

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

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

ToR Identification No. TO25B0108TN5214231N (F.No. 11992), Dated: 18.06.2025

PROPOSED QUARRY LEASE DETAILS	
SURVEY NO	570(P) & 571(P)
VILLAGE	THARUVAI
TALUK	PALAYAMKOTTAI
DISTRICT	TIRUNELVELI
EXTENT	1.95.50 HA
CLUSTER EXTENT	14.64.5 HA
PROPOSED PRODUCTION QUANTITY FOR FIVE YEARS	2,89,000 m³ OF ROUGH STONE, 14,620 m³ OF WEATHERED ROCK AND 15,136 m³ OF GRAVEL
LAND	CONSENT PATTA LAND

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

Category of the Project: B1 Cluster Mining, Total Cluster Area – 14.64.5 Ha
Baseline Monitoring Period – March 2024 to May 2024

APPLICANT

**TVL. SRI DURGAMBIKA BLUE METALS,
PROP. THIRU.S.SUBASH CHANDRA BOSE,
NO.1A/115, KADITHANKULAM, THARUVAI VILLAGE,
PALAYAMKOTTAI TALUK,
TIRUNELVELI DISTRICT – 627 356.**

ENVIRONMENTAL CONSULTANT	LABORATORY
M/s. GLOBAL MINING SOLUTIONS <i>(NABET Accredited & ISO 9001 Certified Consultant)</i> Plot No. 6, S.F.No. 13/2, A2, VS City, RC Chettyapatty, Kottamettupatty, Omalur, Salem, Tamil Nadu – 636 455. <i>NABET Accreditation No: NABET/EIA/23-26/SA 0241</i> <i>Valid up to: 04.01.2026</i> Contact: 97502 23535 & 94446 54520 Email: infoglobalmining@gmail.com, globalminingsolutionssalem@gmail.com	M/s. SHRIENT ANALYTICAL & RESEARCH LABS PRIVATE LIMITED <i>(NABL Accredited Testing Laboratory)</i> <i>Valid up to: 29.09.2025</i> #416/15, Dhargas Road, Perungalathur, West Tambaram, Chennai, Tamil Nadu, India.

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						
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ACKNOWLEDGEMENT

M/s. Global Mining Solutions, Salem is very much thankful to Tvl. Sri Durgambika Blue Metals, Prop. Thiru.S.Subash Chandra Bose Lessee for the confidence and trust placed on the organization for carrying out Environmental Impact Assessment (EIA) study for the proposed Rough Stone, Jelly & Gravel Quarry over a lease extent of 1.95.5 Ha., & Cluster extent of 14.64.5 Ha., located at Tharuvai Village, Palayamkottai 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 Tharuvai 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, Jelly & Gravel Quarry over a lease extent of 1.95.5 Ha., & Cluster extent of 14.64.5 Ha., located at Tharuvai Village, Palayamkottai Taluk, Tirunelveli District, Tamil Nadu State.

For: M/s. Global Mining Solutions



Name: M. Manikandan

EIA Coordinator – Mining of Minerals

M/s. Global Mining Solutions

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 SEIAA- TN vide TOR Identification No. TO25B0108TN5214231N DATED: 18.06.2025 for the preparation of Draft EIA/EMP report for the proposed Rough Stone, Jelly & Gravel Quarry over a lease extent of 1.95.5 Ha., & Cluster extent of 14.64.5 Ha., located at Tharuvai Village, Palayamkottai Taluk, Tirunelveli District, Tamil Nadu State for the production of 2,89,000 m³ of Rough Stone, 14,620 m³ of Weathered Rock and 15,136 m³ of Gravel (for Five Years) formation from the proposed lease area and the details has been complied in the Draft EIA/EMP report is factually correct.

The EIA/EMP report has been prepared by M/s. Global Mining Solutions (GMS), Salem. GMS is a NABET accredited consultant for preparation of EIA/EMP report of Mining of Minerals (Opencast only) vide certificate No. NABET/EIA/23-26/SA 0241, valid till 04.01.2026.

For: M/s. Global Mining Solutions



Name: M. Manikandan

EIA Coordinator – Mining of Minerals

M/s. Global Mining Solutions




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Global Mining Solutions

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

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4	Cement Plants	9	3 (b)	A
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6	Townships and Area development projects	39	8 (b)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in SAAC minutes dated May 20, 2025, posted on QCI-NABET website.

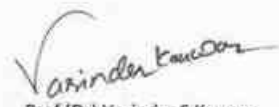
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Valid up to
January 4, 2026



Certificate No.
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Issue Date
May 30, 2025



Prof (Dr) Varinder S Kanwar
CEO - NABET

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

Declaration By Expert

Declaration by Experts contributing to the Proposed Rough Stone, Jelly and Gravel Quarry of Tvl. Sri Durgambika Blue Metals, Prop. Thiru.S.Subash Chandra Bose over a lease extent of 1.95.5 Ha., & Cluster extent of 14.64.5 Ha., located at Tharuvai Village, Palayamkottai Taluk, Tirunelveli District, Tamil Nadu State.

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

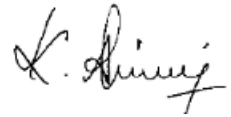
EIA Coordinator Name: M. Manikandan

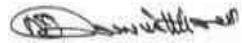
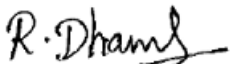

Signature & Date

Period of involvement: March to May 2024.

Contact information:

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

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: Mar 2024 to May 2024.</u>	
2	WP	Abirami Kaliaperumal	Assessment of existing water quality, impact of the project on surface and ground water quality, suggested mitigation measures for minimizing the impact. <u>Period: Mar 2024 to May 2024.</u>	

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

9	LU	Srilatha Thiruveedhula	Preparation of land use map based on satellite imagery. Land use classification and analysis. Impact prediction of the project on the surrounding land environment. <u>Period: Mar 2024 to May 2024.</u>	T Srilatha
10	RH	S.V. Prashant	Identification of the Risk related to the mining activities. Preparation of emergency disaster management plan. Plan for supply of safety equipment for the worker. <u>Period: Mar 2024 to May 2024.</u>	Sprashant
11	SC	Shisu Pal Singh	Soil monitoring, secondary data collection on soil type, soil management practices, utilization of topsoil. <u>Period: Mar 2024 to May 2024.</u>	Shisu Pal Singh
12	GEO	Valliappan Meyyappan	Geological map, stability of quarry and dump, management plan for mine stability, after use of mining quarry and geological feature of the area. <u>Period: Mar 2024 to May 2024.</u>	Valliappan

EIA CONTENT

CHAPTER NO	TITLE	PAGE NO
1.0	INTRODUCTION	48
1.1	PURPOSE OF THE REPORT	48
1.2	IDENTIFICATION OF PROJECT AND PROJECT PROPONENT	51
1.2.1	IDENTIFICATION OF PROJECT	51
1.2.2	IDENTIFICATION OF PROJECT PROPONENT	51
1.3	BRIEF DESCRIPTION OF THE PROJECT	52
1.3.1	NATURE AND SIZE OF THE PROJECT	52
1.3.2	NATURE OF THE PROJECT	52
1.3.3	LOCATION OF PROJECT	52
1.4	IMPORTANCE OF THE PROJECT TO THE REGION	52
1.5	REGULATORY COMPLIANCES	53
1.6	PRESENT LEGAL STATUS	53
1.7	SCREENING	54
1.8	SCOPE OF THE STUDY	54
1.9	NEED AND JUSTIFICATION OF THE PROJECT	55
1.10	STRUCTURE OF THE REPORT	56
2.0	PROJECT DESCRIPTION	58
2.1	TYPE OF THE PROJECT	58
2.2	LOCATION OF THE PROJECT	58
2.2.1	LEASE DETAILS	61
2.2.2	SITE CONNECTIVITY	62
2.3	LAND USE PATTERN OF THE PROJECT AREA	65
2.4	TOPOGRAPHY AND DRAINAGE	65
2.5	GEOLOGY	66
2.5.1	REGIONAL GEOLOGY	66
2.5.2	LOCAL GEOLOGY	66
2.6	SIZE AND MAGNITUDE OF THE OPERATION	66
2.7	RESOURCES AND RESERVES	67
2.7.1	GEOLOGICAL RESOURCES	67
2.7.2	MINEABLE RESERVES	67

2.8	PROCESS DESCRIPTION AND TECHNOLOGY	68
2.8.1	PROCESS DESCRIPTION	68
2.8.2	DRILLING AND BLASTING PARAMETERS	69
2.8.3	TYPE OF EXPLOSIVE	70
2.8.4	STORAGE OF EXPLOSIVES	70
2.8.5	PRODUCTION SCHEDULE	70
2.8.6	DISPOSAL OF WASTE	72
2.9	CONCEPTUAL MINING PLAN / FINAL MINE CLOSURE PLAN	72
2.10	PROJECT REQUIREMENT	74
2.10.1	WATER REQUIREMENT AND SOURCE	74
2.10.2	POWER REQUIREMENT& ITS SOURCE	74
2.10.3	EMPLOYMENT GENERATION	74
2.10.4	INFRASTRUCTURE REQUIREMENT	74
2.10.5	PROJECT COST	74
2.10.6	PROJECT IMPLEMENTATION SCHEDULE	76
3.0	DESCRIPTION OF THE ENVIRONMENT	77
3.1	INTRODUCTION	77
3.2	STUDY AREA	77
3.3	STUDY PERIOD	78
3.4	MONITORING LAB	78
3.5	ENVIRONMENTAL SETTINGS OF THE PROJECT	78
3.6	EXISTING ENVIRONMENTAL SCENARIO	82
3.6.1	MICRO- METEOROLOGY	82
3.6.1.1	CLIMATE AND RAINFALL DATA	82
3.6.2	AIR ENVIRONMENT	84
3.6.2.1	SAMPLING & ANALYTICAL TECHNIQUES	85
3.6.2.2	FREQUENCY AND PARAMETERS FOR SAMPLING	85
3.6.2.3	AMBIENT AIR QUALITY MONITORING STATIONS	85
3.6.2.4	DISCUSSION	89
3.6.3	WATER ENVIRONMENT	89
3.6.3.1	METHODOLOGY	89
3.6.3.2	SURFACE WATER	89
3.6.3.3	GROUND WATER	90

3.6.3.4	SAMPLING LOCATIONS	90
3.6.3.5	DISCUSSION	94
3.6.4	NOISE ENVIRONMENT	94
3.6.4.1	SAMPLING LOCATIONS	94
3.6.4.2	METHOD OF MONITORING	96
3.6.4.3	NOISE MONITORING RESULT	96
3.6.4.4	DISCUSSION	97
3.6.5	SOIL ENVIRONMENT	97
3.6.5.1	MONITORING LOCATIONS	98
3.6.5.2	METHODOLOGY	98
3.6.5.3	SOIL TESTING RESULT	101
3.6.6	LAND ENVIRONMENT	101
3.6.6.1	LAND USE PATTERN OF THE PROJECT AREA	101
3.6.6.2	LAND USE PATTERN OF THE STUDY AREA	102
3.6.7	BIOLOGICAL ENVIRONMENT	106
3.6.7.1	METHODOLOGY	106
3.6.7.2	FLORA	106
3.6.7.3	FLORISTIC COMPOSITION IN CORE ZONE	106
3.6.7.4	FLORISTIC SCENARIO IN BUFFER ZONE AREA	108
3.6.7.5	LIST OF FAUNA	111
3.6.8	HYDROGEOLOGICAL STUDY	112
3.6.8.1	TOPOGRAPHY	112
3.6.8.2	DRAINAGE PATTERN OF THE AREA	112
3.6.8.3	GEOMORPHOLOGY	113
3.6.8.4	GEOLOGY	114
3.6.8.5	LITHOLOGY	115
3.6.8.6	SOIL TYPE	116
3.6.9	SOCIO-ECONOMIC ENVIRONMENT	117
3.6.9.1	SECONDARY DATA DESCRIPTION	117
4.0	ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES	123
4.1	GENERAL	123
4.2	LAND ENVIRONMENT	124

4.2.1	LAND RECLAMATION	124
4.2.2	ANTICIPATED IMPACTS AND MITIGATION MEASURES	125
4.3	SOIL ENVIRONMENT	128
4.3.1	ANTICIPATED IMPACTS ON SOIL ENVIRONMENT	128
4.3.2	MITIGATION MEASURES FOR SOIL EROSION AND SOIL CONSERVATION	128
4.3.2.1	SEVEN EFFECTIVE EROSION CONTROL MEASURES	128
4.4	WATER ENVIRONMENT	131
4.4.1	ANTICIPATED IMPACT ON SURFACE WATER	131
4.4.2	ANTICIPATED IMPACT ON GROUND WATER	132
4.4.3	ANTICIPATED IMPACT DUE TO WATER USE IN MINE'S	132
4.4.4	RAINWATER HARVESTING PLAN	133
4.5	AIR ENVIRONMENT	134
4.5.1	ANTICIPATED IMPACT ON AIR ENVIRONMENT	134
4.5.2	MITIGATION MEASURES TO CONTROL AIR POLLUTION	134
4.5.2.1	AIR QUALITY IMPACT PREDICTION	136
4.5.2.2	ARRIVING EMISSION FACTOR	136
4.5.2.3	MODEL INPUT DATA	137
4.5.2.4	EMISSION ESTIMATION	137
4.5.2.5	RESULTS AND DISCUSSIONS	138
4.5.2.6	PREDICTED AMBIENT AIR QUALITY	141
4.6	NOISE ENVIRONMENT	142
4.6.1	IMPACT DUE TO NOISE AND VIBRATION	142
4.6.2	MITIGATION MEASURES FOR NOISE CONTROL	143
4.6.3	GROUND VIBRATION	143
4.7	BIOLOGICAL ENVIRONMENT	144
4.7.1	ANTICIPATED IMPACTS ON BIOLOGICAL ENVIRONMENT	149
4.7.2	MITIGATION MEASURES	149
4.7.3	GREENBELT DEVELOPMENT PLAN	149
4.8	SOCIO – ECONOMIC STUDY	150
4.9	OCCUPATIONAL HEALTH AND SAFETY	152
4.10	WASTE MANAGEMENT	153
4.10.1	SOLID WASTE	153
4.10.2	LIQUID WASTE	153

4.10.3	HAZARDOUS WASTE MANAGEMENT	153
4.10.4	PLASTIC WASTE	153
5.0	ANALYSIS OF ALTERNATIVES (TECHNOLOGY & SITES)	154
5.1	ALTERNATE TECHNOLOGY	154
5.2	ALTERNATE SITE	154
6.0	ENVIRONMENTAL MONITORING PROGRAMME	155
6.1	GENERAL	155
6.2	MONITORING MECHANISM	155
6.3	ENVIRONMENTAL MONITORING SCHEDULE AND FREQUENCY	155
6.4	BUDGET FOR IMPLEMENTAION	156
6.5	SUBMISSION OF PERIODICAL REPORTS	156
7.0	ADDITIONAL STUDIES	158
7.1	PUBLIC CONSULTATION	158
7.2	RISK ASSESSMENT	158
7.3	DISASTER MANAGEMENT PLAN	161
7.3.1	MODEL DISASTER MANAGEMENT PLAN	161
7.3.2	OBJECTIVE OF DISASTER MANAGEMENT PLAN	162
7.4	CUMULATIVE IMPACT STUDY	163
7.4.1	AIR ENVIRONMENT	165
7.4.1.1	PREDICTED AMBIENT AIR QUALITY	167
7.4.2	WATER ENVIRONMENT	168
7.4.3	CUMULATIVE IMPACT ON SOCIO-ECONOMIC ENVIRONMENT	169
7.4.4	CLUSTER MINE CLOSURE PLAN	169
7.4.5	SLOPE STABILITY PLAN	169
8.0	PROJECT BENEFITS	171
9.0	ENVIRONMENTAL COST BENEFIT ANALYSIS	172
10.0	ENVIRONMENTAL MANAGEMENT PLAN	173
10.1	ENVIRONMENTAL POLICY	173
10.2	ENVIRONMENTAL MANAGEMENT PLAN	173
10.3	ADMINISTRATION AND TECHNICAL SETUP	176
10.4	OCCUPATIONAL SAFETY & HEALTH MANAGEMENT	177
10.5	BUDGETARY PROVISION FOR ENVIRONMENTAL MANAGEMENT	177
10.6	CONCLUSION	179

