அப்படி லப்படைக்கும் தவணம் பாடத்தில் அதனால் நம்மில் 1 வது பார்ட்டி அடையும் சகல தவணை தவணைத்திற்கும் 2 வது பார்ட்டி பொறுப்பதாரியாவார்.

17. நம்மில் 2 வது பார்ட்டி தான் கொடுத்த முன்பணம் ரூ.50,000/- ததை தவணை காலம் முடிந்த பின்னர் நம்மில் 2 வது பார்ட்டி எந்தவிதமான வட்டியும் இல்லாமல் திரும்ப பெற்றுக்கொள்ள வேண்டியது.

மேலே சொல்லப்பட்ட அனைத்து நிபந்தனைகளையும் நாம் இருநபர்களும் மன்பூர்வமாக ஏற்றுக்கொண்டு கையெழுத்து செய்திருக்கிறோம்.

குத்தகைக்கு கொடுப்பவர்

குத்தகை பெறுபவர்

M. Mohan Reddy

H. Anita Rani

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H. Anita Rani



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தபசில் சொத்து விபரம்

275/2023 கிராம அலாங்கார நிர்வாகத்தின் பதிவு மாவட்டம், கங்கைகொண்டான் சார்புதிரைகள் கிராம, திருநெல்வேலி மாவட்டம், திருநெல்வேலி வட்டம், பாலாமலை கிராமம், பட்டா எண் 1098 ன் உள்ள அபாய புக்கை சர்வே எண் 414 நம்பர் 1 டிப்டி ஹெக்டேர் 3.09.00 க்கு ஏக்கர் 7 செண்டு 63.25 பரப்பளவுள்ள புக்கை நிலத்திற்கு இத்துடன் இணைக்கப்பட்டுள்ள வரைபடத்தின் மூலம் எல்லை விபரம் :-

வடக்கே :- கிராம கணக்கு எண் 12 (கங்கைகொண்டான் கிராம எல்லை)

கிழக்கே :- சர்வே எண் 413 நம்பர் புக்கை நிலம்

தெற்கே :- சர்வே எண் 415A நம்பர் புக்கை நிலம்

மேற்கே :- சர்வே எண் 414 நம்பர் 2 டிப்டி புக்கை நிலம் மற்றும்

சர்வே எண் 414 நம்பர் 3 டிப்டி புக்கை நிலம்

இம்மாலுக்குள்பட்ட ஹெக்டேர் 3.09.00 க்கு ஏக்கர் 7 செண்டு 63.25 பரப்பளவுள்ள புக்கை நிலமும் அதை சார்ந்து, 9 க்கு மரபுவை ரைட்டும் உள்பட தபசில் விபரம் சரி இதன் தபசில் கண் சொத்து, மாணா ஊராட்சி ஒன்றியம், பாலாமலை ஊராட்சி மன்ற எல்லைக்குள்பட்டது.

குத்தகைக்கு கொடுப்பவர்

குத்தகை பெறுபவர்

சாட்சிகள்:

1. **A. சுவாமிநாதன்** (A.கொங்கே சுவாமிநாதன்) ந.பெ.ஆறுமுகம், கதவு எண் 9/137E, வேதகோயில் தெற்கு தெரு, ராஜபதி, கங்கைகொண்டான், (ஆதார் எண் 4275 5805 3904)

2. **M. ரமணி** (M.மாயாண்டி) ந.பெ.முருகன், கதவு எண் 146F செல்வி அம்மாள் கோவில் தெரு, கங்கைநகர், தாரணம்மாள்புரம், ஆதார் எண் 3085 5570 8479)

Drafted By Me With instruction of Parties



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பதிவு அலுவலர்

M. Mohan Reddy

L. Anita Ramesh

L. Anita Ramesh





R/கங்கைகொண்டான்/புத்தகம்-1/543/2023

1899ம் ஆண்டு இந்திய முத்திரைச் சட்டம் 42வது பிரிவின் கீழான சான்று

2023ம் ஆண்டு வரிசை எண் 375

கீதவு எண் 2341, N.O. 0 new colony இவ்வூர் நகர் பெருமாள்புரம், பாளையங்கோட்டை, பாளையங்கோட்டை, திருநெல்வேலி, தமிழ்நாடு. இந்தியா 627002-ல் வசிக்கும் திரு முகம்மது ஹக்கீம் என்பவரிடமிருந்து ₹ 300/- ரூபாய் முந்நூறு மட்டும் இந்த ஆவணத்திற்காக இந்திய முத்திரைச் சட்டம் 42வது பிரிவின் படி குறைவாயிருந்த முத்திரைக் கட்டணம் வசூலிக்கப்பட்டது என நான் இதன் மூலம் சான்றுளிக்கிறேன்.

சார்பதிவாளர் கங்கைகொண்டான்
நாள் 28/02/2023

சார்பதிவாளர் மாற்றுர் இந்திய முத்திரைச் சட்டம் பிரிவு
எண் 144, ஆட்டிபாடி

2023 ஆம் ஆண்டு பிரிவரி மாதம் 28ம் தேதி பி.பி. 37 மணியளவில் கங்கைகொண்டான் சார்பதிவாளர் அலுவலகத்தில் தாக்கல் செய்து கட்டணம் ₹ 1085/- செலுத்தியவர்

இடது பெருவிரல்



M. Mohamed Hakeem
கூடுதல் விவரங்கள் ஆவண வாசகத்தில்
உள்ளபடி

543
2023
பதிவு செய்து
28/02/2023

எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர்
இடது பெருவிரல்



M. Mohamed Hakeem
"சம்மதத்துடன் கூடிய ஆதார அங்கீகாரம்" என்ற
வழி இந்த நபரின் அடையாளம் விரல் ரேகை
மூலம் ஆதார ஆணையத்துடன்
சரிபார்க்கப்பட்டது. ஒப்பீட்டு எண்
UKC-480404a673b3c46a4843b59720fc788d3d194c
(Details from UIDAI : Mohamed Hakeem C/O: Mohamed
Mearan, 24-05-1970, xxxxxxxx8854)



எழுதி வாங்கியதாக ஒப்புக் கொண்டவர்
இடது பெருவிரல்



K. Anantha Perumal

"சம்மதத்துடன் கூடிய ஆதார அங்கீகாரம்" என்ற
வழி இந்த நபரின் அடையாளம் விரல் ரேகை
மூலம் ஆதார ஆணையத்துடன்
சரிபார்க்கப்பட்டது. ஒப்பீட்டு எண்
UKC-4271154678655542c24447e1aced9eed1880d
(Details from UIDAI : Anantha Perumal K C/O Kanniah,



K. Anantha Perumal 340 193



R/கங்கைகொண்டான்/புத்தகம்-1/543/2023

17-04-1999, xxxxxxxx6993

2023 ஆம் ஆண்டு பிப்ரவரி மாதம் 28ம் நாள்

ராமமூர்த்தி C
சார்பதிவாளர்
கங்கைகொண்டான்

R/கங்கைகொண்டான்/புத்தகம்-1/543/2023 எண்ணாகப் பதிவு செய்யப்பட்டது

நாள் 28/02/2023
கங்கைகொண்டான்

ராமமூர்த்தி C
சார்பதிவாளர்



1. 2023 ஆம் ஆண்டு 543 இலக்க
14 தாள்களாக கொண்டது
8 வது தாள் பதிவு செய்யப்பட்டது



L. Anita Ramiah



தமிழக அரசு

பாதுகாப்புத் துறை

நில உரிமை விவரங்கள் : இ. எண் 10(1) - ரி.பி.யு



மாவட்டம் : திருச்செங்கல்

மாவட்டம் : திருச்செங்கல்

பாதுகாப்பு விவரம் : 10(1) - ரி.பி.யு

ம. எண் : 1098

உரிமையாளர்கள் பெயர்

பகுதி எண்	கட்டிடம்	பகுதி எண்		பகுதி எண்		பகுதி எண்	பகுதி எண்
		பகுதி எண்	பகுதி எண்	பகுதி எண்	பகுதி எண்		
4(4)	1	3-9/00	1/94				
		3-9/00	1/94				

தற்படி 2 :



1. மேற்கண்ட தகவல் / சம்பந்தப்பட்ட விவரங்களைக் கீழ்க்கண்ட இணையதளம் மூலமாக அறியலாம் <https://eservices.tn.gov.in> என்ற இணையதளத்தில் 29/01/2021, 10:10:35 10:19:58 காலகட்டில் சம்பந்தப்பட்ட தகவலை அறியலாம்.
2. இது தகவலை 28-02-2023 அன்று 11:05:17 AM இல் பதிவு செய்யப்பட்டது.
3. கையொப்பம் / டிஜிட்டல் QR CODE மூலமாக அறியலாம். 3G/GPRS மூலம் இணையதளம் மூலமாக.

mimohayubdin

L. Anita Kumar

14/02/2023
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L. Anita Kumar

District: Tirunelveli

Taluk: Tirunelveli

Village: Palamadai

[21]