11.0	SUMMARY AND CONCLUSIONS	180
11.1	INTRODUCTION	180
11.2	DESCRIPTION OF THE ENVIRONMENT	183
11.2.1	LAND ENVIRONMENT	183
11.2.2	SOIL CHARACTERISTICS	183
11.2.3	AMBIENT AIR QUALITY	184
11.2.4	WATER ENVIRONMENT	184
11.2.5	NOISE ENVIRONMENT	185
11.2.6	BIOLOGICAL ENVIRONMENT	185
11.2.7	SOCIO-ECONOMIC ENVIRONMENT	185
11.3	ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES	185
11.3.1	LAND ENVIRONMENT: IMPACT AND MITIGATION MEASURES	185
11.3.2	WATER ENVIRONMENT: IMPACT AND MITIGATION MEASURES	186
11.3.3	BIOLOGICAL ENVIRONMENT: IMPACT AND MITIGATION MEASURES	187
11.3.4	AIR ENVIRONMENT: IMPACT AND MITIGATION MEASURES	187
11.3.5	NOISE ENVIRONMENT: IMPACT AND MITIGATION MEASURES	188
11.3.6	VIBRATION: IMPACT AND MITIGATION MEASURES	188
11.3.7	SOCIO ECONOMIC ENVIRONMENT	189
11.3.8	OCCUPATIONAL HEALTH	189
11.4	ENVIRONMENTAL MONITORING PROGRAM	190
11.5	PROJECT BENEFITS	190
11.6	CONCLUSION	191
12.0	DISCLOSURE OF CONSULTANTS ENGAGED	192

FIGURE LIST

Figure No	Title	Page No
1.1	SATELLITE IMAGE SHOWING CLUSTER QUARRIES	50
2.1	LOCATION MAP	59
2.2	GOOGLE IMAGE SHOWING CORNER COORDINATES OF THE PROJECT SITE	60
2.3	SURFACE PLAN OF THE PROJECT AREA	61
2.4	VILLAGE MAP SHOWING 300m AND 500m RADIUS OF THE PROJECT AREA	63
2.5	APPROACHABILITY MAP	64
2.6	SITE PHOTOGRAPHS	65
2.7	PROCESS FLOW DIAGRAM	69
2.8	TOPOGRAPHY, GEOLOGICAL, YEAR WISE DEVELOPMENT AND PRODUCTION PLAN AND SECTIONS	71
2.9	CONCEPTUAL PLAN AND CROSS SECTION	73
3.1	TOPOGRAPHY MAP SHOWING 10KM RADIUS OF PROJECT SITE	80
3.2	GOOGLE IMAGE OF THE PROJECT AREA (10 KM RADIUS)	81
3.3	SEISMIC MAP OF INDIA	83
3.4	WIND ROSE DIAGRAM	84
3.5	AMBIENT AIR QUALITY MONITORING LOCATIONS	86
3.6	GRAPHICAL REPRESENTATION OF AIR QUALITY DATA	88
3.7	WATER MONITORING LOCATIONS	92
3.8	NOISE MONITORING LOCATION	95
3.9	SOIL SAMPLING STATIONS	99
3.10	LANDSAT 8 SATELLITE DATA OF THE STUDY AREA	102
3.11	MAP SHOWING LAND USE CATEGORIES AROUND 10KM RADIAL BUFFER AND IT's ENVIRON	104
3.12	LAND USE PATTERN WITHIN THE BUFFER ZONE	105
3.13	DRAINAGE MAP	112
3.14	GEOMORPHOLOGY OF THE STUDY AREA	113
3.15	GEOLOGY OF THE STUDY AREA	114
3.16	LITHOLOGY BUFFER ZONE MAP	115
3.17	SOIL MAP	116
3.18	DEMOGRAPHIC STRUCTURE OF POPULATION WITHIN THE BUFFER ZONE	119
3.19	DEMOGRAPHIC STRUCTURE OF OCCUPATIONAL WITHIN THE BUFFER ZONE	120
4.1	WATER BALANCE DIAGRAM	133
4.2	ISOPLETH OF GLC PREDICTION FOR PM10	139
4.3	ISOPLETH OF GLC PREDICTION FOR PM2.5	140
7.1	SATELLITE IMAGE SHOWING CLUSTER QUARRIES	164
7.2	CUMULATIVE ISOPLETH OF GLC PREDICTION FOR PM10	166
7.3	CUMULATIVE ISOPLETH OF GLC PREDICTION FOR PM2.5	167
10.1	ORGANIZATION CHART	176

TABLE LIST

Table No	Title	Page No
1.1	CLUSTER MINES DETAILS	49
1.2	PROJECT IDENTIFICATION	51
1.3	DETAILS OF PROJECT PROPONENT	51
1.4	PRESENT LEGAL STATUS	53
2.1	BOUNDARY CORNER COORDINATES OF THE PROJECT	58
2.2	MINE LEASE AREA AND ITS OWNERSHIP	62
2.3	SITE CONNECTIVITY	62
2.4	LAND USE PATTERN OF THE PROJECT AREA	65
2.5	AVAILABLE GEOLOGICAL RESOURCES	67
2.6	AVAILABLE MINEABLE RESOURCES	68
2.7	DETAILS OF MACHINERY	69
2.8	DRILLING AND BLASTING PARAMETERS	69
2.9	YEAR WISE PRODUCTION PLAN	70
2.10	ULTIMATE PIT DIMENSION	72
2.11	POST MINING LAND USE PATTERN	72
2.12	DETAILS OF WATER REQUIREMENT	74
2.13	EMPLOYMENT GENERATION	74
2.14	BUDGET OF THE PROJECT	75
2.15	PROPOSED SCHEDULE OF IMPLEMENTATION	76
3.1	ENVIRONMENTAL SETTINGS OF THE STUDY AREA – 10 KM RADIUS	78
3.2	RAINFALL DATA	82
3.3	METEOROLOGICAL DATA RECORDED AT SITE	82
3.4	AMBIENT AIR QUALITY MONITORING LOCATIONS	85
3.5	RESULTS OF AIR SAMPLING ANALYSIS IN 6 LOCATIONS	87
3.6	WATER SAMPLING LOCATIONS	91
3.7	WATER SAMPLING RESULTS	93
3.8	NOISE MONITORING LOCATIONS	94
3.9	NOISE MONITORING RESULTS	96
3.10	SOIL SAMPLING LOCATIONS	98
3.11	SOIL TESTING RESULT	100
3.12	LAND USE PATTERN OF THE PROJECT SITE	101
3.13	MAJOR LANDUSE UNITS OF THE STUDY AREA	103

3.14	AREA ESTIMATION OF LANDUSE CATEGORIES AROUND 10 KM BUFFER OF QUARRY ML AREA	103
3.15	FLORA IN 300 M RADIUS	107
3.16	LIST OF FLORA IN THE BUFFER ZONE	108
3.17	LIST OF FAUNA WITHIN THE STUDY AREA	111
4.1	LAND USE DURING POST OPERATIONAL PERIOD	124
4.2	GROUND WATER LEVEL STATUS IN PALAYAMKOTTAI FIRKA	132
4.3	MITIGATIVE MEASURES FOR AIR ENVIRONMENT	135
4.4	TYPES OF SOURCES FOR AIR POLLUTION IN MINING	136
4.5	EMISSION FACTORS FOR MINING ACTIVITIES	136
4.6	EMISSION RATE MEASURES IN G/SEC	137
4.7	RESULTS OF THE PEAK GLC'S	138
4.8	CONCENTRATIONS OF PM _{2.5} AFTER PROJECT IMPLEMENTATION	141
4.9	CONCENTRATIONS OF PM ₁₀ AFTER PROJECT IMPLEMENTATION	141
4.10	THE LIKELY NOISE LEVEL IN THE LEASE AREA	142
4.11	ECOLOGICAL IMPACT ASSESSMENTS AND ITS MITIGATIONS - PART 1	145
4.12	ECOLOGICAL IMPACT ASSESSMENTS AND ITS MITIGATIONS - PART 2	147
4.13	GREENBELT DEVELOPMENT PLAN	150
6.1	ENVIRONMENTAL MONITORING SCHEDULE	156
7.1	RISK ASSESSMENT AND CONTROL MEASURES	159
7.2	DETAILS OF QUARRIES WITHIN 500M RADIUS	163
7.3	SALIENT FEATURES OF EXISTING & PROPOSED QUARRIES	165
7.4	CUMULATIVE PEAK INCREMENTAL CONCENTRATION ($\mu\text{g}/\text{m}^3$)	166
7.5	CONCENTRATIONS OF PM _{2.5} AFTER PROJECT IMPLEMENTATION	168
7.6	CONCENTRATIONS OF PM ₁₀ AFTER PROJECT IMPLEMENTATION	168
10.1	ENVIRONMENTAL MANAGEMENT PLAN	174
10.2	ENVIRONMENTAL MANAGEMENT PLAN BUDGET	177
10.3	ENVIRONMENTAL MANAGEMENT PLAN BUDGET	178
11.1	SALIENT FEATURES OF THE PROJECT	180
11.2	PROJECT DESCRIPTION	181
11.3	LAND USE PATTERN OF THE STUDY AREA OF 10 KM RADIUS	183

LIST OF ANNEXURE

S No	Contents	Annexure No
1	Terms of Reference (ToR)	1
2	Precise Area Communication Letter	2
3	Approved Mining Plan with Plates	3
4	500-meter radius letter	4
5	VAO Certificate	5
6	Land Document	6
7	Monitoring Report	7
8	Lab NABL Certificate	8
9	Structures located within 500m radius of the project	9
10	10km Map showing forest and sanctuaries	10
11	Affidavit	11

COMPLIANCE TO **TERMS OF REFERENCE**

S.NO	POINT WISE TOR	REPLY	PG NO
1. SEAC CONDITIONS - SITE SPECIFIC			
1.	A Cluster Management Committee (CMC) shall be constituted including all the mines in the cluster as Committee Members for the effective management of the mining operation in the cluster through systematic & scientific approach with appointment of statutory personnel, appropriate environmental monitoring, good maintenance of haul roads and village/panchayat roads, authorized blasting operation etc. The PP shall submit the following details in the form of an Affidavit during the EIA appraisal: (i) Copy of the agreement forming CMC. (ii) The Organisation chart of the Committee with defining the role of the members (iii) The 'Standard Operating Procedures' (SoP) executing the planned activities.	Agreed. Will be complied in Final EIA/EMP report	-
2.	The Boundary pillars to be erected as per the mine rules and the evidence should be submitted along with the EIA report.	Agreed. Will be complied in Final EIA/EMP report	-
3.	The details of enumeration of structures including schools, colleges, primary health centres should be submitted along with the EIA report.	Agreed. Will be complied in Final EIA/EMP report	-
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. and spell out the mitigation measures to be proposed for the protection of the above structures, if any during the quarrying operations.		-
5.	The proponent shall furnish photographs of adequate fencing, garland drainage built with siltation tank & green belt along the periphery including replantation of existing trees; maintaining the safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	Agreed.	-

S.NO	POINT WISE TOR	REPLY	PG NO
6.	The Proponent shall carry out Bio diversity study as a part of EIA study and the same shall be included in the Report.	There is no Reserve Forest / Sanctuaries located within 10km radius of the study area. The lease area is a non-forest, Patta land and during the study period, there is no specific Fauna found within ML area. Study of Biological Environment (Flora and Fauna) and their mitigative measures including Vegetation details are given in section 3.6.7, Chapter-3 and section 4.7, Chapter- 4.	106 & 144
7.	The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	Agreed. It will be incorporated in the final EIA & EMP.	-
8.	The PP shall carry out the comprehensive studies on the cumulative environmental impacts of the existing & proposed quarries which included drilling & blasting, loading & hauling on the surrounding village and structures.	Cumulative Impact study was carried out as given in section 7.4, Chapter- 7.	163
9.	The PP shall install the CCTV camera for the continuous surveillance of mining activity & furnish the photographic/videographic evidence along with the EIA report.	Agreed.	-
2. SEAC STANDARD CONDITIONS			
1.	In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following: (i) Original pit dimension (ii) Quantity achieved Vs EC Approved Quantity (iii) Balance Quantity as per Mineable Reserve calculated. (iv) Mined out Depth as on date Vs EC Permitted depth (v) Details of illegal/illicit mining (vi) Violation in the quarry during the past working. (vii) Quantity of material mined out outside the mine lease area (viii) Condition of Safety zone/benches (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.	Not applicable. This is a fresh quarry.	-

S.NO	POINT WISE TOR	REPLY	PG NO
2.	Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.	The nearest habitation is located at a distance of 575m (S) and VAO certificate regarding the location of habitations within 300m radius is enclosed as Annexure – 5.	346
3.	The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.	Agreed. Will be complied in Final EIA/EMP report	-
4.	The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc., are located within 1 km of the proposed quarry.	The study is under progress. It will be incorporated in the final EIA & EMP.	-
5.	The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.	There is no Reserve Forest / Sanctuaries located within 10km radius of the study area. The lease area is a non-forest, Patta land and during the study period, there is no specific Fauna found within ML area. Study of Biological Environment (Flora and Fauna) and their mitigative measures including Vegetation details are given in section 3.6.7, Chapter-3 and section 4.7, Chapter- 4.	106 & 144
6.	The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.	There is no Reserve forest, National Parks, Corridors and Wildlife pathways in the core and buffer zone.	-
7.	In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving	This is a new quarry. However, a slope stability study will be conducted once the quarry depth reaches 30m BGL.	-

S.NO	POINT WISE TOR	REPLY	PG NO
	any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.		
8.	However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.		
9.	The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.	Agreed. It will be incorporated in the final EIA & EMP.	-
10.	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.	Agreed. The PP will use and ensure with controlled blasting techniques using Nonel and by reducing the explosive charge per delay to minimum, so there will be no adverse impact due to blasting and vibration.	-
11.	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.	Agreed.	-
12.	If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,	Not applicable. This is a fresh quarry project.	-
13.	What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	Not applicable. This is a fresh quarry project.	--
14.	Quantity of minerals mined out. · Highest production achieved in any one year	Not applicable. This is a fresh quarry project.	-

S.NO	POINT WISE TOR	REPLY	PG NO
	- Detail of approved depth of mining. - Actual depth of the mining achieved earlier. - Name of the person already mined in that leases area. - If EC and CTO already obtained, the copy of the same shall be submitted. - Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.		
15.	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	Complied. - Project coordinates superimposed in satellite imagery are given as Figure - 2.2, Chapter - 2. - The 10km Radius Index plan showing buffer zone is given as Figure - 3.1, Chapter - 3. - The geology and geomorphology map are provided in Figure - 3.14 & 3.15, Chapter - 3. - The Soil map is provided as Figure - 3.17, Chapter - 3.	60 80 113 & 114 116
16.	The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,	This is fresh quarry. The condition will be complied after commencement of the mining operation.	-
17.	The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	There are no major trees within ML area. Fencing and plantations are under process. Greenbelt / Plantation will be carried out in the safety zone to enhance the vegetative growth and aesthetic in the safety zone area. In the post mining stage, an area of 0.20.00 Ha will be under greenbelt and plantation. Refer section 4.7.3, chapter-4.	149
18.	The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same.	The Geological reserves are estimated to be 7,82,080 m³ of Rough Stone, 19,552 m³ of Weathered Rock and 19,552 m³ of Gravel. The Mineable reserves of 2,89,000 m³ of Rough Stone, 14,620 m³ of Weathered Rock and 15,136 m³ of Gravel are observed and same are permitted for mining over five years as per prescribed ToR.	-

S.NO	POINT WISE TOR	REPLY	PG NO
19.	The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	Complied. Please refer Figure 10.1	173
20.	The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.	The study is under progress. It will be incorporated in the final EIA & EMP.	-
21.	The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.	Baseline data for meteorology, ambient air quality, Water quality, noise level, soil and flora & fauna are collected during March 2024 to May 2024 and detailed in Chapter-3.	77
22.	The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	Detailed cumulative impact study has been carried and the same is incorporated in the section 7.4, Chapter - 7. The letter received from Dept. of Geology and Mining, Tirunelveli stating the quarries detail within 500m radius is enclosed in Annexure - 4. Accordingly, a detailed Environment Management Plan is prepared considering air, water, noise and soil environment and the details are given in Chapter - 10.	163 346 173
23.	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	- Rain water harvesting Plan is given in section 4.4.4 of chapter 4. - The water balance is given in Figure 4.1 of chapter 4.	133

S.NO	POINT WISE TOR	REPLY	PG NO
24.	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Land use pattern of the study area is detailed in Section 3.6.6.2, Chapter - 3. The anticipated impact on land and its mitigative measure are detailed in Section 4.2.2, Chapter - 4.	102 125
25.	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.	Not applicable. There is no generation of the OB & waste.	-
26.	Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.	No proximity to Critically polluted areas.	-
27.	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	The impact of the mining operations due to this quarry on water environment is studied and mitigation measures are proposed in Section 4.4, Chapter - 4. Effective rainwater harvesting and other water augmentation measures are proposed in section 4.4.4, Chapter - 4.	131 133
28.	Impact on local transport infrastructure due to the Project should be indicated.	From this proposed quarry the entire output will be transported to the consumers like crusher units for producing stone aggregates of different sizes. The existing road can easily absorb this additional traffic due to this project.	-
29.	A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.	The details of flora in the core zone and the buffer zone are provided in section 3.6.7.2, Chapter - 3. There is no standing trees in proposed mine lease area.	106
30.	A detailed mine closure plan for the proposed project shall be included in	Complied.	169