Survey No: 414

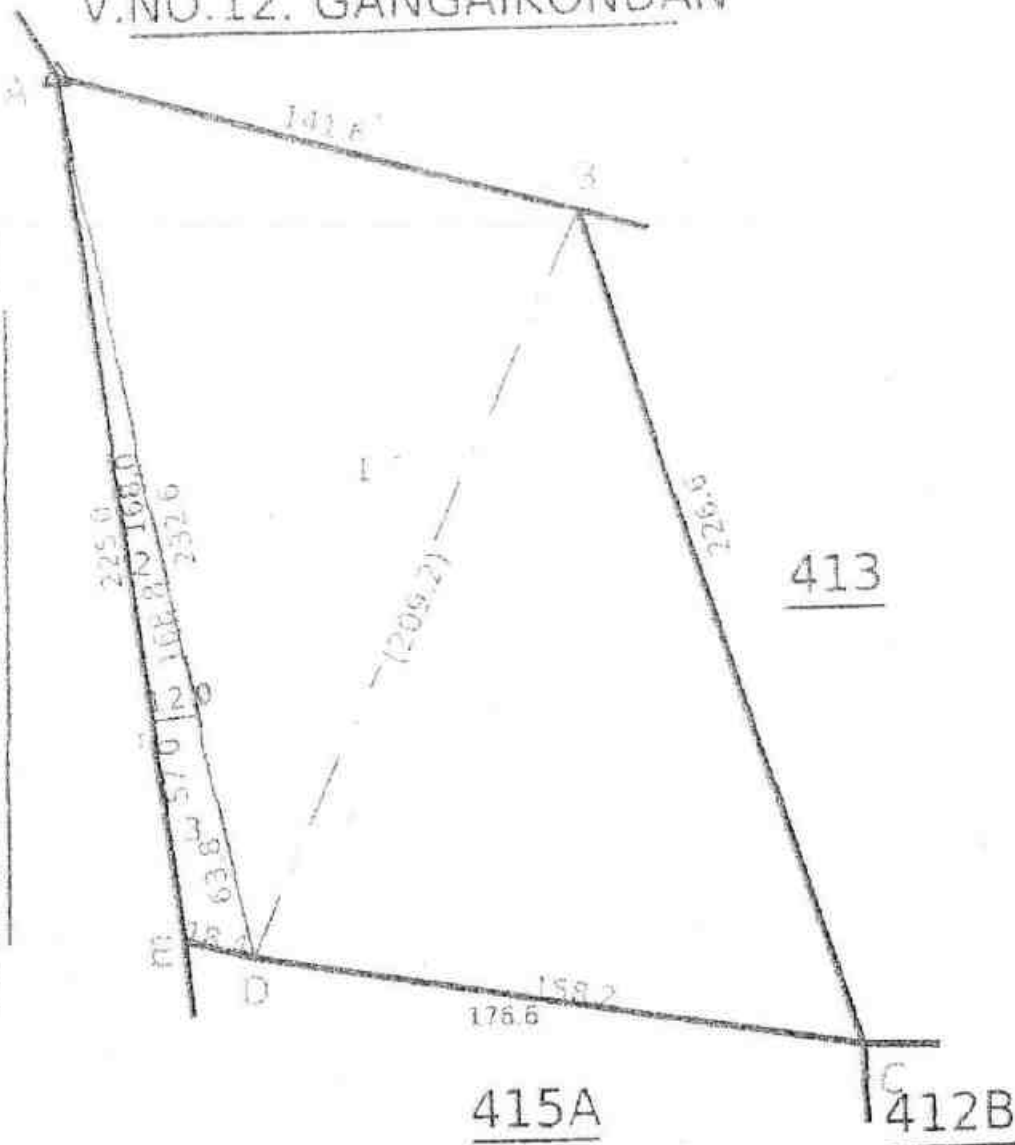
Area: Hect 03 Ares 29.50

Scale: 1 : 1846



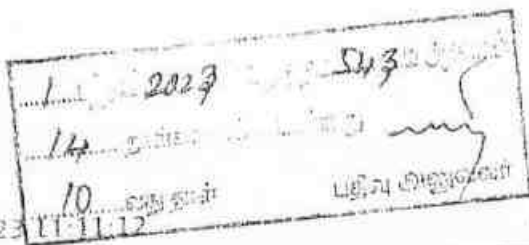
V.NO.25. NARANAMMALPURAM

V.NO.12. GANGAIKONDAN



mudhaya kalu

li. Ananthanand



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li. Ananthanand




 இந்திய அரசாங்கம்
 Government of India
 முகவர்து இலக்கம்
 Mohamed Meeran
 அப்பா முகவர்து இலக்கம்
 Father: Mohamed Meeran
 பிறந்த நாள் / Year of Birth 1970
 ஆகாச நகர் / State

5517 8688 9854


 Unique Identification Authority of India
 முகவர்து இலக்கம்
 முகவர்து இலக்கம் 2241, என்
 ஜி ஓ நியூ காலனி, ஜவாஹர் நகர்
 பசையாம்கோட்டை, திருச்சூர்
 திருச்சூர், பெரும்பாளையம், தமிழ்
 நாடு 627007
 Address:
 S/O Mohamed Meeran, 2241, N
 G O NEW COLONY, JAWAHAR
 NAGAR, Palsayamkottai,
 Tiruchur, Perumalapuram, Tamil
 Nadu, 627007

5517 8688 9854

அதார - சாதாரண மனிதனின் அதிகாரம்

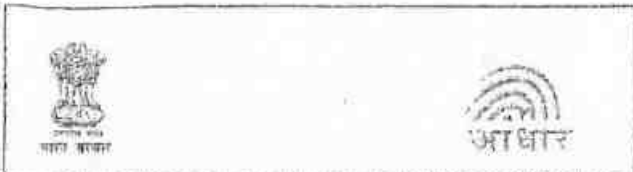
M. Mohamed Meeran

h. Anita Meeran

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h. Anita Meeran



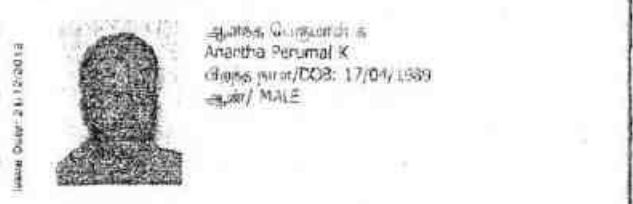
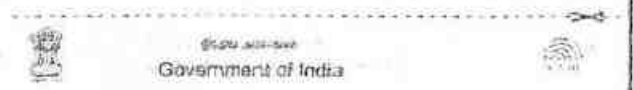


பதிவு செய்யப்பட்டவர் / Enrolment No.: 0656/36499/25146

To
 ஆனந்தா பரமசிவன்
 Anantha Perumal K
 C/O Kanniath
 160D/8
 Polepettai West
 Thoothukudi
 Thoothukudi Tamil Nadu - 628001
 9842604292

Signature valid

உங்கள் ஆனந்த எண் / Your Aadhaar No. :
6160 8413 6995
 VID : 9165 4065 9209 8970



6160 8413 6995
 VID : 9165 4065 9209 8970



பதிவு செய்துள்ள அட்டை உங்கள் அடையாளத்தை உறுதிப்படுத்துகிறது. இது உங்கள் குடிமகனின் அடையாளத்தை உறுதிப்படுத்தவில்லை.

இது மின்மயமாக்கப்பட்ட கடிதம்.

INFORMATION

- Aadhaar is a proof of identity, not of citizenship.
- Verify identity using Secure QR Code/Offline XML/Online Authentication
- This is electronically generated letter.

உங்கள் அட்டை உங்கள் அடையாளத்தை உறுதிப்படுத்துகிறது. இது உங்கள் குடிமகனின் அடையாளத்தை உறுதிப்படுத்தவில்லை.

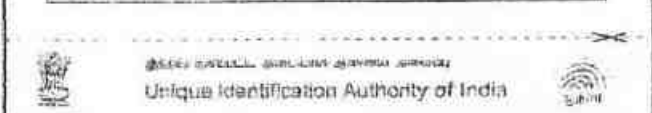
இது மின்மயமாக்கப்பட்ட கடிதம்.

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பதிவு செய்துள்ளவர் / Enrolment No.: 0656/36499/25146

To
 ஆனந்தா பரமசிவன்
 Anantha Perumal K
 C/O Kanniath
 160D/8
 Polepettai West
 Thoothukudi
 Thoothukudi Tamil Nadu - 628001

Address:
 C/O Kanniath, 160D/8, Polepettai West, Thoothukudi, Thoothukudi, Tamil Nadu - 628001

6160 8413 6995
 VID : 9165 4065 9209 8970

Handwritten signature: Anantha Perumal

Handwritten notes and stamps:
 14/08/2023
 12/08/2023
 13/08/2023
 மதுரை மாவட்டம்
 மதுரை மாவட்டம்

Handwritten signature: Anantha Perumal





Government of India
 Government of Tamil Nadu
 Director of Geology & Mining
 Tirunelveli District
 4275 5805 3904
 मेरा अधिकार, मेरी पहचान

भारत सरकार
 भारत सरकार, तमिल नाडु
 Director of Geology & Mining
 Tirunelveli District
 4275 5805 3904
 Address: S/O Arudugam, 9137 E,
 VEDHA KOVIL, SOUTH STREET,
 RAJAPATHY Campground,
 Tirunelveli, Tamil Nadu, 627352

m. mohamed ali

Dr. Arundha Arund

A. Arundha Arund

1. 13/03/2023
 14. 13/03/2023
 13. 13/03/2023



Dr. Arundha Arund

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 இந்திய அரசு
 Government of India
 மய்யாடி
 மய்யாடி
 Father: Murgan
 3085 5570 8479


 Unique Identification Authority of India
 Address: S/O Arangan
 148F, SELVAMMAN KOVIL
 STREET
 SANNAMAGAR
 Narasimharapuram
 Sankamagar, Tirunelveli
 Tamil Nadu, 627307
 3085 5570 8479

சுதார - சாதாரண மனிதனின் அதிகாரம்

m. mayy

W. Anthe Rami

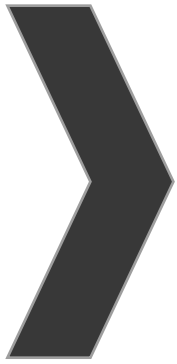
M. Mayy

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W. Anthe Rami



ANNEXURE-7



Shrient Analytical and Research Labs Pvt. Ltd

416/15, Dhargas Road, West Tambaram, Chennai- 600045
Phone Number +91 82208 36377 Email: - info@shrientanalytical.com
www.shrientanalytical.com

TEST REPORT

Report No.	SARL/24/960	Report Date.	17.02.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-960	Sample Received on	12.02.2024
Sample Collected by	LABORATORY	Test Commenced on	12.02.2024
Sample Collected on	06.02.2024	Test Completed on	17.02.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

END OF THE REPORT

Please Contact:

For any Technical Issues & Complaints: vimalnath@shrientanalytical.com

Terms and conditions:

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www.shrientanalytical.com

TEST REPORT

Report No.	SARL/24/961	Report Date.	17.02.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-RAJVIRAMPURAM VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-961	Sample Received on	12.02.2024
Sample Collected by	LABORATORY	Test Commenced on	12.02.2024
Sample Collected on	06.02.2024	Test Completed on	17.02.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

END OF THE REPORT

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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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Phone Number +91 82208 36377 Email: - info@shrientanalytical.com
www.shrientanalytical.com

TEST REPORT

Report No.	SARL/24/962	Report Date.	17.02.2024
------------	-------------	--------------	------------

Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-962	Sample Received on	12.02.2024
Sample Collected by	LABORATORY	Test Commenced on	12.02.2024
Sample Collected on	07.02.2024	Test Completed on	17.02.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

END OF THE REPORT

Please Contact:

For any Technical Issues & Complaints: vimalnath@shrientanalytical.com

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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Phone Number +91 82208 36377 Email: - info@shrientanalytical.com
www.shrientanalytical.com

TEST REPORT

Report No.	SARL/24/963	Report Date.	17.02.2024
------------	-------------	--------------	------------

Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-RAJVIRAMPURAM VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-963	Sample Received on	12.02.2024
Sample Collected by	LABORATORY	Test Commenced on	12.02.2024
Sample Collected on	07.02.2024	Test Completed on	17.02.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

END OF THE REPORT

Please Contact:

For any Technical Issues & Complaints: vimalnath@shrientanalytical.com

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TEST REPORT

Report No.	SARL/24/964	Report Date.	17.02.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-964	Sample Received on	12.02.2024
Sample Collected by	LABORATORY	Test Commenced on	12.02.2024
Sample Collected on	08.02.2024	Test Completed on	17.02.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

END OF THE REPORT

Please Contact:

For any Technical Issues & Complaints: vimalnath@shrientanalytical.com

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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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Phone Number +91 82208 36377 Email: - info@shrientanalytical.com
www.shrientanalytical.com

TEST REPORT

Report No.	SARL/24/965	Report Date.	17.02.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VADAKKU THALAIYUTHU VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-965	Sample Received on	12.02.2024
Sample Collected by	LABORATORY	Test Commenced on	12.02.2024
Sample Collected on	08.02.2024	Test Completed on	17.02.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

END OF THE REPORT

Please Contact:

For any Technical Issues & Complaints: vimalnath@shrientanalytical.com

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Phone Number +91 82208 36377 Email: - info@shrientanalytical.com
www.shrientanalytical.com

TEST REPORT

Report No.	SARL/24/966	Report Date.	17.02.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-966	Sample Received on	12.02.2024
Sample Collected by	LABORATORY	Test Commenced on	12.02.2024
Sample Collected on	09.02.2024	Test Completed on	17.02.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/967	Report Date.	17.02.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VADAKKU THALAIYUTHU VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-967	Sample Received on	12.02.2024
Sample Collected by	LABORATORY	Test Commenced on	12.02.2024
Sample Collected on	09.02.2024	Test Completed on	17.02.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/968	Report Date.	17.02.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-968	Sample Received on	12.02.2024
Sample Collected by	LABORATORY	Test Commenced on	12.02.2024
Sample Collected on	10.02.2024	Test Completed on	17.02.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/969	Report Date.	17.02.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-ALADIPATTI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-969	Sample Received on	12.02.2024
Sample Collected by	LABORATORY	Test Commenced on	12.02.2024
Sample Collected on	10.02.2024	Test Completed on	17.02.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/970	Report Date.	17.02.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-970	Sample Received on	12.02.2024
Sample Collected by	LABORATORY	Test Commenced on	12.02.2024
Sample Collected on	11.02.2024	Test Completed on	17.02.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/971	Report Date.	17.02.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-ALADIPATTI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-971	Sample Received on	12.02.2024
Sample Collected by	LABORATORY	Test Commenced on	12.02.2024
Sample Collected on	11.02.2024	Test Completed on	17.02.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/996	Report Date.	24.02.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-996	Sample Received on	19.02.2024
Sample Collected by	LABORATORY	Test Commenced on	19.02.2024
Sample Collected on	13.02.2024	Test Completed on	24.02.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/997	Report Date.	24.02.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-ALADIPATTI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-997	Sample Received on	19.02.2024
Sample Collected by	LABORATORY	Test Commenced on	19.02.2024
Sample Collected on	13.02.2024	Test Completed on	24.02.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/998	Report Date.	24.02.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-998	Sample Received on	19.02.2024
Sample Collected by	LABORATORY	Test Commenced on	19.02.2024
Sample Collected on	14.02.2024	Test Completed on	24.02.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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Phone Number +91 82208 36377 Email: - info@shrientanalytical.com
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TEST REPORT

Report No.	SARL/24/999	Report Date.	24.02.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-ALADIPATTI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-999	Sample Received on	19.02.2024
Sample Collected by	LABORATORY	Test Commenced on	19.02.2024
Sample Collected on	14.02.2024	Test Completed on	24.02.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1000	Report Date.	24.02.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1000	Sample Received on	19.02.2024
Sample Collected by	LABORATORY	Test Commenced on	19.02.2024
Sample Collected on	15.02.2024	Test Completed on	24.02.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1001	Report Date.	24.02.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VADAKKU THALAIYUTHU VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1001	Sample Received on	19.02.2024
Sample Collected by	LABORATORY	Test Commenced on	19.02.2024
Sample Collected on	15.02.2024	Test Completed on	24.02.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1002	Report Date.	24.02.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1002	Sample Received on	19.02.2024
Sample Collected by	LABORATORY	Test Commenced on	19.02.2024
Sample Collected on	16.02.2024	Test Completed on	24.02.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1003	Report Date.	24.02.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VADAKKU THALAIYUTHU VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1003	Sample Received on	19.02.2024
Sample Collected by	LABORATORY	Test Commenced on	19.02.2024
Sample Collected on	16.02.2024	Test Completed on	24.02.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1004	Report Date.	24.02.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1004	Sample Received on	19.02.2024
Sample Collected by	LABORATORY	Test Commenced on	19.02.2024
Sample Collected on	17.02.2024	Test Completed on	24.02.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1005	Report Date.	24.02.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-RAJVIRAMPURAM VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1005	Sample Received on	19.02.2024
Sample Collected by	LABORATORY	Test Commenced on	19.02.2024
Sample Collected on	17.02.2024	Test Completed on	24.02.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1006	Report Date.	24.02.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1006	Sample Received on	19.02.2024
Sample Collected by	LABORATORY	Test Commenced on	19.02.2024
Sample Collected on	18.02.2024	Test Completed on	24.02.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1007	Report Date.	24.02.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-RAJVIRAMPURAM VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1007	Sample Received on	19.02.2024
Sample Collected by	LABORATORY	Test Commenced on	19.02.2024
Sample Collected on	18.02.2024	Test Completed on	24.02.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1032	Report Date.	02.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1032	Sample Received on	26.02.2024
Sample Collected by	LABORATORY	Test Commenced on	26.02.2024
Sample Collected on	20.02.2024	Test Completed on	02.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1033	Report Date.	02.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-RAJVIRAMPURAM VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1033	Sample Received on	26.02.2024
Sample Collected by	LABORATORY	Test Commenced on	26.02.2024
Sample Collected on	20.02.2024	Test Completed on	02.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1034	Report Date.	02.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1034	Sample Received on	26.02.2024
Sample Collected by	LABORATORY	Test Commenced on	26.02.2024
Sample Collected on	21.02.2024	Test Completed on	02.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1035	Report Date.	02.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-RAJVIRAMPURAM VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1035	Sample Received on	26.02.2024
Sample Collected by	LABORATORY	Test Commenced on	26.02.2024
Sample Collected on	21.02.2024	Test Completed on	02.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1036	Report Date.	02.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1036	Sample Received on	26.02.2024
Sample Collected by	LABORATORY	Test Commenced on	26.02.2024
Sample Collected on	22.02.2024	Test Completed on	02.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1037	Report Date.	02.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VADAKKU THALAIYUTHU VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1037	Sample Received on	26.02.2024
Sample Collected by	LABORATORY	Test Commenced on	26.02.2024
Sample Collected on	22.02.2024	Test Completed on	02.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1038	Report Date.	02.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1038	Sample Received on	26.02.2024
Sample Collected by	LABORATORY	Test Commenced on	26.02.2024
Sample Collected on	23.02.2024	Test Completed on	02.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1039	Report Date.	02.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VADAKKU THALAIYUTHU VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1039	Sample Received on	26.02.2024
Sample Collected by	LABORATORY	Test Commenced on	26.02.2024
Sample Collected on	23.02.2024	Test Completed on	02.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
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J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1040	Report Date.	02.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1040	Sample Received on	26.02.2024
Sample Collected by	LABORATORY	Test Commenced on	26.02.2024
Sample Collected on	24.02.2024	Test Completed on	02.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1041	Report Date.	02.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-ALADIPATTI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1041	Sample Received on	26.02.2024
Sample Collected by	LABORATORY	Test Commenced on	26.02.2024
Sample Collected on	24.02.2024	Test Completed on	02.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1042	Report Date.	02.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1042	Sample Received on	26.02.2024
Sample Collected by	LABORATORY	Test Commenced on	26.02.2024
Sample Collected on	25.02.2024	Test Completed on	02.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1043	Report Date.	02.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-ALADIPATTI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1043	Sample Received on	26.02.2024
Sample Collected by	LABORATORY	Test Commenced on	26.02.2024
Sample Collected on	23.02.2024	Test Completed on	02.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1068	Report Date.	11.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1068	Sample Received on	04.03.2024
Sample Collected by	LABORATORY	Test Commenced on	04.03.2024
Sample Collected on	27.02.2024	Test Completed on	11.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1069	Report Date.	11.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-ALADIPATTI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1069	Sample Received on	04.03.2024
Sample Collected by	LABORATORY	Test Commenced on	04.03.2024
Sample Collected on	27.02.2024	Test Completed on	11.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1070	Report Date.	11.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1070	Sample Received on	04.03.2024
Sample Collected by	LABORATORY	Test Commenced on	04.03.2024
Sample Collected on	28.02.2024	Test Completed on	11.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1071	Report Date.	11.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-ALADIPATTI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1071	Sample Received on	04.03.2024
Sample Collected by	LABORATORY	Test Commenced on	04.03.2024
Sample Collected on	28.02.2024	Test Completed on	11.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1072	Report Date.	11.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1072	Sample Received on	04.03.2024
Sample Collected by	LABORATORY	Test Commenced on	04.03.2024
Sample Collected on	29.02.2024	Test Completed on	11.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1073	Report Date.	11.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VADAKKU THALAIYUTHU VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1073	Sample Received on	04.03.2024
Sample Collected by	LABORATORY	Test Commenced on	04.03.2024
Sample Collected on	29.02.2024	Test Completed on	11.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1074	Report Date.	11.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1074	Sample Received on	04.03.2024
Sample Collected by	LABORATORY	Test Commenced on	04.03.2024
Sample Collected on	01.03.2024	Test Completed on	11.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1075	Report Date.	11.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VADAKKU THALAIYUTHU VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1075	Sample Received on	04.03.2024
Sample Collected by	LABORATORY	Test Commenced on	04.03.2024
Sample Collected on	01.03.2024	Test Completed on	11.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1076	Report Date.	11.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1076	Sample Received on	04.03.2024
Sample Collected by	LABORATORY	Test Commenced on	04.03.2024
Sample Collected on	02.03.2024	Test Completed on	11.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1077	Report Date.	11.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-RAJVIRAMPURAM VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1077	Sample Received on	04.03.2024
Sample Collected by	LABORATORY	Test Commenced on	04.03.2024
Sample Collected on	02.03.2024	Test Completed on	11.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

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J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1078	Report Date.	11.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1078	Sample Received on	04.03.2024
Sample Collected by	LABORATORY	Test Commenced on	04.03.2024
Sample Collected on	03.03.2024	Test Completed on	11.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1079	Report Date.	11.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-RAJVIRAMPURAM VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1079	Sample Received on	04.03.2024
Sample Collected by	LABORATORY	Test Commenced on	04.03.2024
Sample Collected on	03.03.2024	Test Completed on	11.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
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J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1104	Report Date.	16.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1104	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	05.03.2024	Test Completed on	16.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1105	Report Date.	16.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-RAJVIRAMPURAM VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1105	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	05.03.2024	Test Completed on	16.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