S.NO	POINT WISE TOR	REPLY	PG NO
	EIA/EMP report which should be site-specific.	Mine Closure Plan has been incorporated in the approved Mining Plan and the same is incorporated in the section 7.4.4, Chapter – 7. Land use at mine closure stage are given in Table – 4.1 of Chapter 4.	123
31.	As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.	Accepted. It will be done.	-
32.	The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. 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.	Greenbelt/Plantation will be carried out in and around the lease area to enhance the vegetative growth and aesthetic in the area. In the post mining stage, an area of 0.20.00 Ha of safety zone will be developed with green belt. Additionally, it is also proposed to plant inside the nearby schools etc. Hence percentage of Carbon Sequestration after plantation will be achieved for five years.	-
33.	Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner	Accepted. Green belt development work is in progress. Photographs on green belt/plantation will be furnished in Final EIA EMP report.	-
34.	A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	A disaster management plan is prepared and the details are given in section 7.3, Chapter 7.	161
35.	A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	Risk assessment and its management is given in section 7.2, Chapter 7.	158
36.	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement	Occupational Health Impacts of the project and preventive measures are detailed under section 4.9 of	152

S.NO	POINT WISE TOR	REPLY	PG NO
	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.	Chapter-4.	
37.	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	The salient details of Socio economic survey conducted in nearby villages are provided under Para 3.6.9, Chapter- 3. Public health facilities will be further aimed to be developed through CER activities wherein periodic health checkups, medical camps for the locals will be conducted.	117
38.	The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	Socio economic study is conducted both by visits and secondary data collection. Details are given in section 3.6.9, Chapter 3.	117
39.	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	No litigation is pending	-
40.	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	Benefits of the project is given in Chapter- 8.	171
41.	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.	Not applicable. This is a fresh quarry project.	-
42.	The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	A detailed Environmental Management Plan considering entire life has been prepared and are detailed in section 10.5, chapter- 10. The sworn affidavit stating to abide the EMP for the entire life of mine will be submitted in Final EIA EMP report.	177

S.NO	POINT WISE TOR	REPLY	PG NO
43.	Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.	Agreed	-
3. SEIAA SPECIFIC CONDITIONS:			
3.1	The authority noted that the subject was placed in the 569 th SEAC-II meeting held on 16.05.2025. After detailed discussions, the Authority accepts the recommendation of SEAC-II and decided to grant Terms of Reference (ToR) along with Public Hearing for the quantity of 2,89,000m ³ of Rough Stone and 15,136m ³ of Gravel up to the depth of 42m BGL and the annual peak production is 58,050m ³ of Rough Stone and 12,056m ³ of gravel as per the approved mining plan, under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC-II & normal conditions & the conditions mentioned below.	Compiled. The project pertains to the ToR approved production capacity of 2,89,000m ³ of Rough Stone, 14,620m ³ of Weathered Rock and 15,136m ³ of Gravel upto a restricted depth of 42m BGL for the period of Five years.	-
4. SEIAA STANDARD CONDITIONS:			
4.1 CLUSTER MANAGEMENT COMMITTEE			
1.	Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.	There are three existing and two proposed quarry (including the present proposal) located within 500-metre radius. The proponent will take the initiative to form a cluster management committee once environmental clearance is obtained for this quarry.	-
2.	The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,	Agreed. Will be complied.	-
3.	The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.	Agreed. The list of members of the committee formed will be submitted to AD/mines after obtaining Environmental Clearance.	-
4.	Detailed Operational Plan must be submitted which must include the	Agreed. Details of the Operation plan	-

S.NO	POINT WISE TOR	REPLY	PG NO
	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.	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 & emergency management plan, fire safety & evacuation plan and sustainable development goals pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.	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 and systematic manner in accordance with the law. The role played by the committee in implementing the Environmental policy devised shall be given in detail in the EIA Report.	Environmental policy for the cluster will be framed by the cluster management committee and the policy will be in accordance with EPA Act, 1986 and its amendments, guidelines by MoEF&CC/SEIAA and other regulatory bodies. This policy will be displayed in the quarry.	-
7.	The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.	Agreed. It will be complied as mentioned in the Point No.4	-
8.	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public in the vicinity.		
Agriculture & Agro-Biodiversity			
9.	Impact on surrounding agricultural fields around the proposed mining Area.	There are no forest area and traditional practices within the project area. There are no agricultural lands around 500m from the project site. As such, there will be no any impact to agricultural land. However, by proper dust separation as such wet drilling, controlled blasting and water sprinkling on the project roads and project surrounding roads will be followed. As per Air Quality Modelling the impact of the air quality limited to 0.5km radius. So, there is no impact for the Agriculture, Forestry, soil	-
10.	Impact on soil flora & vegetation around the project site.		

S.NO	POINT WISE TOR	REPLY	PG NO
		located within 10km radius.	
11.	Details of type of vegetation including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetation all along the boundary of the proposed mining area shall committed mentioned in EMP.	There is no standing trees in proposed mine lease area.	-
12.	The Environmental Impact Assessment should study the agro-biodiversity, agro- forestry, horticultural plantations, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	Complied. The details are given in section 3.6.7, Chapter- 3 and section 4.7, Chapter 4.	106
13.	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	The detailed action plan has been described in the EMP (Chapter- 10) for the sustainable management for the project area and its surroundings.	173
14.	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 section 4.7.3, Chapter- 4.	149
Forests			
15.	The project proponent shall detailed study on impact of mining on Reserve forests and free ranging wildlife.	There is no Reserve Forest located in the core and buffer zone area. The fauna commonly found in the buffer zone is given in section 3.6.7.5, Chapter- 3.	112
16.	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	Complied. The details are given in section 3.6.7.3, Chapter- 3 and section 4.7, Chapter 4.	106
17.	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	Not Applicable. This is a dry barren land.	-
18.	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	There is no any Reserved Forest located in the core and buffer zone area. There is no, National Parks, Corridors and Wildlife pathways.	-
Water Environment			
19.	Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the	The hydrogeological study from a reputed institute is in progress; The Final EIA EMP report will be incorporated with hydrological studies.	-

S.NO	POINT WISE TOR	REPLY	PG NO
	impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.		
20.	Erosion Control measures.	There is no waste generation (OB) has been envisaged in this quarry. However, there may be erosion due to rainy season and that is limited within quarry area. The seven control measures are explained in section 4.3.2.1 of Chapter- 4.	128
21.	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.	Complied. The baseline study details are incorporated in section 3.5, Chapter- 3. Anticipated impacts and its mitigation measures are detailed in section 4.4, Chapter- 4.	78 131
22.	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	There is no wastewater generation from this Quarry, so this is not applicable.	-
23.	The project proponent shall study and furnish the details on potential fragmentation impact on natural Environment, by the activities.	Fragmentation impact on environment may be due to drilling and blasting. The anticipated impacts and mitigation measures are discussed in Chapter- 4.	123
24.	The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.	The Flora and Fauna study covering 10 km radius are detailed in section 3.6.7 of chapter- 3. The impacts anticipated with respect to the environment of the project area is very negligible and it will be minimized within the project area. Greenbelt / Plantation will be carried out to enhance the vegetative growth and aesthetic in the safety zone area (refer Section 4.7, Chapter- 4).	106 144
25.	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.	The impact of mining on soil environment has been discussed in section 4.3 under Chapter- 4.	128
26.	The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.	The anticipated impact and its mitigation measures for Water Environment are detailed in section 4.4 of Chapter- 4.	131

S.NO	POINT WISE TOR	REPLY	PG NO
27.	The EIA shall include the impact of mining activity on the following: a) Hydrothermal/Geothermal effect due to destruction in the Environment. b) Bio-geochemical processes and its foot prints including Environmental stress. c) Sediment geochemistry in the surface streams.	There is no wastewater generation from this Quarry, so this is not applicable.	-
Energy			
28.	The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.	Complied. The details are described chapter- 4.	123
Climate Change			
29.	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.	Only the best equipment will be used, and it will be properly and regularly maintained. Regular vehicular emission tests will be conducted on the transport vehicles to ensure minimal carbon emissions. To further reduce carbon emissions, a good greenbelt has been planned. Refer Section 4.7.3, Chapter- 4.	149
30.	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock, soil health and physical, chemical & biological soil features.		
31.	Impact of mining on pollution leading to GHGs emissions and the impact of the same on the local livelihood.		
Mine Closure Plan			
32.	Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.	Complied. Mine Closure Plan has been prepared incorporated in the approved Mining Plan/precise area communication order and the same is incorporated in the Chapters.	-
EMP			
33.	Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued and the scope for achieving SDGs.	Complied. The details are described in Chapter- 10.	173
34.	The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.	Green belt development plan is being planned to develop inside the safety zone area of 0.20.00 Ha with 200 Nos of saplings and in addition, planted in nearby schools.	177

S.NO	POINT WISE TOR	REPLY	PG NO
		For this capital cost of INR 0.20 Lakhs and recurring cost of INR 0.04 Lakhs per year has been earmarked. The breakup of the total EMP cost is detailed in Table 10.2 of Chapter 10.	
Risk Assessment			
35.	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	Complied. The details are described in Chapter- 7.	158
Disaster Management Plan			
36.	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.	Complied. The details are described in Chapter- 7.	158
Others			
37.	The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.	There are no historical places, schools, cemeteries, <u>HT and LT lines</u> , bird sanctuaries, and wildlife sanctuaries within 300 meters of the proposed project area. In this regard, the project proponent has received an official letter from the Village Administrative Officer, Tharuvai village, The letter copy enclosed as Annexure – 5.	346
38.	As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	Noted. It will be complied in the Final EIA/EMP report.	-
39.	The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the Environment. The ecological risks and impacts of plastic & microplastics on aquatic Environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.	Complied. The PP has framed detail solid waste management system for the project area and the same will be executed by proper awareness and sign boards. The sign boards will be in two language i.e., Vernacular language (Tamil) and common language (English). The plastic waste generation is very negligible and it will be collected from the source level	-

S.NO	POINT WISE TOR	REPLY	PG NO
		in specific dustbin and disposed through the municipal bins.	
Standard Terms of Reference for (Mining of minerals)			
1.1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994	This is a proposed project. No mining has been carried out in this lease area so far by the proponent.	-
1.2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given	Precise area communication letter was obtained from the District Collector, Tirunelveli vide Rc.No. M3/10059/2020, dated 11.09.2020. (Annexure-2)	219
1.3	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee	The production capacity, quantity of waste, its management and mining technology in mine plan and EIA, etc., are compatible with one another.	-
1.4	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ toposheet, topographic sheet, geomorphology and geology of the areashould be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone)	Complied. - Project coordinates superimposed in satellite imagery are given as Figure - 2.2, Chapter - 2. - The 10km Radius Index plan showing buffer zone is given as Figure - 3.1, Chapter - 3. - The geology and geomorphology map are provided in Figure - 3.14 & 3.15, Chapter - 3. - The Soil map is provided as Figure - 3.17, Chapter - 3.	60 80 113 & 114 116
1.5	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics	The 10km Radius Index plan in survey of India Toposheet showing features is given in Figure 3.1, Chapter- 3. The Geomorphology map (Figure 3.14), Geology of the study area (Figure 3.15), Lithology (Figure 3.16), Soil map (Figure 3.17) are provided in Chapter- 3.	82 113 to 116

S.NO	POINT WISE TOR	REPLY	PG NO
1.6	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority	Not Applicable.	-
1.7	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report	In this proposed project, appropriate environmental monitoring programme are framed. Regular, systematic and sustained programme schedules for implementation and monitoring of various control measures are devised with clear cut guidelines of various concerned plans for keeping a continuous surveillance on the various environmental quality parameters in the area. The Mines Manager/Mine In charge will undertake effective monitoring and implementation of various environmental control measures promptly and effectively and to oversee various environmental management schemes for air quality control, water quality status, noise level control, plantation programme, social development schemes, etc., in the mine. Its details are provided in para 6.1, Chapter VI.	-
1.8	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided	Various risks likely to arise due to mining activities and the safeguard measures are detailed in section 7.2 of Chapter- 7. This being an opencast mine, subsidence is not applicable. The impact due to ground vibrations due to blasting is given in para 4.6.3, Chapter-4.	158 143
1.9	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period	The study area chosen for collecting existing environmental status covers 10 km radial distance from the project periphery (Figure No - 3.1). Data given in the report is for the life of the mine.	80
1.10	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park,	Land use of the study area is studied through satellite imagery to demarcate forest area, agricultural	101

S.NO	POINT WISE TOR	REPLY	PG NO
	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	land, etc. in the study area and the details are given in section 3.6.6, Chapter- 3. The present and post mining land use are detailed in section 3.6.6.1, Chapter- 3. Ultimately, at the end of the life of the mine, entire 1.51.0 Ha of mined out area will be left as water body. 0.02.0Ha will be the mine roads & infrastructure and 0.20.0 Ha will be covered with vegetation. In the post mining stage, the rainwater harvested in the mined out void shall be utilized in the water starved area.	
1.11	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given	There is no waste generation anticipated in this quarry operation since the entire excavated material will be utilized. Hence, there is no external overburden dump involved. Besides, there is no proposal for overburden dump outside the lease area.	-
1.12	A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees	There is no forest land in the lease area.	-
1.13	Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished	Not Applicable.	-

S.NO	POINT WISE TOR	REPLY	PG NO
1.14	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated	Not Applicable.	-
1.15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given	Detailed floral list of the study area is given in para 3.6.7.2 of Chapter- 3.	106
1.16	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted	The mining lease area and the 10 km buffer zone from the periphery of the core zone is devoid of declared ecologically sensitive features like national parks, biospheres, sanctuaries, etc.	-
1.17	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished		
1.18	A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled- I fauna found in the study area, the necessary plan 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	A detailed study of flora and fauna composition in the core and buffer zone of the project has been made through primary field surveys. The details are furnished in section 3.6.7, Chapter- 3.	106
1.19	Proximity to Areas declared as Critically Polluted or the Project areas likely to	Not Applicable.	-

S.NO	POINT WISE TOR	REPLY	PG NO
	come under the Aravali Range, (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered		
1.20	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority)	Not Applicable.	-
1.21	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report	The mining activities will be carried out within the mine lease area only. The entire mine lease area of 1.95.5 Ha is a private patta land. There is no population within the ML area. Hence, the question of R& R does not arise.	-
1.22	One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site specific meteorological data should also be collected. The location of the monitoring	The baseline data on micro-meteorology, ambient air quality, Water quality, noise level, soil and flora & fauna are collected during Summer Season, (March 2024 to May 2024) and detailed in para 3.6 of Chapter- 3. Monitoring stations were selected taking into account, wind direction and location of sensitive receptors.	78

S.NO	POINT WISE TOR	REPLY	PG NO
	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	Free silica composition in PM10 sample has been done and the values are found to be Below Detectable Limit (DL 0.05mg/m ³) which is well within the prescribed limit of 5mg/m ³ .	
1.23	Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map	Air quality modeling details are furnished in section 4.5.3.1 and its continuous sub paras in Chapter- 4 of EIA report. For prediction of impact of the project on the air quality of the area, Air quality modeling using ISCST3-AERMOD View Gaussian Plume Air Dispersion Model developed by (Lakes Environmental Software) has been used. The model simulations are done for the air pollutant arising from the mining operations, namely, PM10, PM2.5. It is observed that the peak incremental concentration for PM10, PM2.5 is occurring very near the source only. The post project Ground Level Concentration of PM10, PM2.5 (base line + predicted incremental) after adopting necessary control measures in the ambient air quality monitoring locations (Refer section 4.5.2.6, Chapter- 4). From the modelling prediction it can be seen that the resultant added concentrations with baseline figures for PM10, PM2.5, after adopting necessary mitigative measures are within the prescribed limits.	136
1.24	The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated	The total water requirement for this project will be 4.0 KLD comprising Drinking & Domestic is 0.9 KLD, Dust suppression is 1.9 KLD and Greenbelt is 1.2 KLD. The water will be sourced	-

S.NO	POINT WISE TOR	REPLY	PG NO
		initially from outside agencies. Later the rainwater collected in the mine pit sump will be used for this purpose.	
1.25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided	Not Applicable.	-
1.26	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided	Water conservation measures and rain water harvesting plan are furnished in section 4.4 in Chapter- 4.	131
1.27	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided	The details of the water bodies located near the lease area is provided under para 4.4.1, Chapter-4.	131
1.28	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from State Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished	The mining area consists of hard compact rock, hence no major water seepage within the mine is expected from the periphery. From the nearby working quarries, it is observed there are no seepages in the mine faces because of the hard rock formation. The ground water table in this area is very deep. Hence, ground water intersection in not envisaged and ground water will not be affected appreciably due to the quarrying operation. Detailed Hydro Geological Study is under progress. Will be submitted during Final EIA/Amp report.	
1.29	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out	There are no seasonal drainage courses nearby. Pond / Eri located in the nearby area will be additionally strengthened and periodical desilting activities under CER activities will be carried out to augment the storage capacity of the tank. This being a mining project there will be no effluent generation or discharge. As such no major impact is envisaged on the nearby water bodies due to project operations.	-
1.30	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A	The area applied for quarry lease is exhibits almost plain topography covered by Gravel formation. The	-