END OF THE REPORT

Please Contact:

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1106	Report Date.	16.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1106	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	06.03.2024	Test Completed on	16.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1107	Report Date.	16.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-RAJVIRAMPURAM VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1107	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	06.03.2024	Test Completed on	16.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1108	Report Date.	16.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1108	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	07.03.2024	Test Completed on	16.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1109	Report Date.	16.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VADAKKU THALAIYUTHU VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1109	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	07.03.2024	Test Completed on	16.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1110	Report Date.	16.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1110	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	08.03.2024	Test Completed on	16.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1111	Report Date.	16.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VADAKKU THALAIYUTHU VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1111	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	08.03.2024	Test Completed on	16.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1112	Report Date.	16.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1112	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	09.03.2024	Test Completed on	16.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1113	Report Date.	16.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-ALADIPATTI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1113	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	09.03.2024	Test Completed on	16.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1114	Report Date.	16.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1114	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	10.03.2024	Test Completed on	16.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1115	Report Date.	16.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-ALADIPATTI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1115	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	10.03.2024	Test Completed on	16.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1140	Report Date.	23.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1140	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	12.03.2024	Test Completed on	23.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1141	Report Date.	23.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-ALADIPATTI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1141	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	12.03.2024	Test Completed on	23.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1142	Report Date.	23.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1142	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	13.03.2024	Test Completed on	23.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1143	Report Date.	23.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-ALADIPATTI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1143	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	13.03.2024	Test Completed on	23.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1144	Report Date.	23.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1144	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	14.03.2024	Test Completed on	23.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1145	Report Date.	23.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VADAKKU THALAIYUTHU VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1145	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	14.03.2024	Test Completed on	23.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1146	Report Date.	23.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1146	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	15.03.2024	Test Completed on	23.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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Phone Number +91 82208 36377 Email: - info@shrientanalytical.com
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TEST REPORT

Report No.	SARL/24/1147	Report Date.	23.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VADAKKU THALAIYUTHU VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1147	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	15.03.2024	Test Completed on	23.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1148	Report Date.	23.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1148	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	16.03.2024	Test Completed on	23.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
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J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1149	Report Date.	23.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-RAJVIRAMPURAM VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1149	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	16.03.2024	Test Completed on	23.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1150	Report Date.	23.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1150	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	17.03.2024	Test Completed on	23.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1151	Report Date.	23.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-RAJVIRAMPURAM VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1151	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	17.03.2024	Test Completed on	23.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1176	Report Date.	30.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1176	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	19.03.2024	Test Completed on	30.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1177	Report Date.	30.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-RAJVIRAMPURAM VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1177	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	19.03.2024	Test Completed on	30.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
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Technical Manager

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TEST REPORT

Report No.	SARL/24/1178	Report Date.	30.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1178	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	20.03.2024	Test Completed on	30.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1179	Report Date.	30.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-RAJVIRAMPURAM VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1179	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	20.03.2024	Test Completed on	30.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1180	Report Date.	30.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1180	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	21.03.2024	Test Completed on	30.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1181	Report Date.	30.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VADAKKU THALAIYUTHU VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1181	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	21.03.2024	Test Completed on	30.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1182	Report Date.	30.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1182	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	22.03.2024	Test Completed on	30.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd


Verified




Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1183	Report Date.	30.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VADAKKU THALAIYUTHU VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1183	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	22.03.2024	Test Completed on	30.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1184	Report Date.	30.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1184	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	23.03.2024	Test Completed on	30.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1185	Report Date.	30.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-ALADIPATTI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1185	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	23.03.2024	Test Completed on	30.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1186	Report Date.	30.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1186	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	24.03.2024	Test Completed on	30.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1187	Report Date.	30.03.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-ALADIPATTI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1187	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	24.03.2024	Test Completed on	30.03.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1212	Report Date.	06.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1212	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	26.03.2024	Test Completed on	06.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1213	Report Date.	06.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-ALADIPATTI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1213	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	26.03.2024	Test Completed on	06.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
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J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1214	Report Date.	06.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1214	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	27.03.2024	Test Completed on	06.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1215	Report Date.	06.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-ALADIPATTI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1215	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	27.03.2024	Test Completed on	06.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1216	Report Date.	06.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1216	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	28.03.2024	Test Completed on	06.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1217	Report Date.	06.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VADAKKU THALAIYUTHU VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1217	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	28.03.2024	Test Completed on	06.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1218	Report Date.	06.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1218	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	29.03.2024	Test Completed on	06.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1219	Report Date.	06.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VADAKKU THALAIYUTHU VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1219	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	29.03.2024	Test Completed on	06.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1220	Report Date.	06.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1220	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	30.03.2024	Test Completed on	06.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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Please Contact:

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1221	Report Date.	06.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-RAJVIRAMPURAM VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1221	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	30.03.2024	Test Completed on	06.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1222	Report Date.	06.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1222	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	31.03.2024	Test Completed on	06.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1223	Report Date.	06.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-RAJVIRAMPURAM VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1223	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	31.03.2024	Test Completed on	06.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1248	Report Date.	15.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1248	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	02.04.2024	Test Completed on	15.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1249	Report Date.	15.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-RAJVIRAMPURAM VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1249	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	02.04.2024	Test Completed on	15.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1250	Report Date.	15.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1250	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	03.04.2024	Test Completed on	15.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1251	Report Date.	15.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-RAJVIRAMPURAM VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1251	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	03.04.2024	Test Completed on	15.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1252	Report Date.	15.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1252	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	04.04.2024	Test Completed on	15.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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www.shrientanalytical.com

TEST REPORT

Report No.	SARL/24/1253	Report Date.	15.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VADAKKU THALAIYUTHU VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1253	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	04.04.2024	Test Completed on	15.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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Please Contact:

For any Technical Issues & Complaints: vimalnath@shrientanalytical.com

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1254	Report Date.	15.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1254	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	05.04.2024	Test Completed on	15.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1255	Report Date.	15.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VADAKKU THALAIYUTHU VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1255	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	05.04.2024	Test Completed on	15.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1256	Report Date.	15.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1256	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	06.04.2024	Test Completed on	15.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1257	Report Date.	15.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-ALADIPATTI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1257	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	06.04.2024	Test Completed on	15.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
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J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1258	Report Date.	15.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1258	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	07.04.2024	Test Completed on	15.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1259	Report Date.	15.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-ALADIPATTI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1259	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	07.04.2024	Test Completed on	15.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1284	Report Date.	20.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1284	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	09.04.2024	Test Completed on	20.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
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J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1285	Report Date.	20.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-ALADIPATTI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1285	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	09.04.2024	Test Completed on	20.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

END OF THE REPORT

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



Shrient Analytical and Research Labs Pvt. Ltd

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Phone Number +91 82208 36377 Email: - info@shrientanalytical.com
www.shrientanalytical.com

TEST REPORT

Report No.	SARL/24/1286	Report Date.	20.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1286	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	10.04.2024	Test Completed on	20.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1287	Report Date.	20.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-ALADIPATTI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1287	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	10.04.2024	Test Completed on	20.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1288	Report Date.	20.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1288	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	11.04.2024	Test Completed on	20.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1289	Report Date.	20.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VADAKKU THALAIYUTHU VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1289	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	11.04.2024	Test Completed on	20.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1290	Report Date.	20.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1290	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	12.04.2024	Test Completed on	20.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1291	Report Date.	20.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VADAKKU THALAIYUTHU VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1291	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	12.04.2024	Test Completed on	20.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1292	Report Date.	20.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1292	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	13.04.2024	Test Completed on	20.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1293	Report Date.	20.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-RAJVIRAMPURAM VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1293	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	13.04.2024	Test Completed on	20.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1294	Report Date.	20.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1294	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	14.04.2024	Test Completed on	20.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

END OF THE REPORT

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1295	Report Date.	20.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-RAJVIRAMPURAM VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1295	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	15.04.2024	Test Completed on	20.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1320	Report Date.	27.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1320	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	16.04.2024	Test Completed on	27.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1321	Report Date.	27.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-RAJVIRAMPURAM VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1321	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	16.04.2024	Test Completed on	27.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1322	Report Date.	27.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1322	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	17.04.2024	Test Completed on	27.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1323	Report Date.	27.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-RAJVIRAMPURAM VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1323	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	17.04.2024	Test Completed on	27.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1324	Report Date.	27.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1324	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	18.04.2024	Test Completed on	27.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1325	Report Date.	27.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VADAKKU THALAIYUTHU VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1325	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	18.04.2024	Test Completed on	27.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1326	Report Date.	27.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1326	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	19.04.2024	Test Completed on	27.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

END OF THE REPORT

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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Phone Number +91 82208 36377 Email: - info@shrientanalytical.com
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TEST REPORT

Report No.	SARL/24/1327	Report Date.	27.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VADAKKU THALAIYUTHU VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1327	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	19.04.2024	Test Completed on	27.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1328	Report Date.	27.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1328	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	20.04.2024	Test Completed on	27.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1329	Report Date.	27.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-ALADIPATTI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1329	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	20.04.2024	Test Completed on	27.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1330	Report Date.	27.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1330	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	21.04.2024	Test Completed on	27.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1331	Report Date.	27.04.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-ALADIPATTI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1331	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	21.04.2024	Test Completed on	27.04.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1356	Report Date.	04.05.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1356	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	23.04.2024	Test Completed on	04.05.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1357	Report Date.	04.05.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-ALADIPATTI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1357	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	23.04.2024	Test Completed on	04.05.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1358	Report Date.	04.05.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1358	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	24.04.2024	Test Completed on	04.05.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1359	Report Date.	04.05.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-ALADIPATTI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1359	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	24.04.2024	Test Completed on	04.05.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

END OF THE REPORT

Please Contact:

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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Phone Number +91 82208 36377 Email: - info@shrientanalytical.com
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TEST REPORT

Report No.	SARL/24/1360	Report Date.	04.05.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1360	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	25.04.2024	Test Completed on	04.05.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1361	Report Date.	04.05.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VADAKKU THALAIYUTHU VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1361	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	25.04.2024	Test Completed on	04.05.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1362	Report Date.	04.05.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-ALANGARAPERI VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1362	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	26.04.2024	Test Completed on	04.05.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1363	Report Date.	04.05.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-VADAKKU THALAIYUTHU VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1363	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	26.04.2024	Test Completed on	04.05.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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Please Contact:

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TEST REPORT

Report No.	SARL/24/1364	Report Date.	04.05.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1364	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	27.04.2024	Test Completed on	04.05.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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Please Contact:

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1365	Report Date.	04.05.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-RAJVIRAMPURAM VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1365	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	27.04.2024	Test Completed on	04.05.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1366	Report Date.	04.05.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A1-PROPOSED MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1366	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	28.04.2024	Test Completed on	04.05.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1367	Report Date.	04.05.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-RAJVIRAMPURAM VILLAGE
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-1367	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	28.04.2024	Test Completed on	04.05.2024
Temperature	34.5°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L - 1144)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

S. Paul
Verified



J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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Phone Number +91 82208 36377 Email: - info@shrientanalytical.com
www.shrientanalytical.com

TEST REPORT

Report No.	SARL/24/1376	Report Date.	04.05.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	SOIL
Sample Mark	S1-PROPOSED MINE LEASE AREA

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-1376	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	28.04.2024	Test Completed on	04.05.2024
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	7.23
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	52.46
3	Dry matter content	IS 15106: 2002	%	92.86
4	Water Content	IS 15106: 2002	%	7.14
5	Organic Matter	IS 2720: Part 22: 1972	%	1.18
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	314
7	Soil Texture	Methods Manual - Soil testing in India - P. No-67: 2011	%	CLAY LOAM
8	<u>Grain Size Distribution</u>	Methods Manual - Soil testing in India - P. No-67: 2011	%	36.62
	i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	34.78
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	28.63
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	BDL (D.L.0.02)
9	Phosphorus as P	IS 10158: 1982	mg/kg	2.56
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	922
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	739
12	Total soluble sulphates	IS 2720: Part 27: 1977	%	BDL (D.L.0.02)
13	Porosity	SARL/SOP/SO/001 (Issue No:01, Issue Date – 01.03.2023): 2023	%	3.7
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	18.3

BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

Please Contact:

For any Technical Issues & Complaints: vimalnath@shrientanalytical.com

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1377
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Report Date.	04.05.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	SOIL
Sample Mark	S2-RAJVIRAMPURAM VILLAGE

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-1377	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	28.04.2024	Test Completed on	04.05.2024
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	7.23
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	52.46
3	Dry matter content	IS 15106: 2002	%	92.86
4	Water Content	IS 15106: 2002	%	7.14
5	Organic Matter	IS 2720: Part 22: 1972	%	1.18
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	314
7	Soil Texture	Methods Manual - Soil testing in India - P. No-67: 2011	%	CLAY LOAM
8	<u>Grain Size Distribution</u>	Methods Manual - Soil testing in India - P. No-67: 2011	%	36.62
	i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	34.78
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	28.63
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	28.63
9	Phosphorus as P	IS 10158: 1982	mg/kg	2.56
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	922
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	739
12	Total soluble sulphates	IS 2720: Part 27: 1977	%	BDL (D.L.0.02)
13	Porosity	SARL/SOP/SO/001 (Issue No:01, Issue Date – 01.03.2023): 2023	%	3.7
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	18.3

BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

END OF THE REPORT

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/1378
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Report Date.	04.05.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	SOIL
Sample Mark	S3-ALANGARAPERI VILLAGE

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-1378	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	28.04.2024	Test Completed on	04.05.2024
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	7.23
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	52.46
3	Dry matter content	IS 15106: 2002	%	92.86
4	Water Content	IS 15106: 2002	%	7.14
5	Organic Matter	IS 2720: Part 22: 1972	%	1.18
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	314
7	Soil Texture	Methods Manual - Soil testing in India - P. No-67: 2011	%	CLAY LOAM
8	<u>Grain Size Distribution</u>	Methods Manual - Soil testing in India - P. No-67: 2011	%	36.62
	i. Sand			
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	34.78
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	28.63
9	Phosphorus as P	IS 10158: 1982	mg/kg	2.56
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	922
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	739
12	Total soluble sulphates	IS 2720: Part 27: 1977	%	BDL (D.L.0.02)
13	Porosity	SARL/SOP/SO/001 (Issue No:01, Issue Date – 01.03.2023): 2023	%	3.7
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	18.3

BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1379	Report Date.	04.05.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.		
Sample Description	SOIL		
Sample Mark	S4-VADAKKU THALAIYUTHU VILLAGE		

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-1379	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	28.04.2024	Test Completed on	04.05.2024
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	7.23
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	52.46
3	Dry matter content	IS 15106: 2002	%	92.86
4	Water Content	IS 15106: 2002	%	7.14
5	Organic Matter	IS 2720: Part 22: 1972	%	1.18
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	314
7	Soil Texture	Methods Manual - Soil testing in India - P. No-67: 2011	%	CLAY LOAM
8	<u>Grain Size Distribution</u>	Methods Manual - Soil testing in India - P. No-67: 2011	%	36.62
	i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	34.78
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	28.63
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	BDL (D.L.0.02)
9	Phosphorus as P	IS 10158: 1982	mg/kg	2.56
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	922
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	739
12	Total soluble sulphates	IS 2720: Part 27: 1977	%	BDL (D.L.0.02)
13	Porosity	SARL/SOP/SO/001 (Issue No:01, Issue Date – 01.03.2023): 2023	%	3.7
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	18.3

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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1380
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Report Date.	04.05.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	SOIL
Sample Mark	S5-ALANGARAPERI VILLAGE

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-1380	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	28.04.2024	Test Completed on	04.05.2024
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	7.23
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	52.46
3	Dry matter content	IS 15106: 2002	%	92.86
4	Water Content	IS 15106: 2002	%	7.14
5	Organic Matter	IS 2720: Part 22: 1972	%	1.18
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	314
7	Soil Texture	Methods Manual - Soil testing in India - P. No-67: 2011	%	CLAY LOAM
8	<u>Grain Size Distribution</u>	Methods Manual - Soil testing in India - P. No-67: 2011	%	36.62
	i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	34.78
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	28.63
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	28.63
9	Phosphorus as P	IS 10158: 1982	mg/kg	2.56
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	922
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	739
12	Total soluble sulphates	IS 2720: Part 27: 1977	%	BDL (D.L.0.02)
13	Porosity	SARL/SOP/SO/001 (Issue No:01, Issue Date – 01.03.2023): 2023	%	3.7
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	18.3

BDL – Below Detectable limit (DL - Detectable limit).

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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/1381	Report Date.	04.05.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.		
Sample Description	SOIL		
Sample Mark	S6-ALADIPATTI VILLAGE		

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-1381	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	28.04.2024	Test Completed on	04.05.2024
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	7.23
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	52.46
3	Dry matter content	IS 15106: 2002	%	92.86
4	Water Content	IS 15106: 2002	%	7.14
5	Organic Matter	IS 2720: Part 22: 1972	%	1.18
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	314
7	Soil Texture	Methods Manual - Soil testing in India - P. No-67: 2011	%	CLAY LOAM
8	<u>Grain Size Distribution</u>	Methods Manual - Soil testing in India - P. No-67: 2011	%	36.62
	i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	34.78
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	28.63
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	BDL (D.L.0.02)
9	Phosphorus as P	IS 10158: 1982	mg/kg	2.56
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	922
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	739
12	Total soluble sulphates	IS 2720: Part 27: 1977	%	BDL (D.L.0.02)
13	Porosity	SARL/SOP/SO/001 (Issue No:01, Issue Date – 01.03.2023): 2023	%	3.7
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	18.3

BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


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J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/2024/1368	Report Date.	04.05.2024
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Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	WATER
Sample Mark	SW1-Thamiraparani UP Stream (NEAR NARANAMMALPURAM VILLAGE)

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-1368	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	28.04.2024	Test Completed on	04.05.2024
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result
A.	Physical parameters			
1	Odour	IS 3025 (Part 5): 2018	-	Agreeable
2	Turbidity	APHA 24 th Edition 2130 B: 2023	NTU	<1.0
3	pH at 25 °C	APHA 24 th Edition 4500 – H+ B: 2023	-	7.46
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µS/cm)	566.2
B.	Chemical parameters			
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	342
6	Total hardness (as CaCO ₃)	APHA 24th Edition 2340 C: 2023	mg/L	138
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	24.8
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	18.2
9	Calcium Hardness (as CaCO ₃)	APHA 24th Edition 3500 Ca B: 2023	mg/L	62.1
10	Magnesium Hardness (as CaCO ₃)	APHA 24th Edition 3500 Mg B: 2023	mg/L	75.9
11	Total alkalinity (as CaCO ₃)	APHA 24th Edition 2320 B: 2023	mg/L	120
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	98.6



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TEST REPORT

Report No. SARL/2024/1368

Report Date. 04.05.2024

Sl. No.	Parameters	Protocol	Unit	Result
13	Free Residual chlorine	APHA 24th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L - 0.2)
14	Sulphate as (SO42-)	APHA 24th Edition 4500 SO42- E: 2023	mg/L	52.3
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.05
16	Nitrate (as NO3)	IS 3025 (Part 34): 1988	mg/L	3.72
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.35
18	Manganese (as Mn)	APHA 24th Edition 3500 Mn B: 2023	mg/L	BDL (D.L - 0.05)
19	Total suspended solids	APHA 24 th Edition 2540-D: 2023	mg/L	BDL (D.L-2.0)
20	Chemical Oxygen Demand	APHA 24 th Edition 5220 B: 2023	mg/L	BDL (D.L – 4.0)
21	Biochemical oxygen demand (3 days at 27°C)	IS 3025 (Part 44): 1993	mg/L	BDL (D.L – 2.0)
22	Dissolved Oxygen	IS 3025 (Part 38): 1989	mg/L	5.9

Remarks: BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


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END OF THE REPORT


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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No. SARL/2024/1369

Report Date. 04.05.2024

Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	WATER
Sample Mark	SW2-Thamiraparani Down Stream (NEAR PAALAAMADAI VILLAGE)

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-1369	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	28.04.2024	Test Completed on	04.05.2024
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result
A.	Physical parameters			
1	Odour	IS 3025 (Part 5): 2018	-	Agreeable
2	Turbidity	APHA 24 th Edition 2130 B: 2023	NTU	<1.0
3	pH at 25 °C	APHA 24 th Edition 4500 – H+ B: 2023	-	7.46
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µS/cm)	566.2
B.	Chemical parameters			
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	342
6	Total hardness (as CaCO ₃)	APHA 24th Edition 2340 C: 2023	mg/L	138
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	24.8
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	18.2
9	Calcium Hardness (as CaCO ₃)	APHA 24th Edition 3500 Ca B: 2023	mg/L	62.1
10	Magnesium Hardness (as CaCO ₃)	APHA 24th Edition 3500 Mg B: 2023	mg/L	75.9
11	Total alkalinity (as CaCO ₃)	APHA 24th Edition 2320 B: 2023	mg/L	120
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	98.6