S.NO	POINT WISE TOR	REPLY	PG NO
	schematic diagram may also be provided for the same	massive Charnockite formation is noticed below 1m (avg) Gravel and 1m Weathered rock formation and sloping towards southeastern side of the area, the altitude of the area is above 95m (maximum) from MSL. The mining area consists of hard compact rock, hence no major water seepage within the mine is expected from the periphery. From the nearby working quarries, it is observed there are no seepages in the mine faces because of the hard rock formation. The ground water table in this area is very deep. Hence, ground water intersection is not envisaged and ground water will not be affected appreciably due to the quarrying operation.	
1.31	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution	Greenbelt / Plantation will be carried out in the safety zone area to enhance the vegetative growth and aesthetic in the safety zone area. In the post mining stage, an area of 0.20.00 Ha will be under greenbelt and plantation.	-
1.32	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government)	From this proposed quarry the entire output will be transported to the consumers like crusher units for producing stone aggregates of different sizes. The existing road can easily absorb this additional traffic due to this project.	-

S.NO	POINT WISE TOR	REPLY	PG NO
	should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines		
1.33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report	This is a proposed project. Site services like mine office, first aid room, rest shelters, toilets etc. will be provided as semi-permanent structures.	--
1.34	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report	Ultimately, at the end of the life of the mine, entire 1.51.0 Ha of mined out area will be left as water body. 0.02.0Ha will be the mine roads & infrastructure and 0.20.0 Ha will be covered with vegetation. Entire mined out area will be properly fenced to prevent inadvertent entry of men and animals. In the post mining stage, the rainwater harvested in the mined out void shall be utilized in the area.	-
1.35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed	Details of occupational health and safety aspects are given under the subsections of section 4.9, Chapter-4.	152
1.36	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations	The salient details of Socio economic survey conducted in nearby villages are provided under section 3.6.9, Chapter- 3. Public health facilities will be further aimed to be developed through CER activities wherein periodic health checkups, medical camps for the locals will be conducted.	117
1.37	Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation	Towards the socio economic development of the surrounding area, the proponent has earmarked an amount of Rs. 5 Lakhs under Corporate Environmental Responsibility.	-

S.NO	POINT WISE TOR	REPLY	PG NO
1.38	Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project	Detailed Environmental Management plan and its implementation, etc., are furnished in Chapter- 10.	173
1.39	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project	This draft EIA/EMP report will be exposed to public consultation as per mandatory procedures through the District Collector, Tirunelveli District and State Pollution Control Board officials after giving 30 days advance notice in two local newspapers about the scheduled date and time for conduct of the public hearing procedures. The opinions, concerns and objections of stakeholders will be recorded during the public hearing. All the public queries and the replies to the query by the project proponent and officials concerned will be recorded and incorporated in the Final EIA/EMP report for approval by SEIAA, Tamil Nadu.	-
1.40	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given	There is no litigation pending against the project.	-
1.41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out	The cost of the total project is Rs.95,39,000/-. Towards EMP measures, 7.07 lakhs are allocated under capital cost. Besides, 11.00 lakhs per annum will be spent under recurring cost. All the recurring cost of maintenance of pollution control measures, environmental monitoring etc., will be met from revenue.	-
1.42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report	Details of Risk Assessment and Disaster Management plan is given in Chapter- 7.	158
1.43	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly	The proposed Rough Stone Quarry will benefit this region in the fields of employment	-

S.NO	POINT WISE TOR	REPLY	PG NO
	indicate environmental, social, economic, employment potential, etc.	opportunities, improved per capita income for local people, improved social welfare facilities in respect of education, health, infrastructural etc. • Direct and indirect employment to 21 people. • By means of carrying out the socio economic development activities, local community development is expected. Towards the same, the proponent has planned to allocate Rs. 5 Lakhs for various activities under CER. From the CER activities allocated for various social welfare activities, the villages near the lease area will be benefited.	
1.44	Besides the above, the below mentioned general points are also to be followed:- a) All documents to be properly referenced with index and continuous page numbering. b) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated. c) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project. d) Where the documents provided are in a language other than English, an English translation should be provided. e) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted. f) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed. g) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for	Noted.	-

S.NO	POINT WISE TOR	REPLY	PG NO
	securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation. h) As per the circular no. J- 11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable. i) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area		

1.0 INTRODUCTION

1.1 PURPOSE OF THE REPORT

Environmental Impact Assessment (EIA) is the management tool to ensure the sustainable development and it is a process, used to identify the environmental, social and economic impacts of a project prior to decision making. It is a decision-making tool, which guides the decision makers in taking appropriate decisions for any project.

EIA systematically examines both beneficial and adverse consequences of the project and ensures that these impacts are taken into account during the project designing. It also reduces conflicts by promoting community participation, information, decision makers, and helps in developing the base for environmentally sound project.

Rough Stone, Jelly and Gravel are the major requirements for construction industry. This EIA report is prepared by considering Cumulative load of all proposed & existing quarries located within 500 m radius of the project area.

This proposal is towards obtaining environmental clearance for Rough Stone, Jelly and Gravel Quarry located at survey nos. 570(P) & 571(P) of Tharuvai Village, Palayamkottai Taluk, Tirunelveli District, Tamil Nadu, for production capacity 2,89,000m³ of Rough Stone, 14,620m³ of Weathered Rock and 15,136m³ of Gravel upto a depth of 42m BGL for the period 5 years.

TOR for this proposal was already obtained vide Lr.No.SEIAA-TN/F.No. 8153/SEAC/ToR-929/2020 dated 16.04.2021. Due to personal issues, Proponent further could not proceed with the proposal and subsequently the TOR was expired. As the ToR was expired, a fresh application for obtaining ToR was submitted dated 13.03.2025. Fresh ToR was obtained for this proposed project vide ToR Identification. No. TO25B0108TN5214231N Dated: 18.06.2025. This draft EIA report is prepared in compliance with the ToR approved via Identification. No. TO25B0108TN5214231N Dated: 18.06.2025.

Although the individual lease area of this project is less than 5 Ha, the other existing quarries and proposed quarries within the 500m radius along with this subject project

works out to > 5 Ha and as such this proposal is considered under Cluster Category – B1 and as per MoEF & CC notification necessitates preparation of EIA / EMP report and public hearing. Cluster area calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016. Satellite image of Quarries in Cluster is shown in Figure 1.1.

TABLE 1.1 - CLUSTER MINES DETAILS

S.No	Name of the Quarry Owner	S.F. Nos & Village	Lease Status	Area in Ha
a. Existing Quarry				
1.	P.Marimuthu, S/o. Petchi Thevar, 1/3A, Kasba Mel bagam, Ponnagudi, Palayamkottai, Tirunelveli.	S.F.Nos. 522/1, 522/2, 534, 535(P) & Tharuvai Village	Proceeding No. M1/36802/2016, dt.22.03.2018 for a period 5 years from 19.04.2018 to 18.04.2023	4.73.5
2.	S.Sankar, S/o. R.Subramaniam, 131/1, APT Road, Erode.	S.F.No. 524(P) & Tharuvai Village	Proceeding No. M1/43375/2015, dt.31.03.2018 for a period 5 years from 17.04.2018 to 16.04.2023	1.60.0
3.	Tvl. Sri Durgambika Blue Metals, 1A/115, Kandithankulam, Tirunelveli	S.F.No. 570(P) & Tharuvai Village	Proceeding No. M3/6065/2019, dt.02.03.2019 for a period 5 years from 24.07.2018 to 16.04.2023	1.38.5
b. Abandoned Quarry				
1.	S.Subbaiah S/o. Sorna Thevar,	S.F.Nos. 568/1, 569/1B & Tharuvai Village	Proceeding No. M1/41558/2011, dt.20.01.2012 for a period 5 years from 07.02.2012 to 06.02.2017	2.63.5
c. Proposed Quarry				
1.	Tvl. Sri Durgambika Blue Metals, Prop.Thiru.S.Subash Chandra Bose, No.1A/115, Kadithankulam, Tharuvai Village, Palayamkottai Taluk, Tirunelveli	S.F.Nos. 570(P), 571(P) & Tharuvai Village	Proposed Quarry	1.95.5
2.	S.Kasirajan, 760, Bazzar Street, Seevalaperi, Palayamkottai Taluk, Tirunelveli	S.F.Nos. 530/3A, 531/1A, 532, 533/1, 568/5A(P), 569/3A & Tharuvai Village	Proposed Quarry	4.97.0
Total Area of Cluster		14.64.5 Ha		

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE, JELLY AND GRAVEL QUARRY OF TVL. SRI DURGAMBIKA, PROP. THIRU.S.SUBASH CHANDRA BOSE BLUE METALS OVER AN EXTENT OF 1.95.5 HA LOCATED AT S.F.NOS. 570(P) & 571(P) OF THARUVAI VILLAGE, PALAYAMKOTTAI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

The ToR for preparation of EIA/EMP was approved vide Identification. No. TO25B0108TN5214231N Dated: 18.06.2025. This report has been prepared in line with the approved TOR for production of maximum excavation of 2,89,000m³ of Rough Stone, 14,620m³ of Weathered Rock and 15,136m³ of Gravel upto a restricted depth of 42m BGL for the period for 5 years.

FIGURE 1.1 - SATELLITE IMAGE SHOWING CLUSTER QUARRIES



1.2 IDENTIFICATION OF PROJECT AND PROJECT PROPONENT

1.2.1 IDENTIFICATION OF PROJECT

The applicant Tvl. Sri Durgambika Blue Metals, proposed to mine for the period of five years in patta land over an area of 1.95.5 Ha located in survey nos. S.F.Nos. 570(P) & 571(P) of Tharuvai Village, Palayamkottai Taluk, Tirunelveli District, Tamil Nadu.

TABLE 1.2 - PROJECT IDENTIFICATION

Name of the Project	Rough Stone, Jelly and Gravel Quarry of Tvl. Sri Durgambika Blue Metals, Prop. Thiru.S.Subash Chandra Bose
Location of the Project	S.F No. 570(P) & 571(P)
	Village: Tharuvai
	Taluk: Palaymkottai
	District: Tirunelveli
	State: Tamil Nadu
Extent	1.95.5 Ha.
Type of Land	The proposed land is a patta land jointly in the name of Thiru.S.Subash Chandra Bose (applicant) and Thiru. Kasirajan, vide patta No.3509. The applicant obtained consent from the other Pattadar and got it registered. The copy of the Patta, Adangal, A-Register & Consent Document are enclosed as Annexure - 6.

1.2.2 IDENTIFICATION OF PROJECT PROPONENT

TABLE 1.3 - DETAILS OF PROJECT PROPONENT

Name of the Project Proponent	TVL. Sri Durgambika Blue Metals, Prop. Thiru.S.Subash Chandra Bose
Communication address	Tvl. Sri Durgambika Blue Metals, Prop. Thiru.S.Subash Chandra Bose, No.1A/115, Kadithankulam, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District – 627 356.
Mobile No.	9843118272
Email-ID	durgambikabluemetals@gmail.com

1.3 BRIEF DESCRIPTION OF THE PROJECT

1.3.1 NATURE AND SIZE OF THE PROJECT

The quarrying operation is proposed to be carried out by Opencast Mechanized Mining Method by jack hammer drilling, slurry blasting by forming 5.0m bench height and 5.0m bench width. Excavator and tippers are proposed for Loading and transportation. Geological Resources are estimated as 7,82,080m³ of Rough Stone, 19,552m³ of Weathered Rock and 19,552m³ of Gravel whereas Mineable reserves are estimated as 2,89,000m³ of Rough Stone, 14,620m³ of Weathered Rock and 15,136m³ of Gravel up to the depth of 42m BGL. The production shall be 2,89,000m³ of Rough Stone, 14,620m³ of Weathered Rock and 15,136m³ of Gravel formation at a depth of 42m BGL for the period of Five years. The above said reserves and productions are as per the ToR obtained.

1.3.2 NATURE OF THE PROJECT

Sector	1(a) Non-Coal Mining
Type	Fresh Project
Category	B1 (Cluster Situation)
Mineral	Minor mineral of Rough Stone

1.3.3 LOCATION OF PROJECT

The proposed Quarry lease area is situated at S.F.Nos. 570(P) & 571(P) of Tharuvai Village, Palayamkottai Taluk, Tirunelveli District, Tamil Nadu. The area lies in the north latitude of **08°38'26.34"N to 08°38'33.41"N** and eastern longitude of **77°40'54.60"E to 77°41'00.13"E**. Location of the proposed project is shown in Figure 2.1 and the satellite imagery of the project site is shown in Figure 2.2.

1.4 IMPORTANCE OF THE PROJECT TO THE REGION

Rough Stone, Weathered Rock and Gravel from this quarry will meet the domestic demand. The production and method of mining is planned considering the geological factors, availability of proven technology, demand for the material etc. Safety barriers as per State Government order is left in the planning stage itself. Systematic and scientific mining will be carried out. This project will give employment opportunities to 21 persons. The proponent will carry out CER activities in which will help the surrounding villages to derive socio economic benefits. The activities will be customized based on local needs and prioritized. Hence, livelihood development and employment will arise due to this project.

1.5 REGULATORY COMPLIANCES

Understanding of the applicable environmental legislative framework is crucial for understanding the scope of the EIA study. With respect to prevention and control of environmental pollution, the following Acts and Rules of MoEF&CC (Ministry of Environment Forests and Climate Change), GoI (Government of India) govern the proposed project. The applicable environmental legislation for the proposed mining project is detailed below,

- Environment protection Act, 1986
- EIA Notification, 2006 & Subsequent amendments
- Water Pollution (Prevention & Control) Act, 1974
- Air Pollution (Prevention & Control) Act, 1981
- Noise Pollution (Regulation & Control) Rules, 2000
- Mines Act, 1952
- Tamil Nadu Minor Mineral Concession Rules, 1959
- Mines and Minerals (development and regulation) Act, 1957
- Minor Minerals Conservation and Development Amendment Rules 2018
- State Minor Mineral Concession Rules (GMMCR), 2017
- Explosive Act, 1884
- Explosive Rules, 2008
- Hazardous and other Wastes (management and Transboundary Movement) Rules, 2016
- Batteries (Management and Handling) Rules 2010
- Solid Waste Management Rule 2016

1.6 PRESENT LEGAL STATUS

TABLE 1.4 - PRESENT LEGAL STATUS

Sr.No	Description	Issuing Authority	Status	Letter Number	Date	Annex No.
1	Precise Area Communication	AD Mines, Tirunelveli	Received	Rc.No.M3/1 0059/2020	11.09.2020	2
2	Mine Plan Approval	Joint Director (Additional i/c), Department of Geology and Mining, Tirunelveli	Approved	Rc.No.M3/1 0059/2020	30.10.2020	3
3	District Survey Report	Collector, Dept. of Geology and Mining, Tirunelveli	Authenticated	As per S.O.3611 (E), dated 25.07.2018	2019	
4	Details of other	Joint Director /	Obtained	Rc.No.M3/1	07.11.2020	4

	leases within 500m radius	Assistant Director (i/c), Dept. of Geology & Mining, Tirunelveli		0059/2020		
5	NOC for features within 300m radius	VAO, Tharuvai	Obtained	-	06.11.2020	5

1.7 SCREENING

As per the Environmental Impact Assessment (EIA) Notification dated 14th September 2006 and its subsequent amendments the proposed mining project falls under 'Category B1 (Cluster Situation)', which requires Environmental Clearance from the State Environmental Impact Assessment Authority (SEIAA). The project proponent has appointed M/s. Global Mining Solutions, Salem, who are accredited by the National Accreditation Board for Education and Training (NABET), Quality Council of India (QCI), New Delhi, under the registration number NABET/EIA/23-26/SA 0241. Their role is to carry out an Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) study in compliance with the Ministry of Environment, Forest and Climate Change (MoEF & CC) requirements.

1.8 SCOPE OF THE STUDY

In line with the prescribed Terms of Reference (TOR), the area comprising 10 km radius around the proposed mine lease boundary is considered as the study area. The EIA/EMP report has been prepared following the generic structure specified in the EIA Notification 2006. The detailed studies have been conducted as per prescribed Standard TOR issued by SEIAA, Tamil Nadu vide Identification. No. TO25B0108TN5214231N Dated: 18.06.2025. The point wise compliance for the ToR has been incorporated in this EIA/EMP report.

The main scope of the EIA study is to quantify the cumulative impact in the study area due to cluster quarries and formulate the effective mitigation measures for this applied project area. A detailed account of the emission sources, emissions control equipment, background Air quality levels, Meteorological measurements, Dispersion model and all other aspects of pollution like effluent discharge, Dust generation etc., have been discussed in this report. The baseline monitoring study has been carried out during the Period of March 2024 to May 2024 for various environmental components so as to assess the anticipated impacts due the cluster quarry projects on the environment and suggest suitable mitigation measures for

likely adverse impacts due to this proposed project.

The scope of study broadly covered as below,

- Literature review and collection of secondary data relevant to the study area.
- Establish the baseline environmental aspects in and around the proposed project covering 10 km radius.
- Identify various existing pollution loads due to various mining activities.
- Predict incremental levels of pollutants in the study area due to the proposed operations.
- Establishing and analyzing demographic profile including sex ratio, literacy rate, SC/ST, workers classification, land use categorization, etc., in the project influenced area
- Evaluate the predicted impacts on various environmental attributes in the study area by using scientifically developed and widely accepted environmental impact assessment methodologies.
- Prepare an Environment Management Plan (EMP) outlining the measures for improving the environmental quality and identify critical environmental attributes that are required to be monitored in the post-project scenario.
- To assess the impacts on human settlement in the project influence area Socio-Economic Assessment
- Cumulative impact assessment for the quarries in cluster.