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TEST REPORT

Report No. SARL/2024/1369

Report Date. 04.05.2024

Sl. No.	Parameters	Protocol	Unit	Result
13	Free Residual chlorine	APHA 24th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L - 0.2)
14	Sulphate as (SO42-)	APHA 24th Edition 4500 SO42- E: 2023	mg/L	52.3
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.05
16	Nitrate (as NO3)	IS 3025 (Part 34): 1988	mg/L	3.72
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.35
18	Manganese (as Mn)	APHA 24th Edition 3500 Mn B: 2023	mg/L	BDL (D.L - 0.05)
19	Total suspended solids	APHA 24 th Edition 2540-D: 2023	mg/L	BDL (D.L-2.0)
20	Chemical Oxygen Demand	APHA 24 th Edition 5220 B: 2023	mg/L	BDL (D.L – 4.0)
21	Biochemical oxygen demand (3 days at 27°C)	IS 3025 (Part 44): 1993	mg/L	BDL (D.L – 2.0)
22	Dissolved Oxygen	IS 3025 (Part 38): 1989	mg/L	6.3

Remarks:BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No. SARL/2024/1370

Report Date. 04.05.2024

Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	WATER
Sample Mark	W1-PROPOSED MINE LEASE AREA

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-1370	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	28.04.2024	Test Completed on	04.05.2024
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result	*Limits
					Permissible
A.	Physical parameters				
1	Odour	IS 3025 (Part 5): 2018	-	Agreeable	Agreeable
2	Turbidity	APHA 24 th Edition 2130 B: 2023	NTU	<1.0	5.0
3	pH at 25 °C	APHA 24 th Edition 4500 – H+ B: 2023	-	7.46	6.50-8.50
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µS/cm)	566.2	-
B.	Chemical parameters				
5	Total Dissolved Solids	APHA 24 th Edition 2540-C: 2023	mg/L	342	2000
6	Total hardness (as CaCO ₃)	APHA 24 th Edition 2340 C: 2023	mg/L	138	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	24.8	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	18.2	100
9	Calcium Hardness (as CaCO ₃)	APHA 24 th Edition 3500 Ca B: 2023	mg/L	62.1	-
10	Magnesium Hardness (as CaCO ₃)	APHA 24 th Edition 3500 Mg B: 2023	mg/L	75.9	-
11	Total alkalinity (as CaCO ₃)	APHA 24 th Edition 2320 B: 2023	mg/L	120	600
12	Chloride (as Cl)	APHA 24 th Edition 4500 Cl- B: 2023	mg/L	98.6	1000



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Report No. SARL/2024/1370

Report Date. 04.05.2024

Sl. No	Parameters	Protocol	Unit	Result	*Limits
					Permissibl e
13	Free Residual chlorine	APHA 24th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L - 0.2)	1.0
14	Sulphate as (SO42-)	APHA 24th Edition 4500 SO42- E: 2023	mg/L	52.3	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.05	0.3
16	Nitrate (as NO3)	IS 3025 (Part 34): 1988	mg/L	3.72	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.35	1.5
18	Manganese (as Mn)	APHA 24th Edition 3500 Mn B: 2023	mg/L	BDL (D.L - 0.05)	0.3

Remarks: *Drinking Water Specifications as per IS – 10500:2012. BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No. SARL/2024/1371

Report Date. 04.05.2024

Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	WATER
Sample Mark	W2-RAJVIRAMPURAM VILLAGE

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-1371	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	28.04.2024	Test Completed on	04.05.2024
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result	*Limits
					Permissible
A.	Physical parameters				
1	Odour	IS 3025 (Part 5): 2018	-	Agreeable	Agreeable
2	Turbidity	APHA 24 th Edition 2130 B: 2023	NTU	<1.0	5.0
3	pH at 25 °C	APHA 24 th Edition 4500 – H+ B: 2023	-	7.46	6.50-8.50
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µS/cm)	566.2	-
B.	Chemical parameters				
5	Total Dissolved Solids	APHA 24 th Edition 2540-C: 2023	mg/L	342	2000
6	Total hardness (as CaCO ₃)	APHA 24 th Edition 2340 C: 2023	mg/L	138	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	24.8	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	18.2	100
9	Calcium Hardness (as CaCO ₃)	APHA 24 th Edition 3500 Ca B: 2023	mg/L	62.1	-
10	Magnesium Hardness (as CaCO ₃)	APHA 24 th Edition 3500 Mg B: 2023	mg/L	75.9	-
11	Total alkalinity (as CaCO ₃)	APHA 24 th Edition 2320 B: 2023	mg/L	120	600
12	Chloride (as Cl)	APHA 24 th Edition 4500 Cl- B: 2023	mg/L	98.6	1000



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Report No. SARL/2024/1371

Report Date. 04.05.2024

Sl. No	Parameters	Protocol	Unit	Result	*Limits
					Permissible
13	Free Residual chlorine	APHA 24th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L - 0.2)	1.0
14	Sulphate as (SO42-)	APHA 24th Edition 4500 SO42- E: 2023	mg/L	52.3	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.05	0.3
16	Nitrate (as NO3)	IS 3025 (Part 34): 1988	mg/L	3.72	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.35	1.5
18	Manganese (as Mn)	APHA 24th Edition 3500 Mn B: 2023	mg/L	BDL (D.L - 0.05)	0.3

Remarks: *Drinking Water Specifications as per IS – 10500:2012. BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No. SARL/2024/1372

Report Date. 04.05.2024

Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	WATER
Sample Mark	W3-ALANGARAPERI VILLAGE

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-1372	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	28.04.2024	Test Completed on	04.05.2024
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result	*Limits
					Permissible
A.	Physical parameters				
1	Odour	IS 3025 (Part 5): 2018	-	Agreeable	Agreeable
2	Turbidity	APHA 24 th Edition 2130 B: 2023	NTU	<1.0	5.0
3	pH at 25 °C	APHA 24 th Edition 4500 – H+ B: 2023	-	7.46	6.50-8.50
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µS/cm)	566.2	-
B.	Chemical parameters				
5	Total Dissolved Solids	APHA 24 th Edition 2540-C: 2023	mg/L	342	2000
6	Total hardness (as CaCO ₃)	APHA 24 th Edition 2340 C: 2023	mg/L	138	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	24.8	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	18.2	100
9	Calcium Hardness (as CaCO ₃)	APHA 24 th Edition 3500 Ca B: 2023	mg/L	62.1	-
10	Magnesium Hardness (as CaCO ₃)	APHA 24 th Edition 3500 Mg B: 2023	mg/L	75.9	-
11	Total alkalinity (as CaCO ₃)	APHA 24 th Edition 2320 B: 2023	mg/L	120	600
12	Chloride (as Cl)	APHA 24 th Edition 4500 Cl- B: 2023	mg/L	98.6	1000



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TEST REPORT

Report No. SARL/2024/1372

Report Date. 04.05.2024

Sl. No	Parameters	Protocol	Unit	Result	*Limits
					Permissible
13	Free Residual chlorine	APHA 24th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L - 0.2)	1.0
14	Sulphate as (SO42-)	APHA 24th Edition 4500 SO42- E: 2023	mg/L	52.3	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.05	0.3
16	Nitrate (as NO3)	IS 3025 (Part 34): 1988	mg/L	3.72	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.35	1.5
18	Manganese (as Mn)	APHA 24th Edition 3500 Mn B: 2023	mg/L	BDL (D.L - 0.05)	0.3

Remarks: *Drinking Water Specifications as per IS – 10500:2012. BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory
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TEST REPORT

Report No. SARL/2024/1373

Report Date. 04.05.2024

Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	WATER
Sample Mark	W4-VADAKKU THALAIYUTHU VILLAGE

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-1373	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	28.04.2024	Test Completed on	04.05.2024
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result	*Limits
					Permissible
A.	Physical parameters				
1	Odour	IS 3025 (Part 5): 2018	-	Agreeable	Agreeable
2	Turbidity	APHA 24 th Edition 2130 B: 2023	NTU	<1.0	5.0
3	pH at 25 °C	APHA 24 th Edition 4500 – H+ B: 2023	-	7.46	6.50-8.50
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µS/cm)	566.2	-
B.	Chemical parameters				
5	Total Dissolved Solids	APHA 24 th Edition 2540-C: 2023	mg/L	342	2000
6	Total hardness (as CaCO ₃)	APHA 24 th Edition 2340 C: 2023	mg/L	138	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	24.8	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	18.2	100
9	Calcium Hardness (as CaCO ₃)	APHA 24 th Edition 3500 Ca B: 2023	mg/L	62.1	-
10	Magnesium Hardness (as CaCO ₃)	APHA 24 th Edition 3500 Mg B: 2023	mg/L	75.9	-
11	Total alkalinity (as CaCO ₃)	APHA 24 th Edition 2320 B: 2023	mg/L	120	600
12	Chloride (as Cl)	APHA 24 th Edition 4500 Cl- B: 2023	mg/L	98.6	1000



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TEST REPORT

Report No. SARL/2024/1373

Report Date. 04.05.2024

Sl. No	Parameters	Protocol	Unit	Result	*Limits
					Permissible
13	Free Residual chlorine	APHA 24th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L - 0.2)	1.0
14	Sulphate as (SO42-)	APHA 24th Edition 4500 SO42- E: 2023	mg/L	52.3	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.05	0.3
16	Nitrate (as NO3)	IS 3025 (Part 34): 1988	mg/L	3.72	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.35	1.5
18	Manganese (as Mn)	APHA 24th Edition 3500 Mn B: 2023	mg/L	BDL (D.L - 0.05)	0.3

Remarks: *Drinking Water Specifications as per IS – 10500:2012. BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory
J. GNANAPRAKASAM
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TEST REPORT

Report No. SARL/2024/1374

Report Date. 04.05.2024

Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	WATER
Sample Mark	W5-ALANGARAPERI VILLAGE

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-1374	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	28.04.2024	Test Completed on	04.05.2024
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result	*Limits
					Permissible
A.	Physical parameters				
1	Odour	IS 3025 (Part 5): 2018	-	Agreeable	Agreeable
2	Turbidity	APHA 24 th Edition 2130 B: 2023	NTU	<1.0	5.0
3	pH at 25 °C	APHA 24 th Edition 4500 – H+ B: 2023	-	7.46	6.50-8.50
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µS/cm)	566.2	-
B.	Chemical parameters				
5	Total Dissolved Solids	APHA 24 th Edition 2540-C: 2023	mg/L	342	2000
6	Total hardness (as CaCO ₃)	APHA 24 th Edition 2340 C: 2023	mg/L	138	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	24.8	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	18.2	100
9	Calcium Hardness (as CaCO ₃)	APHA 24 th Edition 3500 Ca B: 2023	mg/L	62.1	-
10	Magnesium Hardness (as CaCO ₃)	APHA 24 th Edition 3500 Mg B: 2023	mg/L	75.9	-
11	Total alkalinity (as CaCO ₃)	APHA 24 th Edition 2320 B: 2023	mg/L	120	600
12	Chloride (as Cl)	APHA 24 th Edition 4500 Cl- B: 2023	mg/L	98.6	1000