1.9 NEED AND JUSTIFICATION OF THE PROJECT

- Proposed mining project will fulfill the local market requirement for real estate and infrastructure industry. This project will also provide employment to local people helping them earn livelihood.
- Employment generated consequent to the mining activity in the project will be benefit local and rural population and will have multiplier effects on local economy.
- The Project will give tremendous boosts to the local and regional economy benefiting the population.
- The social benefits arising out of this proposal can be expressed in terms of increase in the standards of living of local population, educational opportunities, training and development of skills etc.

1.10 STRUCTURE OF THE REPORT

As per the new guidelines of the MoEF&CC the report has been divided into the following chapters and presented as follows:

1.0 Introduction

This chapter describes the profile of the project proponent, name and contact address with email, project consultants, the purpose of the project, brief description of the project, applicable environmental regulations, objectives and methodology for EIA studies etc.

2.0 Project Description

This chapter gives a brief description of the project such as the type of project, need for the project, its location, approachability, layout, etc., of the proposed project, the project implementation schedule, estimated cost of development etc.

3.0 Description of the Environment

This chapter presents details of the baseline environmental status for microclimate, air quality, noise, water quality (surface and ground), soil quality, flora, fauna and socioeconomic status etc.

4.0 Anticipated Environmental Impacts & Mitigation Measures

This chapter discusses the possible sources of pollution and environmental impacts due to the project during operation phases and suggests the mitigation measures.

5.0 Analysis of Alternatives (Site and Technology)

This chapter discusses the analysis of the various alternatives for the technology as well as the site and gives the selection of the most feasible alternative.

6.0 Environmental Monitoring Program

This chapter discusses the details about the environmental monitoring program during operation phases. The technical aspects of monitoring the effectiveness of mitigation measures are covered in this chapter.

7.0 Additional Studies

This chapter covers information about the additional studies conducted for this project such as the Risk Analysis, Emergency Response and Disaster Management Plan.

8.0 Project Benefits

This chapter presents the benefits from this project

9.0 Environmental Cost Benefit Analysis

This chapter deals with the Environmental Cost Benefit Analysis which is

recommended during the scoping stage.

10.0 Environmental Management Plan

This chapter deals with the EM for the proposed sand mining projects and indicates the measures proposed to minimize the likely impacts on the environment during and operation phases and budgetary allocation for the same.

11.0 Summary and Conclusion

This chapter deals with the overall justification for implementation of the project and explanation of how, adverse effects have been mitigated.

12.0 Disclosure of Consultant

This chapter deals with the details of consultants engaged and the NABET accreditation details of environmental consultants.

2.0 PROJECT DESCRIPTION

2.1 TYPE OF THE PROJECT

The proposed activity is the extraction of Rough Stone, Weathered Rock and Gravel Quarry by open cast mechanized mining method and proposed to produce 2,89,000m³ of Rough Stone, 14,620m³ of Weathered Rock and 15,136m³ of Gravel formation at a depth of 42m BGL for the period of Five years.

2.2 LOCATION OF THE PROJECT

The proposed quarry project is located in survey nos. 570(P) & 571(P), Tharuvai Village, Palayamkottai Taluk, Tirunelveli District, Tamil Nadu as shown in Figure 2.1. The area is represented by Survey of India Toposheet No. 58 H/10. The lease boundary with Geo Co-ordinates is shown in Figure 2.2. The area lies in the northern latitude of **08°38'26.34"N to 08°38'33.41"N** and eastern longitude of **77°40'54.60"E to 77°41'00.13"E**. Latitude and Longitude of all boundary pillars are given in Table 2.1 and the satellite imagery of the project site is shown in Figure 2.2.

TABLE 2.1 - BOUNDARY CORNER COORDINATES OF THE PROJECT

Corners	Co- ordinates	
	Latitude	Longitude
1	08°38'27.78"N	77°40'54.60"E
2	08°38'33.41"N	77°40'56.99"E
3	08°38'32.47"N	77°40'59.20"E
4	08°38'32.12"N	77°41'00.13"E
5	08°38'26.34"N	77°40'57.67"E
6	08°38'26.86"N	77°40'56.82"E

FIGURE 2.1 - LOCATION MAP

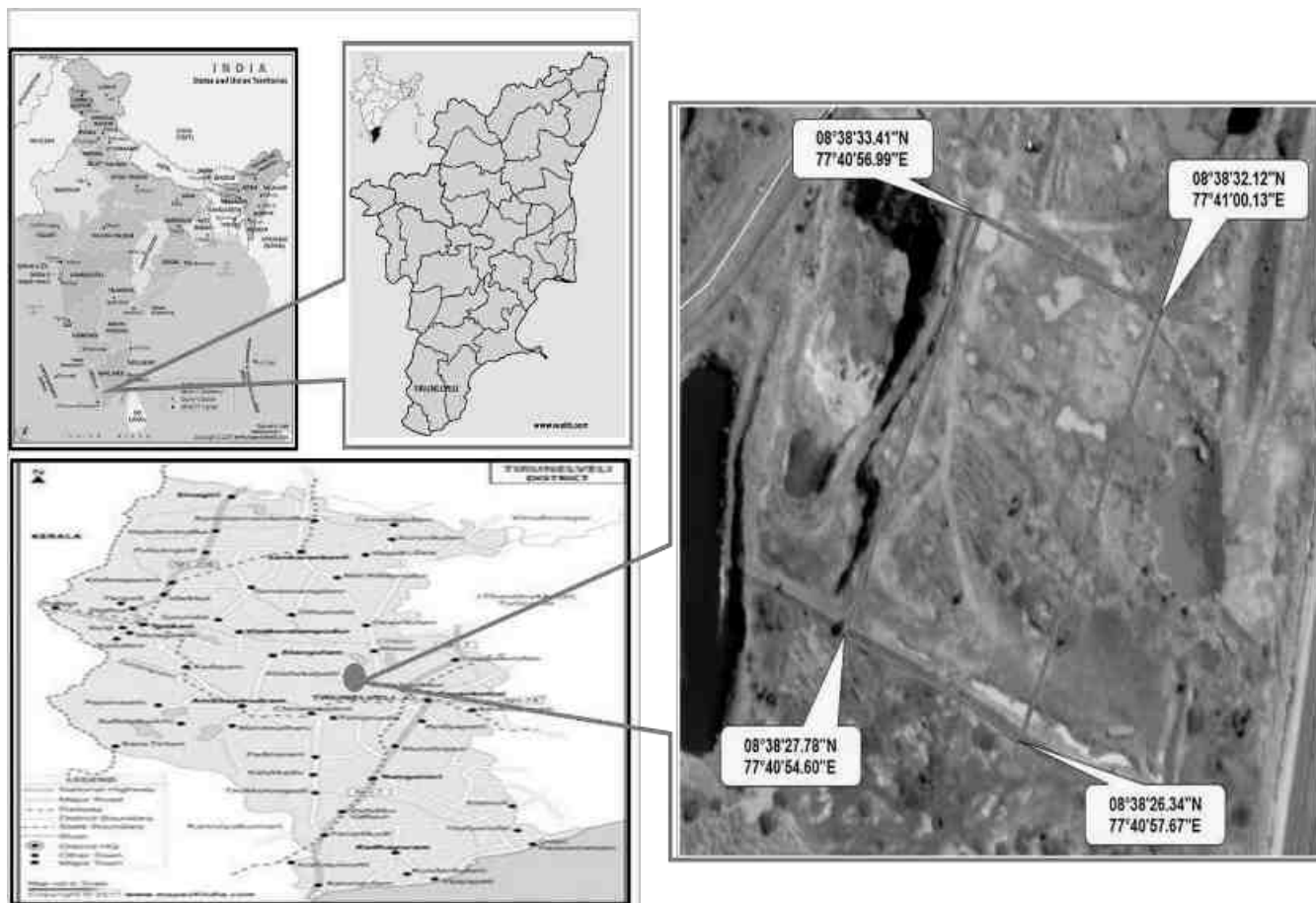
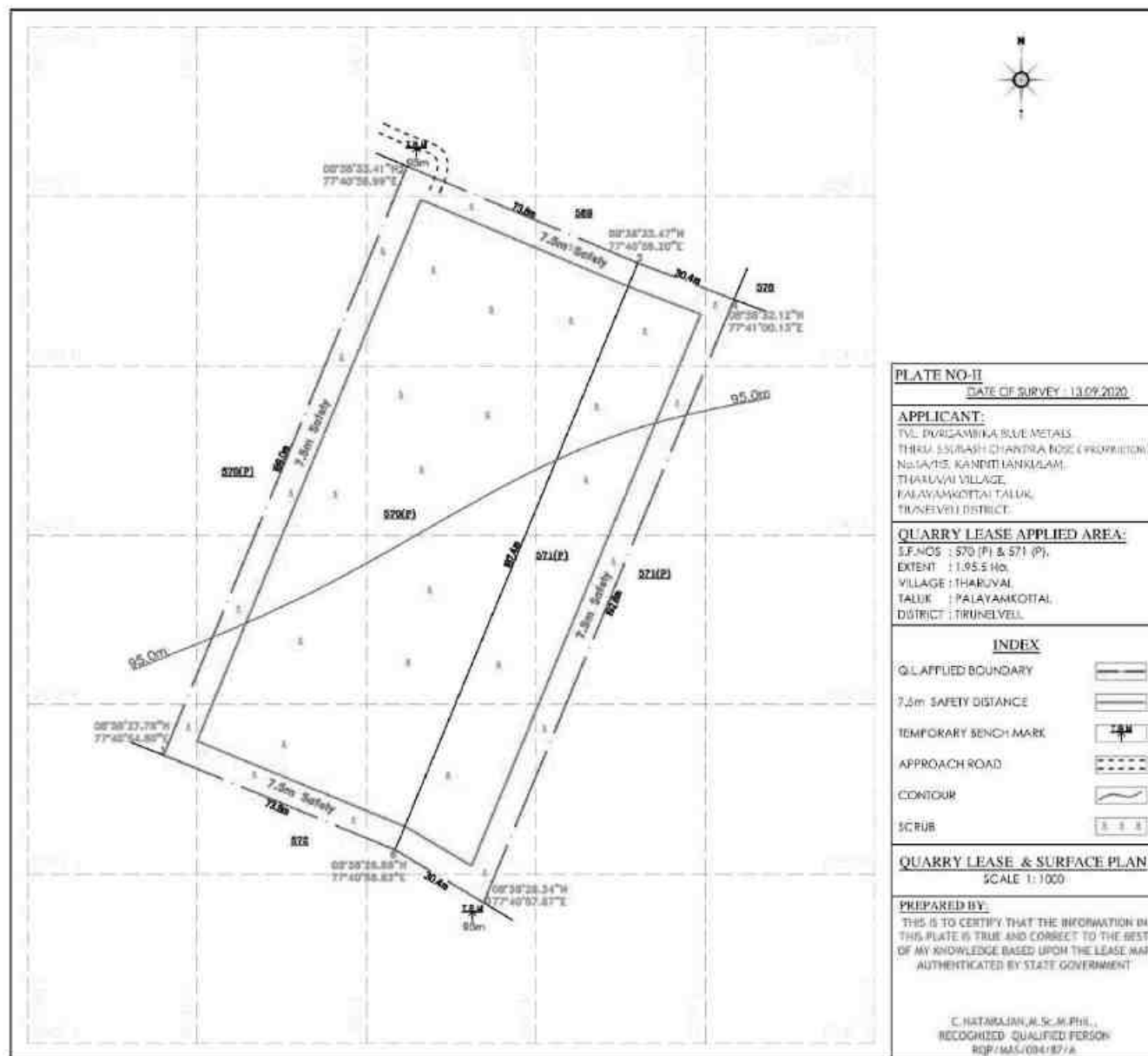


FIGURE 2.2 - GOOGLE IMAGE SHOWING CORNER COORDINATES OF THE PROJECT SITE



FIGURE 2.3 - SURFACE PLAN OF THE PROJECT AREA



2.2.1 LEASE DETAILS

This proposed project area is classified as Patta land jointly in the name of Thiru.S.Subash Chandra Bose (applicant) and Thiru. Kasirajan, vide patta No.3509. The applicant obtained consent from the other Pattadar & got it registered. **The copy of the Patta, Adangal, A-Register and consent documents are enclosed as Annexure - 6.** Village map showing 300m and 500m radius of the project area is

shown in Figure 2.4. The project does not fall within 10 km radius of any Eco – sensitive zone, Wild life Sanctuary, National Park, Tiger Reserve, Elephant Corridor and Biosphere

Reserves. The M.L area details are presented in below Table.

TABLE 2.2 - MINE LEASE AREA AND ITS OWNERSHIP					
Location	S.F. No	Area in Ha	Patta no	Patta Name	Remarks
Tharuvai Village, Palayamkottai Taluk, Tirunelveli District	570(P)	1.38.5	3509	Jointly in the name of Thiru.S.Subash Chandra Bose (applicant) and Thiru. Kasirajan	The applicant, S.Subash Chandra Bose obtained consent from the other Pattadar & got it registerd (Refer Annexure - 6)
	571(P)	0.57.0			
Total		1.95.5			

2.2.2 SITE CONNECTIVITY

- The lease area can be approached from the Kandithankulam - Adaimithipankulam village road 80m on Western side of the project site.
- The Nearest Railway line is Sengulam RS is located at 3.7Km in the Southern side of the lease area.
- National Highway (NH-44) Salem – Kanniyakumari is located about 2.0 km on the Southeastern side of the lease area.
- The nearest State highway (SH-40) Tirunelveli - Tenkasi is located about 3.0 km in the Northern side of the area.
- The Approachability Map and Site Photos is given as Figure 2.5 and 2.6.

TABLE 2.3 - SITE CONNECTIVITY			
S.No	Description	Details	Distance & Direction
1	Village	Tharuvai Village	575 m (S)
2	Highway	(SH-40) Tirunelveli - Tenkasi Road (NH-44) Salem - Kanniyakumari Road	3.0 Km (N) 2.0 Km (SE)
3	Railway Station	Sengulam RS	3.7 km (S)
4	Airport	Tuticorin Airport	39.0 km (NE)

FIGURE 2.4 - VILLAGE MAP SHOWING 300m AND 500m RADIUS OF THE PROJECT AREA

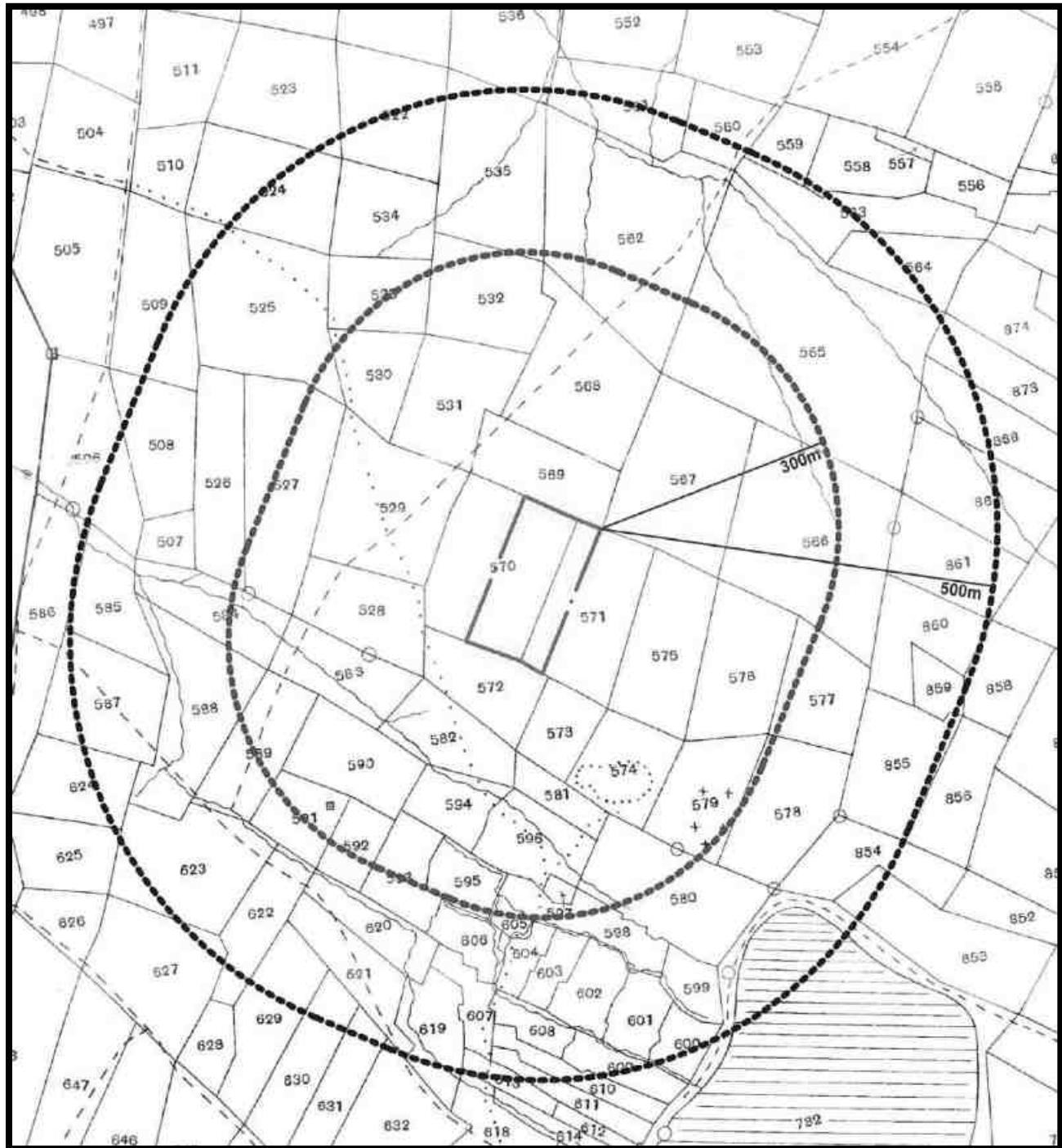


FIGURE 2.5 - APPROACHABILITY MAP



FIGURE 2.6 - SITE PHOTOGRAPHS



2.3 LAND USE PATTERN OF THE PROJECT AREA

The entire project site is patta land jointly in the name of Thiru.S.Subash Chandra Bose (applicant) and Thiru. Kasirajan, vide patta No.3509. The applicant obtained consent from the other Pattadar & got it registered. The land use pattern of the mine lease area as of today and conceptual stage given in Table 2.4.

TABLE 2.4 - LAND USE PATTERN OF THE PROJECT AREA			
Sl. No.	Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)
1.	Quarrying Pit	Nil	1.51.0
2.	Infrastructure	Nil	0.01.0
3.	Roads	Nil	0.01.0
4.	Green Belt	Nil	0.20.0
5.	Unutilized	1.95.5	0.22.5
	Total	1.95.5	1.95.5

During operation & in the Post mining stage, in the Safety Zone area of 0.20.0 Ha., 200 Nos of saplings will be planted and maintained. In the conceptual stage, the quarried pit will be fenced by using Barbed wire fencing to prevent inherent entry of public and cattle.

2.4 TOPOGRAPHY AND DRAINAGE

The area applied for quarry lease is exhibits almost plain topography covered by Gravel formation. The massive Charnockite formation is noticed below 1m (avg) Gravel and 1m Weathered rock formation and sloping towards southeastern side of

the area, the altitude of the area is above 95m (maximum) from MSL. Quarrying is proposed up to a depth of 38m below ground level. The water table is found at a depth of 60m in summer and 57m in rainy seasons.

2.5 GEOLOGY

2.5.1 REGIONAL GEOLOGY

Tirunelveli district is bordered by Western Ghats (Ridge and valley complex) in the West. A major part of the district constitutes a plain terrain with a gentle slope toward East and Southeast, except for the hilly terrain in the west. The general elevation of the area varies from less than 10 to 108m AMSL (Tulukkapparai hill range). The prominent geomorphic units identified in the district through interpretation of Satellite imagery are Structural Hill, Bazada Zone, Valley Fill, Flood Plain, Pediment, Shallow buried pediment, Deep buried pediment and Coastal Plain.

2.5.2 LOCAL GEOLOGY

The area is underlain by the wide range of metamorphic rocks of peninsular gneissic complex. These rocks are extensively weathered and overlain by the recent valley fills and alluvium at places. The geological formations found in the district are Archaean rocks like Gneisses, Granites, Charnockite, basic granulite 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°W – S45°W with dipping towards SE60°. The general geological succession of the area is given as under.

Age	Rock Formation
Recent to Sub recent	Alluvium, Gravel
	Charnockite
Archaean	Peninsular Gneissic complex and Calc Gneiss

2.6 SIZE AND MAGNITUDE OF THE OPERATION

The proposed activity is the extraction of Rough Stone, Weathered Rock and Gravel by open cast semi mechanized mining method over an extent of 1.95.5 Ha and to produce 2,89,000 m³ of Rough Stone, 14,620 m³ of Weathered Rock and 15,136 m³

of Gravel of Gravel up to a restricted depth of 42m BGL for the period of Five years. The details of geological and mineable reserves in the lease area have been provided below in the subsequent sub section.

2.7 RESOURCES AND RESERVES

The Resources and Reserves of Rough Stone were calculated based on Cross-Section Method to cover the maximum lease area.

2.7.1 GEOLOGICAL RESOURCES

The quarrying is restricted up to a depth of 42m below ground level only. Availability of Resources is given below.

TABLE 2.5 - AVAILABLE GEOLOGICAL RESOURCES							
Section	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Gravel in m ³	Weathered Rock in m ³	Geological Resources of Rough stone in m ³
XY-AB	188	104	1	19552	19552		
	188	104	1	19552		19552	
	188	104	40	782080			782080
	Total				19552	19552	782080

Gravel formation : 19,552m³

Weathered Rock Formation : 19,552m³

The Geological Resources of Rough Stone : 7,82,080m³

2.7.2 MINEABLE RESERVES

The mineable reserves are calculated by considering bench formation and leaving 7.5 m safety distance and bench loss,

TABLE 2.6 - AVAILABLE MINEABLE RESOURCES

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Gravel in m ³	Weathered Rock in m ³	Mineable Reserve of Rough stone in m ³
XY-AB	I	172	88	1	15136	15136		
	II	170	86	1	14620		14620	
	III	169	85	5	71825			71825
	IV	159	75	5	59625			59625
	V	149	65	5	48425			48425
	VI	139	55	5	38225			38225
	VII	129	45	5	29025			29025
	VIII	119	35	5	20825			20825
	IX	109	25	5	13625			13625
	X	99	15	5	7425			7425
Total						15136	14620	289000

The mineable reserve is computed as 2,89,000m³ of Rough stone, 14,620m³ of Weathered rock formation and 15,136m³ of Gravel formation upto a depth of 42m below ground level over five year.

The Gravel and weathered rock mass will be removed first. After the excavation, weathered rock mass will be preserved all along the boundary barrier. If market rise the same will be loaded into tipper for needy customer after paying the necessary Seigniorage Fees to Government.

2.8 PROCESS DESCRIPTION AND TECHNOLOGY

2.8.1 PROCESS DESCRIPTION

The quarry operation involves shallow jack hammer drilling, slurry blasting, excavation, Loading and transportation of Rough Stone to the needy buyers. The production of Rough Stone in this quarry involves the following method which is typical for Rough Stone quarrying in contrast to other major mineral mining. Splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy buyers. Occasionally hydraulic excavators are attached with rock breakers for fragmentation to avoid secondary blasting. The primary boulders thus splitted are removed from the pits by excavators and further made to smaller sizes by rock breakers attached in excavators. The process diagram is provided in Figure 2.7. The Topography, Geological, Year wise Development and Production

Plan and Sections are given in Figure 2.8.

FIGURE 2.7 - PROCESS FLOW DIAGRAM

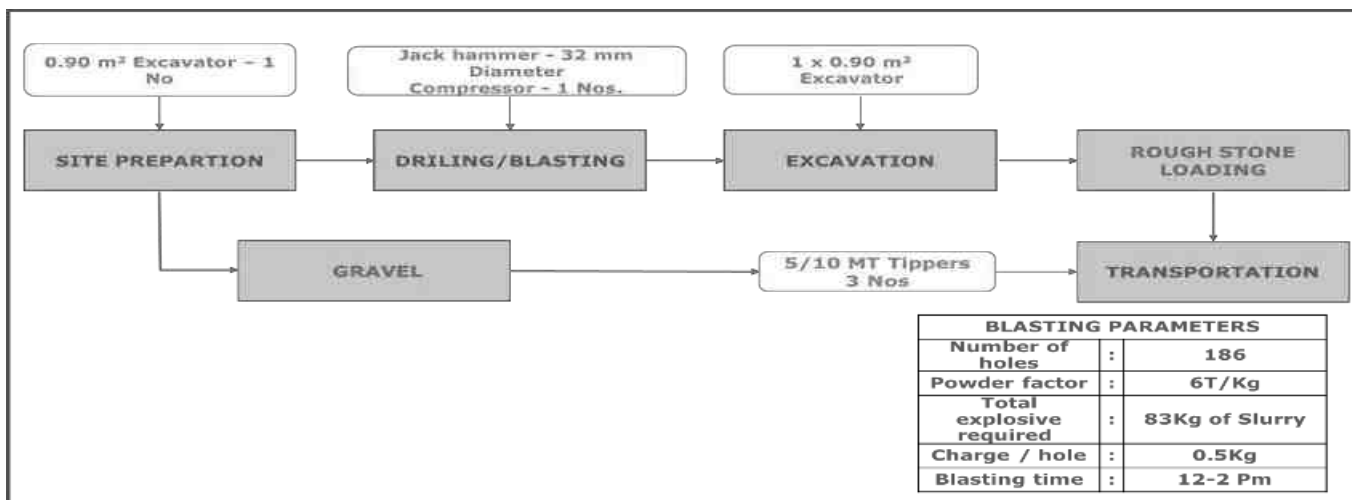


TABLE 2.7 – DETAILS OF MACHINERY

S. NO	NAME OF THE EQUIPMENT	CAPACITY	REQUIREMENT
1	Jack hammer	1	32 mm Dia
2	Compressor	1	-
3	Excavator	1	0.9 Cu.m
4	Tippers	3	5 / 10 T

2.8.2 DRILLING AND BLASTING PARAMETERS

Drilling and Blasting will be carried out as per parameters given below,

TABLE 2.8 - DRILLING AND BLASTING PARAMETERS	
Diameter of the hole	32-36 mm
Spacing	0.6m
Depth	1 to 1.5 m
Burden of hole	0.6m
Pattern of hole	Zigzag
Inclination of hole	70° from horizontal
Number of holes	186
Powder factor	6Ts/Kg of Explosives
Total explosive required	83 Kg slurry Explosives
Charge / hole	0.5Kg
Blasting time	12-2Pm

2.8.3 TYPE OF EXPLOSIVE

Small Dia, 25mm slurry explosive are proposed for shattering and heaving effect for removal of Rough Stone. No deep hole drilling or primary blasting is proposed.

2.8.4 STORAGE OF EXPLOSIVES

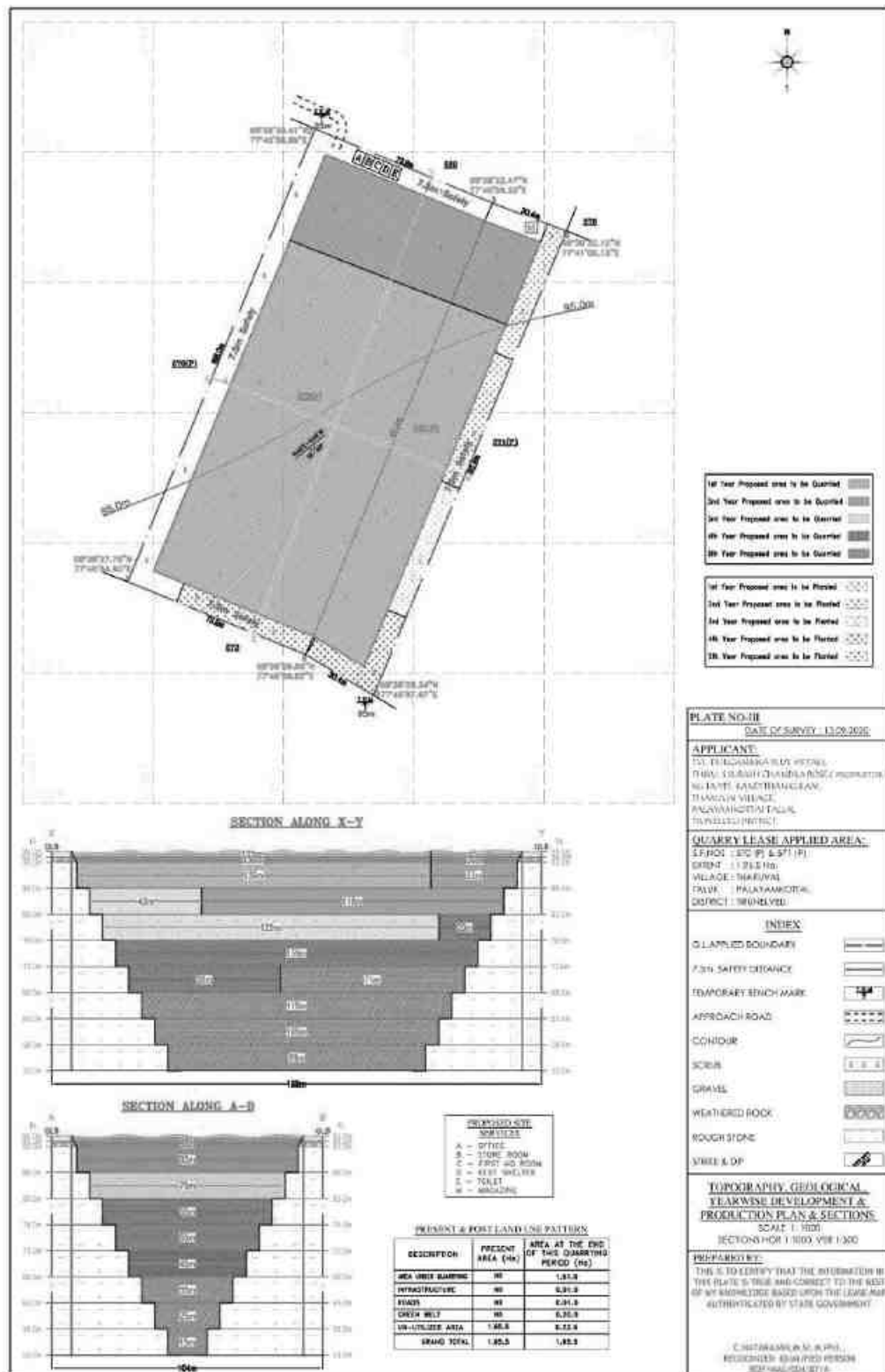
No proposal for storage of explosives within the project area, the applicant will engage authorized explosive agency to carry out the blasting and it will be supervised by competent and statutory foreman/ mines manager as per DGMS guidelines.

2.8.5 PRODUCTION SCHEDULE

The year wise production schedule up to lease period of 5 years (Depth -42m BGL) is given below,

TABLE 2.9 - YEAR WISE PRODUCTION PLAN									
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m³	Gravel in m³	Weathered Rock in m³	Mineable reserve of Rough stone in m³
I	XY-AB	I	137	88	1	12056	12056		
		II	136	86	1	11696		11696	
		III	136	85	5	57800			57800
	Total						12056	11696	57800
II	XY-AB	I	35	88	1	3080	3080		
		II	34	86	1	2924		2924	
		III	33	85	5	14025			14025
		IV	116	75	5	43500			43500
	Total						3080	2924	57525
III	XY-AB	IV	43	75	5	16125			16125
		V	129	65	5	41925			41925
	Total								58050
IV	XY-AB	V	20	65	5	6500			6500
		VI	139	55	5	38225			38225
		VII	58	45	5	13050			13050
	Total								57775
V	XY-AB	VII	71	45	5	15975			15975
		VIII	119	35	5	20825			20825
		IX	109	25	5	13625			13625
		X	99	15	5	7425			7425
	Total								57850
Grand Total							15136	14620	289000

FIGURE 2.8 – TOPOGRAPHY, GEOLOGICAL, YEAR WISE DEVELOPMENT AND PRODUCTION PLAN AND SECTIONS



2.8.6 DISPOSAL OF WASTE

There is no waste generation anticipated in this quarry operation since the entire excavated material will be utilized. Even the overburden in the form of Gravel after excavation will be temporarily preserved if necessary and marketed to needy customers.