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TEST REPORT

Report No. SARL/2024/1374

Report Date. 04.05.2024

Sl. No	Parameters	Protocol	Unit	Result	*Limits
					Permissible
13	Free Residual chlorine	APHA 24th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L - 0.2)	1.0
14	Sulphate as (SO42-)	APHA 24th Edition 4500 SO42- E: 2023	mg/L	52.3	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.05	0.3
16	Nitrate (as NO3)	IS 3025 (Part 34): 1988	mg/L	3.72	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.35	1.5
18	Manganese (as Mn)	APHA 24th Edition 3500 Mn B: 2023	mg/L	BDL (D.L - 0.05)	0.3

Remarks: *Drinking Water Specifications as per IS – 10500:2012. BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No. SARL/2024/1375

Report Date. 04.05.2024

Customer Name & Address	Thiru. K. Anantha Perumal, 6.60.5 Ha, Pala Madai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu.
Sample Description	WATER
Sample Mark	W6-ALADIPATTI VILLAGE

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-1375	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	28.04.2024	Test Completed on	04.05.2024
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result	*Limits
					Permissible
A.	Physical parameters				
1	Odour	IS 3025 (Part 5): 2018	-	Agreeable	Agreeable
2	Turbidity	APHA 24 th Edition 2130 B: 2023	NTU	<1.0	5.0
3	pH at 25 °C	APHA 24 th Edition 4500 – H+ B: 2023	-	7.46	6.50-8.50
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µS/cm)	566.2	-
B.	Chemical parameters				
5	Total Dissolved Solids	APHA 24 th Edition 2540-C: 2023	mg/L	342	2000
6	Total hardness (as CaCO ₃)	APHA 24 th Edition 2340 C: 2023	mg/L	138	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	24.8	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	18.2	100
9	Calcium Hardness (as CaCO ₃)	APHA 24 th Edition 3500 Ca B: 2023	mg/L	62.1	-
10	Magnesium Hardness (as CaCO ₃)	APHA 24 th Edition 3500 Mg B: 2023	mg/L	75.9	-
11	Total alkalinity (as CaCO ₃)	APHA 24 th Edition 2320 B: 2023	mg/L	120	600
12	Chloride (as Cl)	APHA 24 th Edition 4500 Cl- B: 2023	mg/L	98.6	1000



Shrient Analytical and Research Labs Pvt. Ltd

416/15, Dhargas Road, West Tambaram, Chennai- 600045
Phone Number +91 82208 36377 Email: - info@shrientanalytical.com
www.shrientanalytical.com

TEST REPORT

Report No. SARL/2024/1375

Report Date. 04.05.2024

Sl. No	Parameters	Protocol	Unit	Result	*Limits
					Permissible
13	Free Residual chlorine	APHA 24th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L - 0.2)	1.0
14	Sulphate as (SO42-)	APHA 24th Edition 4500 SO42- E: 2023	mg/L	52.3	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.05	0.3
16	Nitrate (as NO3)	IS 3025 (Part 34): 1988	mg/L	3.72	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.35	1.5
18	Manganese (as Mn)	APHA 24th Edition 3500 Mn B: 2023	mg/L	BDL (D.L - 0.05)	0.3

Remarks: *Drinking Water Specifications as per IS – 10500:2012. BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


Verified



END OF THE REPORT

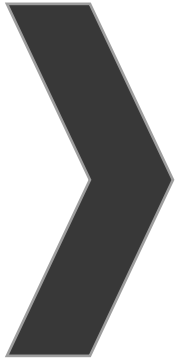

Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

Please Contact:

For any Technical Issues & Complaints: vimalnath@shrientanalytical.com

Terms and conditions:

(1) The test items will not be retained for more than 15 days from the date of issue of test report. (2) The results relate only to the items tested (3) The test report shall not be reproduced except in full without the written approval of the laboratory (4) Any use for advertising purposes must be granted in writing. This technical report may only be quoted in full. This report is the result of a single examination of the object in question and is not generally applicable evaluation of the quality of other products in regular production. For further details, please see testing and certification regulation, chapter A-3.4. (5) The correctness of the information related to sample(s) in the Test Request Form/Customer letterhead/Email is the customer's responsibility. The laboratory reports the said information in the test report and is not liable for the same.



ANNEXURE-8



National Accreditation Board for
Testing and Calibration Laboratories

CERTIFICATE OF ACCREDITATION

**SHRIENT ANALYTICAL & RESEARCH LABS PRIVATE
LIMITED**

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2017

**"General Requirements for the Competence of Testing &
Calibration Laboratories"**

for its facilities at

416/15, DHARGAS ROAD, PERUNGALATHUR, WEST TAMBARAM, CHENNAI, KANCHIPURAM, TAMIL
NADU, INDIA

in the field of

TESTING

Certificate Number: TC-12339

Issue Date: 30/09/2023

Valid Until:

29/09/2025

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued
satisfactory compliance to the above standard & the relevant requirements of NABL.

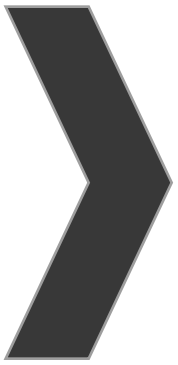
(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Name of Legal Entity: SHRIENT ANALYTICAL AND RESEARCH LABS PRIVATE LIMITED

Signed for and on behalf of NABL



N. Venkateswaran
Chief Executive Officer

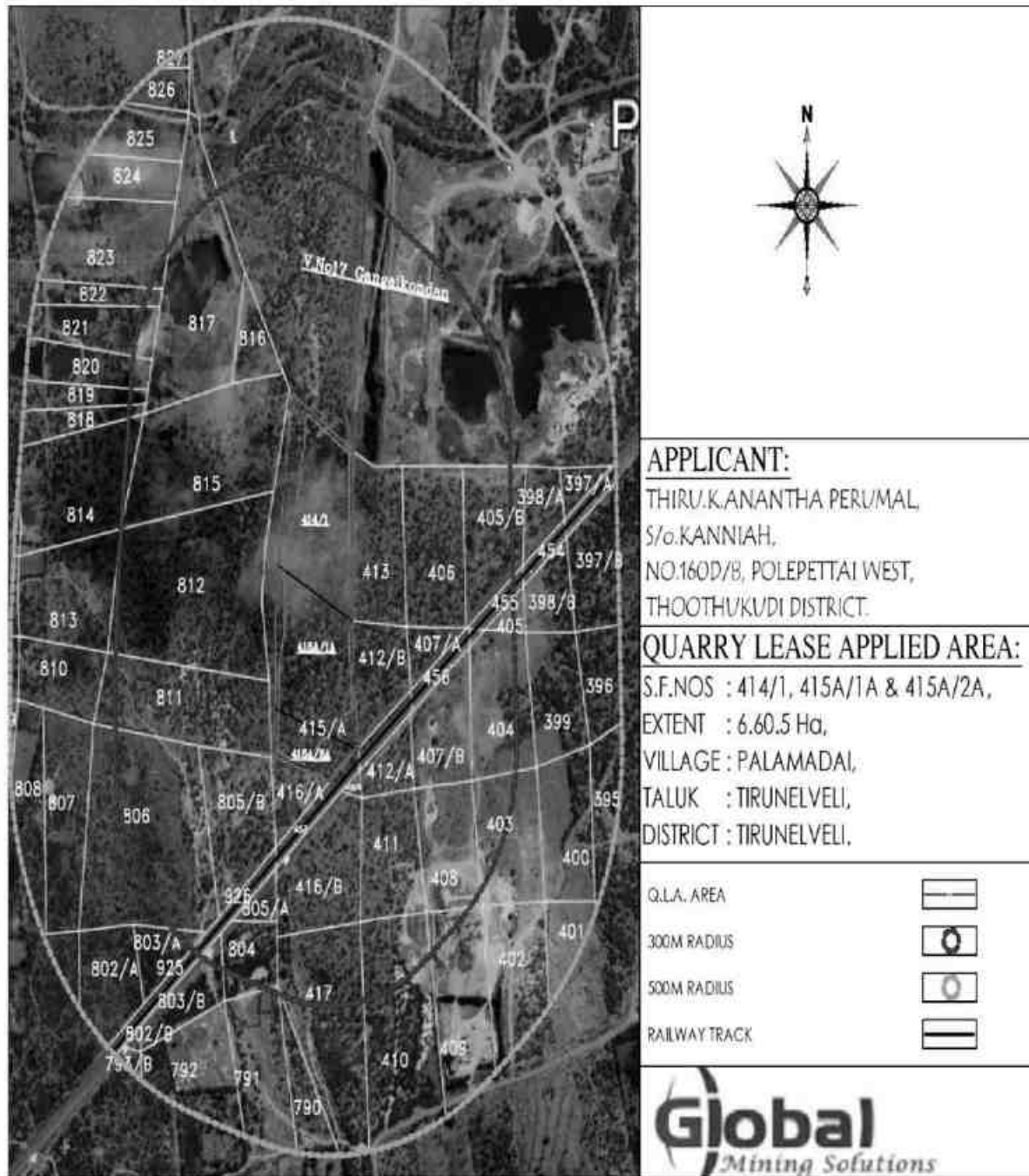


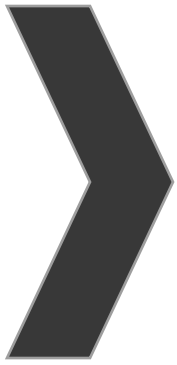
ANNEXURE-9

PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.K.ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A, 415A/2A OF PALAMADAI VILLAGE, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