2.9 CONCEPTUAL MINING PLAN / FINAL MINE CLOSURE PLAN

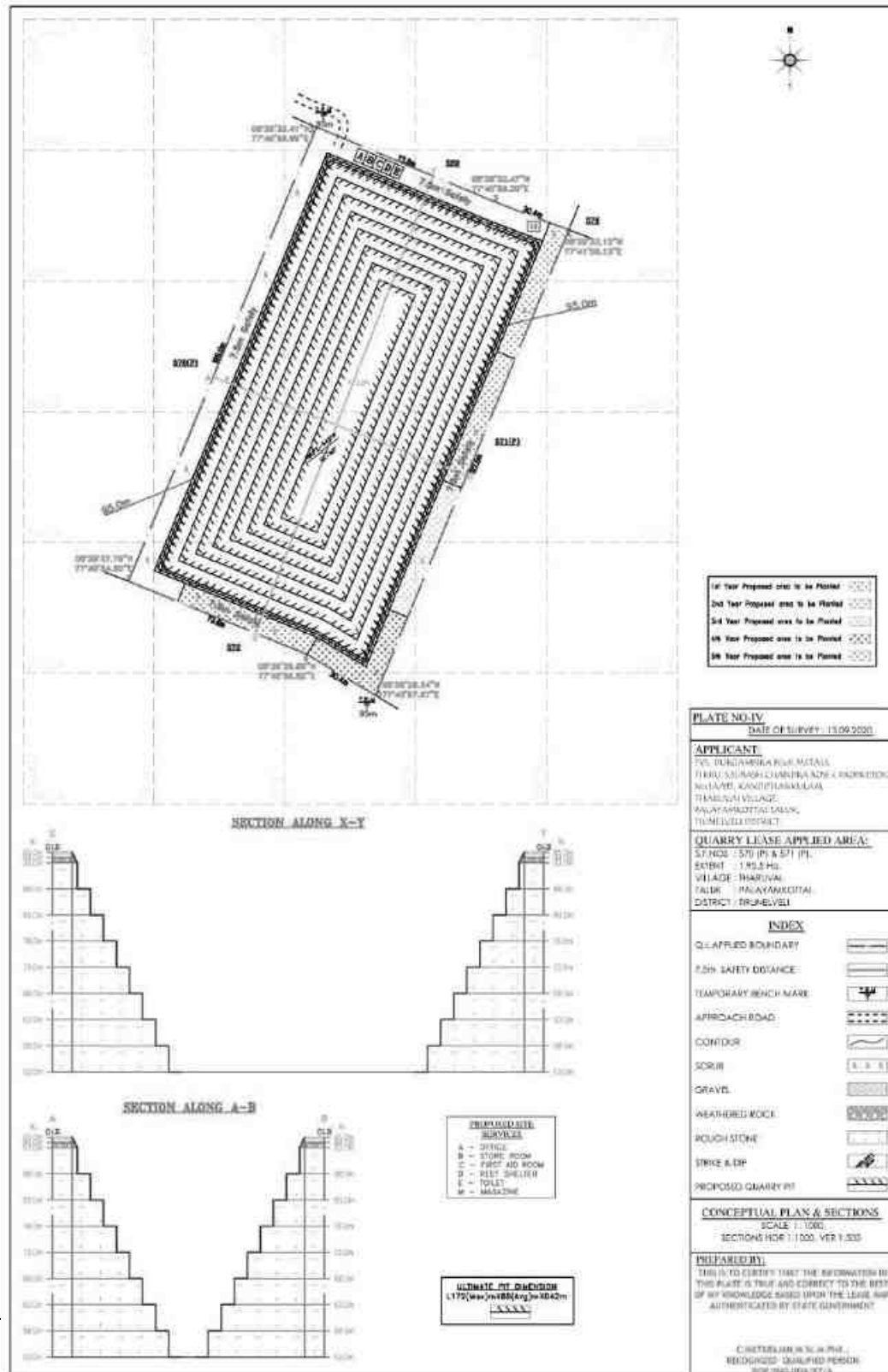
Conceptual mining plan is prepared with an object of five years of systematic development of bench layouts, selection of ultimate pit limit, depth of quarrying, ultimate pit slope, selection of sites for construction of infrastructure etc. The ultimate pit size is designed based on certain practical parameters such as economical depth of mining, safety zones, permissible area, etc. The Conceptual plan & cross sections are given in Figure 2.9.

TABLE 2.10 - ULTIMATE PIT DIMENSION			
Pit	Length in m (Max)	Width in m (Max.)	Depth in m (Max.)
I	172	88	42m BGL

Table 2.11 - POST MINING LAND USE PATTERN		
Description	Present Area in Ha.	Area in use during the quarrying period (Ha)
Quarrying pit	Nil	1.51.0
Infrastructure	Nil	0.01.0
Roads	Nil	0.01.0
Greenbelt	Nil	0.20.0
Unutilized	1.95.5	0.22.5
Total	1.95.5	1.95.5

At the end of life of mine, the excavated mine pit / void of 1.51.0 Ha will act as artificial reservoir for collecting rain water and helps to meet out the demand or crises during drought season. After mine closure the greenbelt (0.20.00 Ha.) will be developed along the safety barrier and top benches and 0.02 ha are approach road and Infrastructure. The quarried pit will be fenced by using Barbed wire fencing to prevent inherent entry of public and cattle.

FIGURE 2.9 - CONCEPTUAL PLAN AND CROSS SECTION



2.10 PROJECT REQUIREMENT

2.10.1 WATER REQUIREMENT AND SOURCE

The total water requirement estimated for the quarry is 4.0 KLD. The required water will be procured from outside agencies initially and later rainwater harvested in the mine pit shall be used other than drinking purpose.

Table 2.12 DETAILS OF WATER REQUIREMENT	
Activity	Water Requirement in KLD
Drinking & Domestic	0.9
Dust Suppression	1.9
Green belt	1.2
Total	4.0

2.10.2 POWER REQUIREMENT& ITS SOURCE

All the equipment will be diesel operated. No electricity is needed for mining operation. The minimum power requirement for office, etc., will be met from state grid.

2.10.3 EMPLOYMENT GENERATION

The project will provide employment opportunities totally to 13 persons permanently and 8 persons temporarily.

TABLE 2.13 - EMPLOYMENT GENERATION		
Skilled	Operator	8 No.
	Mechanic	1 No.
	Mines Manager/ Mate	1 No.
Semi-Skilled	Driver	3 No.
Unskilled	Musdoor/ Labours	8 Nos.
Total		21 Nos.

2.10.4 INFRASTRUCTURE REQUIREMENT

This is a proposed project. Site services like mine office, first aid room, rest shelters, toilets etc. will be provided as semi-permanent structures.

2.10.5 PROJECT COST

The total project cost of this project is Rs.95,39,000/-. The budget of the project is given below.

TABLE 2.14 - BUDGET OF THE PROJECT

A. FIXED ASSET COST	
Particulars	Amount
Land cost	7.82 Lakhs
First aid room and accessories	1.00 Lakhs
Labour Shed	1.00 Lakhs
Sanitary Facility	1.00 Lakhs
Total	10.82 Lakhs
B. OPERATIONAL COST	
Machineries	60.00 Lakhs
Fencing cost	1.50 Lakhs
Total	61.50 Lakhs
C. EMP COST (FOR 5 YEARS)(Refer section 10.5, Chapter 10)	
Capital cost	7.07 Lakhs
Recurring Cost	11.00 Lakhs
Total	18.07 Lakhs
D. CER COST	
Total	5.00 Lakhs
Grand Total (A+B+C+D)	95.39 Lakhs

2.10.6 PROJECT IMPLEMENTATION SCHEDULE

The proponent proposes to implement the production immediately after obtaining all the statutory approvals. The commercial operation will commence after the grant of Environmental Clearance. CTO and CTE will be obtained from the Tamil Nadu State Pollution Control Board. The conditions imposed during the Environmental Clearance will be compiled before the start of mining operation. Expected project implementation schedule is provided below.

This is a tentative schedule subject to various factor, hence unforeseen variations may occur.

TABLE 2.15 - PROPOSED SCHEDULE OF IMPLEMENTATION

Activities	Months					
	Zero Date	1	2	3	4	5
Obtaining Environmental Clearance						
Obtaining Consent from State Pollution Control Board						
Lease Execution						
Equipment mobilization and Commencement of Mining activity after following all the Statutory Requirements						

3.0 DESCRIPTION OF THE ENVIRONMENT

3.1 INTRODUCTION

As a precursor for the prediction of various types of environmental impacts likely to arise due to implementation of the project, it is essential to establish the baseline environmental setting of the project. Details of the baseline environmental parameters are required for decision making for the project design, implementation and operation from the environmental point of views. The data is to be generated through primary data collection (direct monitoring) and secondary sources (published data).

This chapter describes the environmental baseline data of core zone and surrounding areas of the project. The environmental baseline data includes the physical environment (comprising climate & meteorology, air, water, Noise and land components), biological environment and socio-economic environment, which may get affected due to this proposed project.

3.2 STUDY AREA

The study area has been divided into two zones, namely, core and buffer zones. Core zone is considered as the total lease area of mine lease, while buffer zone encompasses an area of 10 km radius distance from the periphery of core zone. This chapter incorporates the description of existing environmental status in an area encompassed within 10 km radius from the boundary of mine lease. The environmental data for the following Environmental components were collected in the study area:

- Micro-meteorological monitoring in one of the representative locations.
- Ambient air quality study comprising gaseous, particulate matter at 6 different locations.
- Water quality analysis in 6 different locations (Ground Water).
- Noise levels monitoring in 6 different locations
- Soil quality analysis in 6 locations.
- Flora & Fauna status.
- Land use & Land Cover.
- Hydrological study.
- Socio-economic survey.

3.3 STUDY PERIOD

The studies and data collection have been carried out systematically and meticulously as per relevant IS codes, CPCB and MoEF&CC guidelines. The data collected during Summer Season (March 2024 to May 2024) for the above said parameters are given in this report.

3.4 MONITORING LAB

The baseline information for air, water, noise, and soil was analysed by M/s. Shrient Analytical and Research Labs Pvt Ltd, # 416/15, Dharga Road, Perungalathur, West Tambaram, Chennai – 600 045. (Accredited by NABL as ISO/IEC/17025:2017) between March 2024 to May 2024.

3.5 ENVIRONMENTAL SETTINGS OF THE PROJECT

The Environmental settings of the project covering 10km radius of study area is given in Table 3.1. The study area map is given in Figure 3.1 and satellite image showing 10 km radius is given in Figure 3.2.

TABLE 3.1 - ENVIRONMENTAL SETTINGS OF THE STUDY AREA – 10 KM RADIUS		
SL.No	PARTICULARS	DETAILS
1	Nearest highway	(SH-40) Tirunelveli - Tenkasi Road – 3.0 Km (N) (NH-44) Salem - Kanniyakumari Road – 2.0 Km (SE)
2	Nearest Railway station	Sengulam RS - 3.7 km (S)
3	Nearest Airport	Tuticorin – 39.0km (NE)
4	Nearest major water bodies	Tank – 410 m (SE), Pachaiyar River - 2.5 km (W), Thamirabarani River – 4.74 km (NW), Manimuttar Canal - 8.5 km (S), Kodagan Channel - 6.9 km (NW)
5	Nearest town/City	Tirunelveli - 9.0 Km (N)
6	Nearest Habitation	Tharuvai - 575m (S)
7	Hills / valleys	Nil within 10m radius
8	Notified Archaeologically important places, Monuments	Nil within 10m radius
9	Local Places of Historical and Tourism	Nil within 10m radius

TABLE 3.1 - ENVIRONMENTAL SETTINGS OF THE STUDY AREA – 10 KM RADIUS

SL.No	PARTICULARS	DETAILS
	Interest	
10	Environmental sensitive areas, Protected areas as per Wildlife Protection Act, 1972 (Tiger reserve, Elephant reserve, Biospheres, National parks, Wildlife sanctuaries, community reserves and conservation reserves)	Nil within 10m radius
11	Reserved / Protected Forests	Muttur Malai Wolf Hill R.F. – 8.3 km (NE)
12	Defence Installations	Nil within 10 km radius
13	Seismic Zone	Zone – II (Least Active)

FIGURE 3.2 – GOOGLE IMAGE OF THE PROJECT AREA (10 KM RADIUS)



3.6 EXISTING ENVIRONMENTAL SCENARIO

3.6.1 MICRO- METEOROLOGY

Meteorology is the key to understand the Air quality. The essential relationship between meteorological condition and atmospheric dispersion involves the wind in the broadest sense. Wind fluctuations over a very wide range of time, accomplish dispersion and strongly influence other processes associated with them.

3.6.1.1 CLIMATE AND RAINFALL DATA

RAINFALL:

The district receives the rain under the influence of both southwest and northeast monsoons. The Northeast monsoon chiefly contributes to the rainfall in the district. Rainfall data from IMD stations were utilized and a perusal of the data shows that the normal annual rainfall over the district is 879 mm. It is the maximum around Senkottai, Sankarankoil and all along the coast and it decreases towards inland. The areas around Ambasamudram, Tirunelveli and Kadayanallur receive minimum rainfall.

TEMPERATURE:

The district enjoys a Sub tropical climate. The period from May to June is generally hot and dry. The weather is pleasant during the period from December to January. The relative humidity is on an average between 79% and 84%. The mean minimum temperature is 22.9°C and mean maximum daily temperature is 33.5°C respectively

TABLE 3.2 - RAINFALL DATA					
Actual Rainfall in mm					Normal Rainfall in mm
2017	2018	2019	2020	2021	
228.94	438.46	828.22	618.04	607.58	736.9

SEISMIC SENSITIVITY:

The proposed project site falls in the seismic Zone II, low damage risk zone as per BMTPC, Vulnerability Atlas of Seismic zone of India IS: 1893 – 2002 (Refer Figure 3.3).

TABLE 3.3 - METEOROLOGICAL DATA RECORDED AT SITE			
Sl.no	Parameters	Min	Max
1	Temperature in °c	23.9	40.2
2	Humidity in %	33.0	99
3	Wind speed in km/hr	<1.8	29.9
4	Predominant wind direction from	W, NW	

FIGURE 3.3 - SEISMIC MAP OF INDIA

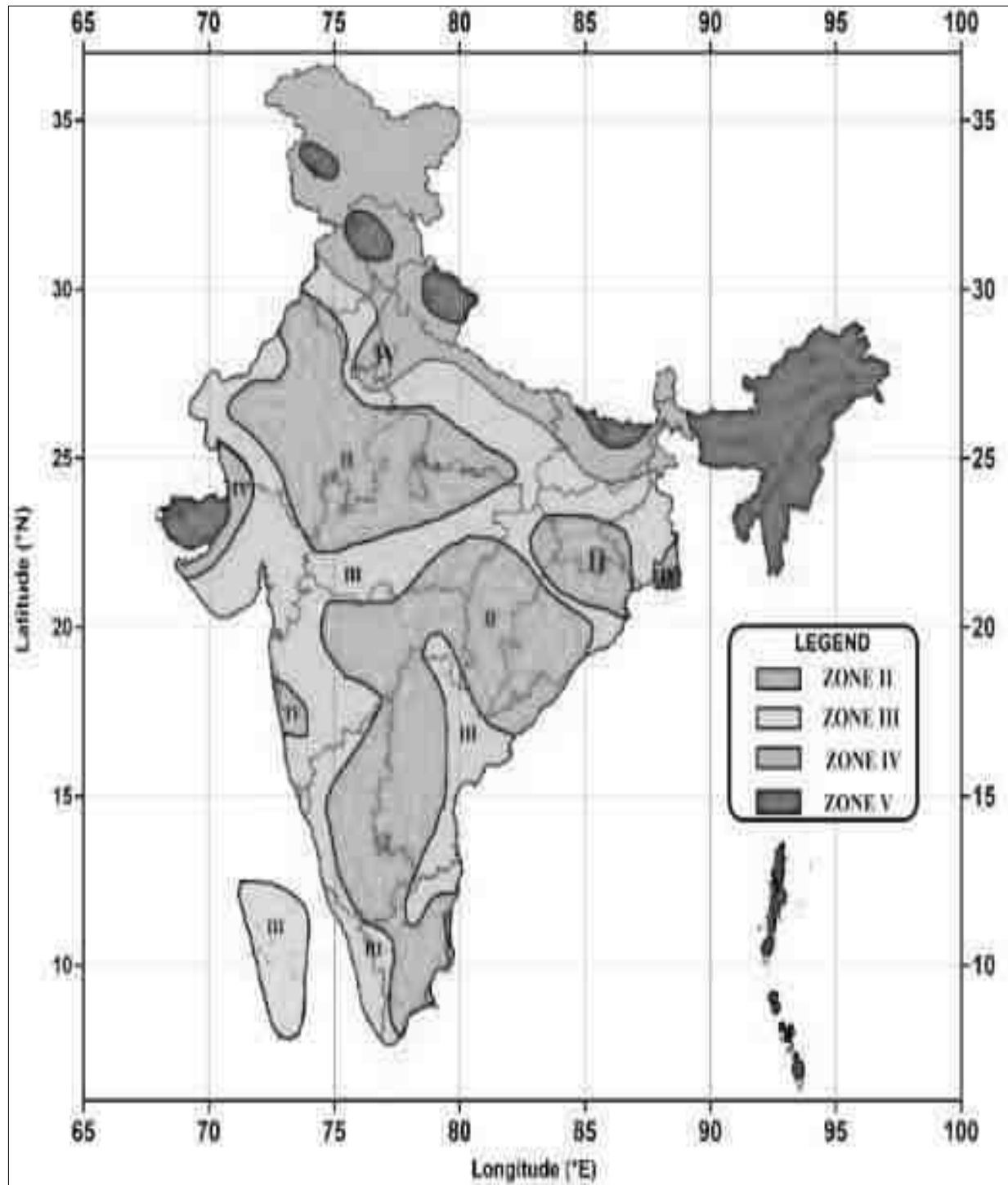
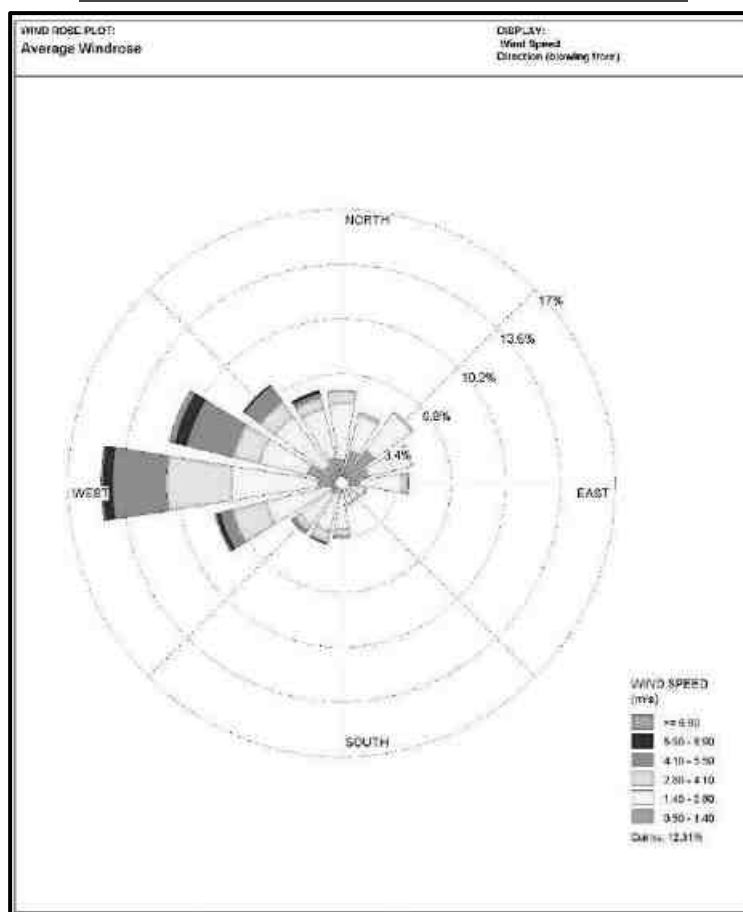