SATELLITE IMAGERY OF THE LEASE AREA

Figure No: 4



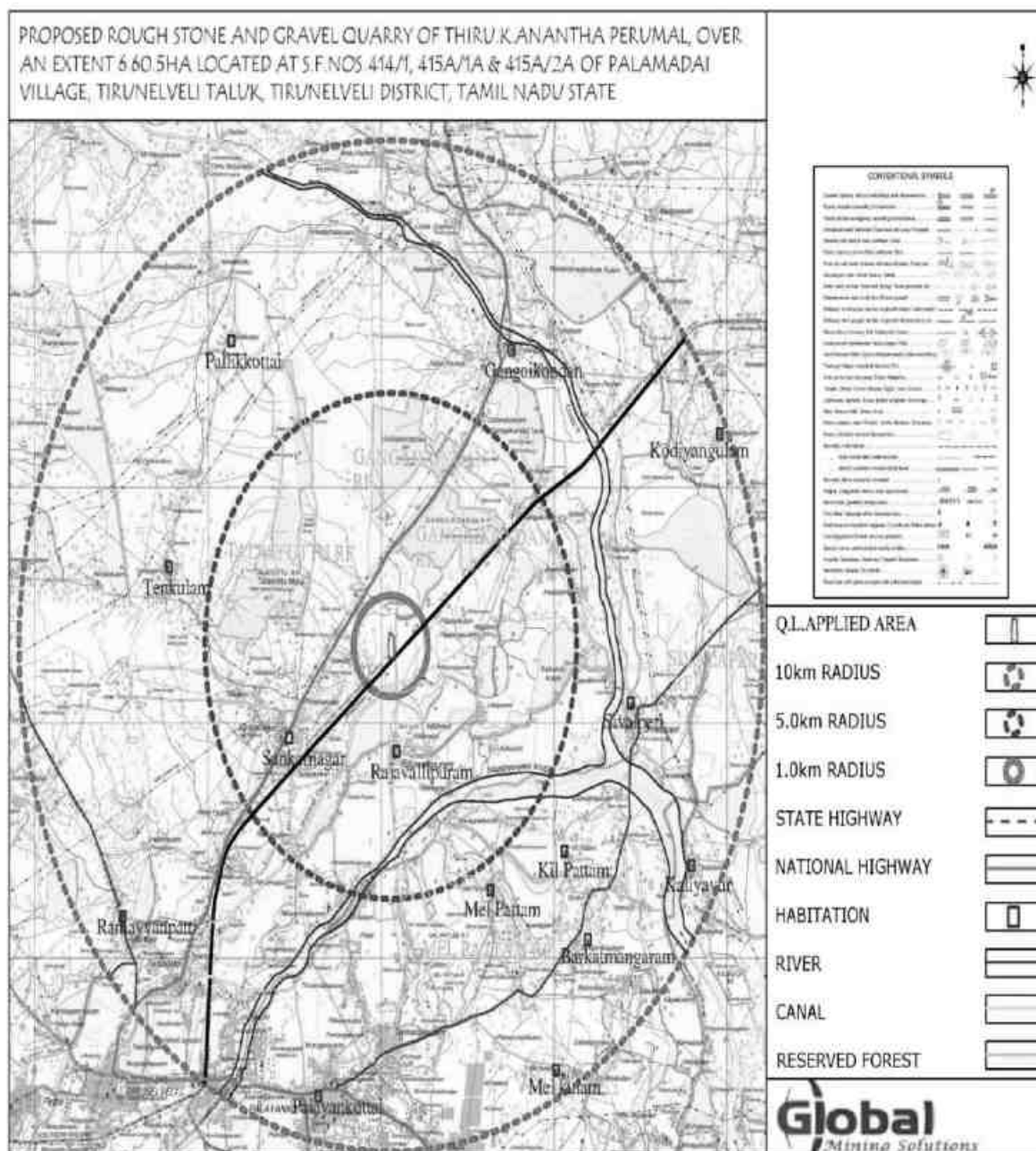


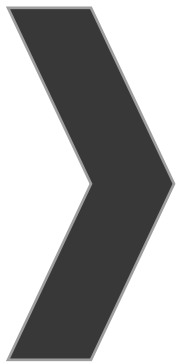
ANNEXURE-10

PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.K.ANANTHAPERUMAL OVER AN EXTENT OF 6.60.5 HA LOCATED AT S.F.NOS. 414/1, 415A/1A, 415A/2A OF PALAMADAI VILLAGE, TIRUNELVELI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

TOPO-SHEET SHOWING THE CORE AND BUFFER ZONE OF THE PROJECT AREA (10 KM RADIUS)

Figure No: 7





ANNEXURE-11



தமிழ்நாடு தமில்நாடு TAMILNADU 04.11.2023

K. Ananthaperumal
Thoothukudi

Rs. 100/-
DD 776962

M. Jeyaraj
ம. ஜேராஜ் (எ) துதிமுரசு, மு.தா.
புரிமம் எண்: 6206-14/91
கச்சேரி வீதி, ஒமலூர்
சேலம் மாவட்டம்

AFFIDAVIT TO SEIAA - TAMIL NADU

I, Thiru.K.Ananthaperumal, S/o.Kanniah, 160D/8, Polepettai West, Thoothukudi District, Pincode - 628 001, is applying for Environmental Clearance to SEIAA - Tamil Nadu for my proposed Rough Stone and Gravel Quarry lease over an extent of 6.60.5 Ha located at the S.F. Nos. 414/1, 415A/1A and 415A/2A of Palamadai Village, Tirunelveli Taluk, Tirunelveli District, Tamil Nadu State, do hereby solemnly declare and sincerely affirm that;

1. The following protected areas notified under the Wildlife (Protection) Act, 1972 (NBWL), located within a 10 km radius from the proposed quarry site is given as follows and I assure you that the proposed quarrying operations will not hinder the below mentioned protected areas;

a. Gangaikondan Spotted Deer Sanctuary is located at the distance of 1.57km in the northern side of the proposed quarry site.



K. Ananthaperumal

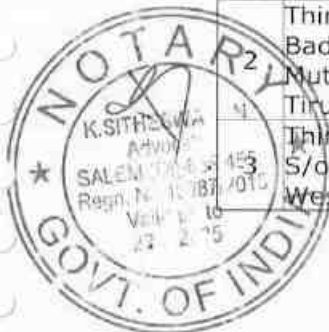
2. There are no Critically polluted areas as notified by the central pollution control board constituted under Water (Prevention and Control of Pollution) Act 1974.
3. The proposed Corporate Environment Responsibility (CER) activities are given as follows;

PROPOSED CER ACTIVITIES	PROJECT COST (INR)	CER COST 2.0% OF PROJECT COST (INR)
Tree plantation, improvement in infrastructural facilities in a nearby government school	1,32,33,000	2,64,660
Revised CER budget allotted	5,00,000 (3.78% of the project cost)	

I assure you that, I will complete the above proposed Corporate Environment Responsibility (CER) activities before the commencement of the quarrying operations.

4. Details of quarries located within a 500m radius from the applied mine lease area:

Sl. No	Name of the Lessee	Village & S. F. No.	Extent (Ha)	Lease Status
Abandoned Quarries				
1	Thiru.Navaskhan, Sankar Nagar.	Tirunelveli Taluk, Gangaikondan (V), SF.Nos.1633, etc.	2.89.0	Abandoned quarry
2	Thiru.P.K.S.Ahamed Meeran, Tirunelveli.	Tirunelveli Taluk, Gangaikondan (V), SF.Nos.1671/1B, etc.	2.14.0	Abandoned quarry
Expired Quarries				
Nil				
Present Proposed Quarries				
1	P.Arumugasundar, S/o.Paramasivan, 34, Maravar Colony Street, Rajavallipuram, Palayamkottai, Tirunelveli - 627359	SF.Nos.402/1 & 402/2 of Palamadai Village, Tirunelveli Taluk	2.60.50	Proposed quarry
2	Thiru.N.NMohammed Saleem Badhusha, S/o.Navaskhan, 1/19, Nuthunagar, Sankarnagar, Tirunelveli District - 627357.	SF.No.812(P), Naranammaipuram Part-1 Village, Tirunelveli Taluk	1.95.0	Proposed quarry
3	Thiru.K.Ananthaperumal, S/o.Kanniah, 160D/8, Polepettai West, Thoothukudi District.	SF.Nos.414/1, 415A/1A & 415A/2A, Palamadai Village, Tirunelveli Taluk	6.60.5	Instant proposal



Handwritten signature

4	Thiru.N.Mohideen Sheik Shahith, S/o.Navaskhan, 1/19, Muthu Nagar, Sankar Nagar, Tirunelveli - 627 357.	SF.No.807 of Naranammalpuram Part-1 Village, Tirunelveli Taluk	1.94.50	Proposed quarry
5	Thiru.A.Kothar Mydeen, S/o.Ahamed Meeran, Thenkulam, Tirunelveli.	SF.No.1660/4, Gangaikondan Village, Tirunelveli Taluk	1.62.0	Proposed quarry
Existing quarries				
1	Thiru.P.K.S.Ahamad Meeran, S/o.Mohamed Sultan, 18, Puthu Amman Kovil Street, Sindhupundhurai, Tirunelveli Taluk and District.	SF.No.1665/1B, Gangaikondan Part-2 Village, Tirunelveli Taluk	2.10.5	06.10.2020 to 05.10.2025
2	Thiru.C.Rasheed Ali, S/o.Chinna Sheik Rowther, 9/100, Mela Pallivasal Street, Mela Thalaiyuthu, Sankar Nagar, Tirunelveli - 627357.	SF.No.1662/1A(P) (0.38.0) & 1663/1A (1.21.5), Gangaikondan Part-2 Village, Tirunelveli Taluk	1.59.5	21.01.2022 to 20.01.2032
Total Extent = 18.42.5 Ha				

5. There will be no hindrance/disturbance due to the proposed quarrying activities to the people living nearby my proposed quarry site.
6. There are no approved habitations within a 300m radius from the periphery of my proposed quarry lease.
7. I assure you that the greenbelt will be developed and maintained before commencing the quarrying operations as proposed in the EC application.
8. I assure you that the required life insurance policy for the employees engaged in the quarrying operations will be taken without fail.
9. The existing main road connecting the quarry road will be maintained in good condition and it will be utilized for the mineral transportation.
10. I assure you that I will not engage any child for labor in the quarrying operations and I am aware that engaging child labor is punishable under the law.



K. Srinivasan

11. Personnel Protective Equipment (PPE) will be provided to all the employees engaged in the quarrying operations.
12. No permanent structures, such as temples, etc., are located within a 300 meter radius of the periphery of our quarry.
13. I will erect the wire fence with barbed wires all around the periphery of the quarry lease before the commencement of mining activities.
14. The mining operations will be carried out in a systematic and scientific manner by employing a qualified statutory person as per the requirement of the Mines Act, Mines Rules, and other Guidelines issued by Govt.
15. I will inform DGMS before the commencement of mining activities.
16. To the best of our knowledge, I ensure to do the social and environmental commitments as mentioned in the mining plan.

Notary Sign & Seal



[Handwritten Signature]
 K. SITHESWARAN, B.L.,
 Advocate & Notary Public
 Opp. BDO Office, Omalur (Tk),
 SALEM (Dt) - 636 455.
 Regn. No: 10987/2015
 Cell: 94435 16211

Lessee Sign & Seal

[Handwritten Signature]
K. Ananthaperumal

[Handwritten Signature]