FIGURE 3.4 - WIND ROSE DIAGRAM



3.6.2.1 SAMPLING & ANALYTICAL TECHNIQUES

Parameter	Method
PM2.5	Gravimetric Method Beta -attenuation Method
PM10	Gravimetric Method Beta -attenuation Method
SO2	IS-5182 Part II (Improved West & Gaeke method)
NOx	IS-5182 Part II (Jacob & Hochheiser modified method)

3.6.2.2 FREQUENCY AND PARAMETERS FOR SAMPLING

Ambient air quality monitoring has been carried out with a frequency of two samples per week at Six (6) locations, adopting a continuous 24 hourly (3 shift of 8-hour) schedule for the period March to May, 2024. The baseline data of ambient air has been generated for PM10, PM 2.5, Sulphur Dioxide (SO₂), Nitrogen Dioxide (NO₂) and Carbon Monoxide Monitoring has been carried out as per the CPCB, MoEF guidelines and notifications.

It was ensured that the equipment was placed preferably at a height of at least 1.8 to 2.2 m above the ground level at each monitoring station, for negating the effects of wind-blown ground dust. The equipment was placed at open space free from trees and vegetation which otherwise act as a sink of pollutants resulting in lower levels in monitoring results.

3.6.2.3 AMBIENT AIR QUALITY MONITORING STATIONS

Six (6) monitoring stations were set up in the study area as depicted in Figure 3.5 for assessment of the existing ambient air quality. Details of the sampling locations are as per given below

TABLE 3.4 – AMBIENT AIR QUALITY MONITORING LOCATIONS				
SI.NO	LOCATION CODE	LOCATION	DISTANCE FROM CORE ZONE (KM)	DIRECTION
1	A1	Near Mine Lease Area	-	-
2	A2	Adaimithipankulam	1.1 km	NE
3	A3	Kandithankulam	<0.6 km	SW
4	A4	Samathuvapuram	2.0 km	E
5	A5	Ponnakudi	3.3 km	SE
6	A6	Alankulam	1.0 km	SW

FIGURE 3.5 - AMBIENT AIR QUALITY MONITORING LOCATIONS

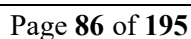
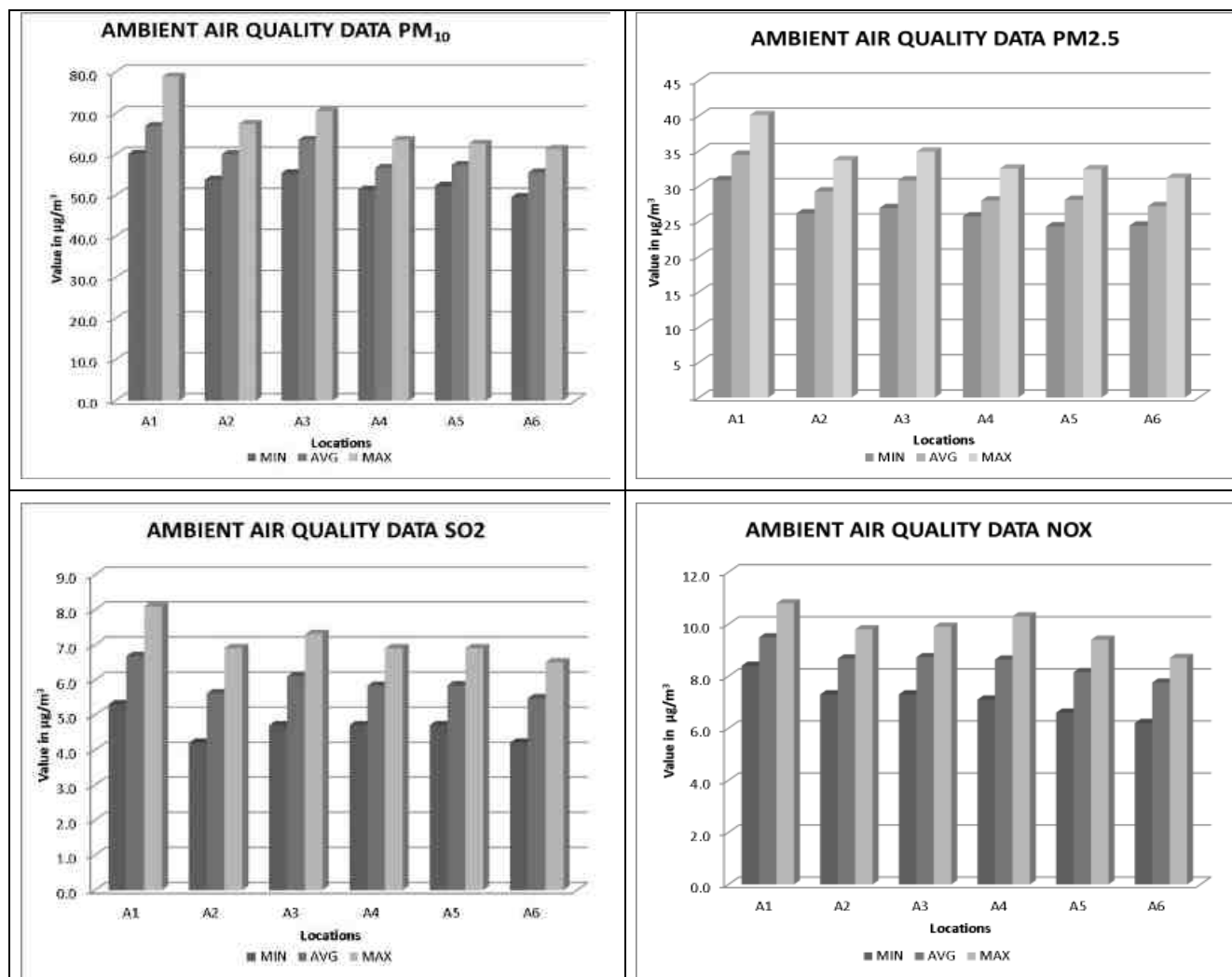


TABLE 3.5 - RESULTS OF AIR SAMPLING ANALYSIS IN 6 LOCATIONS

Station ID	Min	Max	Avg.
Particulate matter PM_{2.5} (µg/m³)			
AAQ-1	30.9	40.1	34.5
AAQ-2	26.1	33.7	29.3
AAQ-3	26.9	34.9	30.8
AAQ-4	25.7	32.5	28.0
AAQ-5	24.3	32.4	28.1
AAQ-6	24.4	31.2	27.2
CPCB NAAQS 2009 for PM _{2.5} - 60 µg/m ³			
Particulate matter PM₁₀ (µg/m³)			
AAQ-1	60.1	78.9	66.9
AAQ-2	53.8	67.4	60.0
AAQ-3	55.4	70.5	63.5
AAQ-4	51.4	63.5	56.7
AAQ-5	52.3	62.6	57.4
AAQ-6	49.6	61.3	55.6
CPCB NAAQS 2009 for PM ₁₀ - 100 µg/m ³			
Sulphur Di-oxide as SO₂ (µg/m³)			
AAQ-1	5.3	8.1	6.7
AAQ-2	4.2	6.9	5.6
AAQ-3	4.7	7.3	6.1
AAQ-4	4.7	6.9	5.8
AAQ-5	4.7	6.9	5.8
AAQ-6	4.2	6.5	5.5
CPCB NAAQS 2009 for SO ₂ - 80 µg/m ³			
Oxide of Nitrogen as NO₂ (µg/m³)			
AAQ-1	8.4	10.8	9.5
AAQ-2	7.3	9.8	8.7
AAQ-3	7.3	9.9	8.7
AAQ-4	7.1	10.3	8.6
AAQ-5	6.6	9.4	8.2
AAQ-6	6.2	8.7	7.8
CPCB NAAQS 2009 for NO ₂ - 80 µg/m ³			

FIGURE 3.6 - GRAPHICAL REPRESENTATION OF AIR QUALITY DATA



3.6.2.4 DISCUSSION

From the table it is seen that, in the ambient air, the PM₁₀ values were in the range of 49.6 – 79.8 µg/m³. PM_{2.5} values were in the range of 24.3 – 40.1 µg/m³. SO₂ levels were ranging from 4.2 – 8.1 µg/m³. NO₂ levels were ranging from 6.2 – 10.8 µg/m³. While comparing with the NAAQ Norms laid by MoEF, all monitored values of PM₁₀, PM_{2.5}, SO₂ and NO₂ were found to be well within the prescribed standards. The CO values in the all locations found to be below detectable limit (DL – 1144 µg/m³). Silica values in the study area are found to be below detectable limit (DL – 0.05mg/m³) which is well within the prescribed limit of 5mg/m³. The baseline value of ambient air quality in the monitored locations also reflect the cumulative impact due to the nearby mining, crushers, other activities.

3.6.3 WATER ENVIRONMENT

The water resources, both surface and groundwater play a significant role in the development of the area. The purpose of this study is to assess the water quality characteristics for critical parameters and evaluate the impacts on agricultural productivity, domestic community usage, recreational resources and aesthetics in the vicinity. The water samples were collected and transported as per the standard guidelines issued by CPCB for analysis.

3.6.3.1 METHODOLOGY

Reconnaissance survey was undertaken and monitoring locations were selected based on:

- Location of the major water bodies
- Location of project site, their water intake and effluent disposal locations
- Likely areas that can represent baseline conditions
- The water samples were collected and were analyzed for physical, chemical, and biological characteristics as per guidelines issued by IS code No.10500/2012.

3.6.3.2 SURFACE WATER

The following water bodies are located within 10 km radius from the proposed project site:

- Tank – 410 m (SE),
- Pachaiyar River - 2.5 km (W),
- Thamirabarani River – 4.74 km (NW),

- Manimuttar Canal - 8.5 km (S),
- Kodagan Channel - 6.9 km (NW)

The area is studded with few tanks that serve as the source for agriculture and also their surplus feeds adjoining tanks. 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

3.6.3.3 GROUND WATER

GNEISSIC TYPE

Groundwater occurs under water table or phreatic conditions in weathered, jointed and fractured formations. The pore space developed in the weathered mantle acts as shallow granular aquifers and forms the potential water bearing and yielding zones. Water table is very shallow in river, canal and tank irrigated regions whereas it is somewhat deeper in other regions.

CHARNOCKITE TYPE

Groundwater occurs under water table conditions but the intensity of weathering, jointed and fractured formations and its development is much less when compared to gneissic formations. As a result, these are not termed, as potential water bearing zones excepting in a region where the intensity of weathering coupled with development of joints and fractures is greater. Sometimes the occurrence of Kankar material over charnockite hampers the permeability and well yielding capacity.

Ground Water Level Status in Palayamkottai							
S. No.	Firka	Net Annual Ground water availability	Existing gross ground water consumption for irrigation	Existing gross ground water consumption for domestic and industrial water supply	Existing gross ground water consumption for all uses	Stage of ground water development	Category
1	Palayamkottai	811.75	172.80	8.91	181.71	22	SAFE

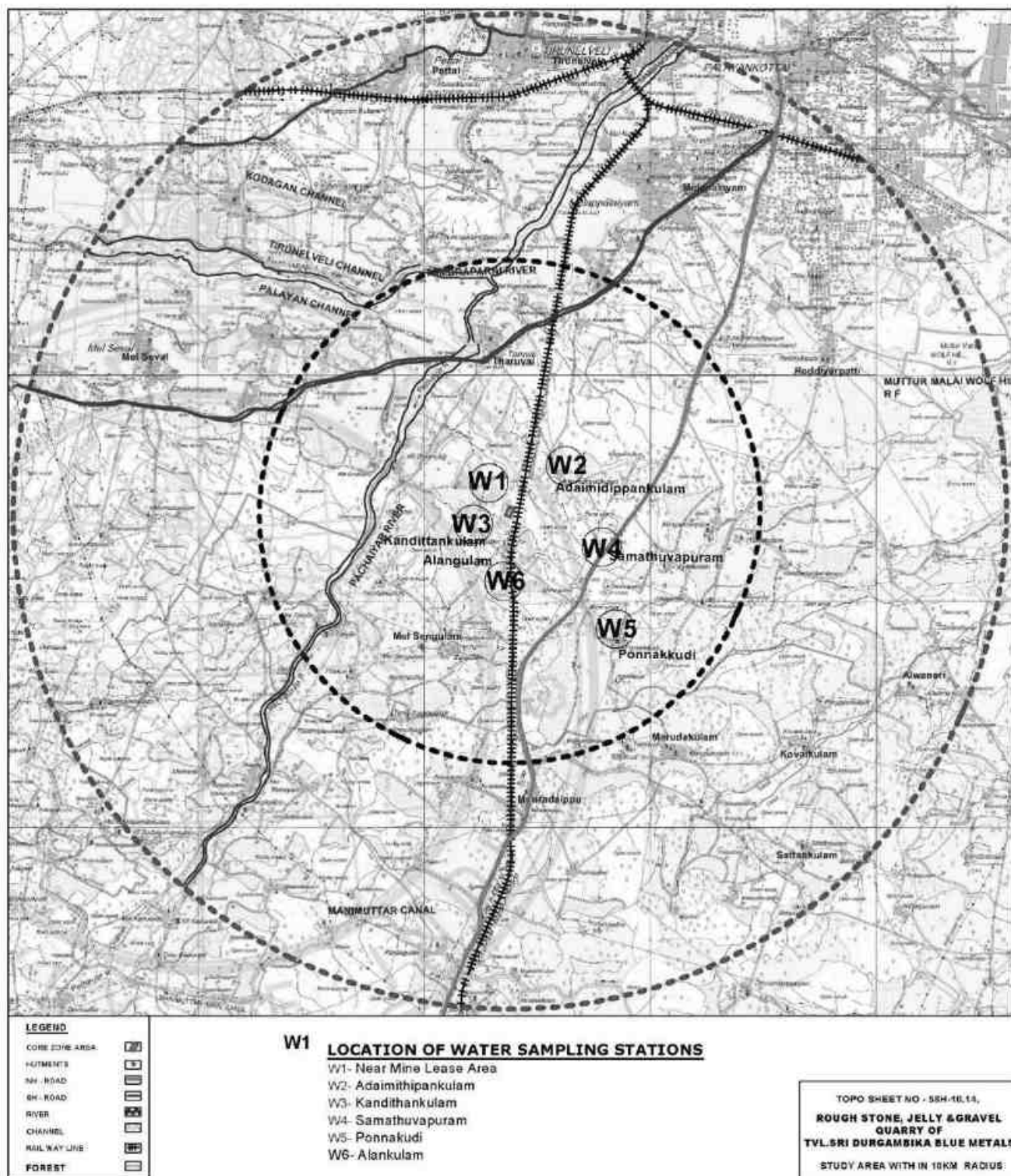
3.6.3.4 SAMPLING LOCATIONS

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 ground water. The samples were analysed as per the procedures specified by CPCB, IS- 10500:2012. The water

sampling locations are given in Table 3.6 and Figure 3.7.

TABLE 3.6 - WATER SAMPLING LOCATIONS		
S.NO	Location Code	Monitoring Locations
1.	W1	Near Mine lease area - Borewell
2.	W2	Adaimithipankulam - Borewell
3.	W3	Kandithankulam - Borewell
4.	W4	Samathuvapuram- Borewell
5.	W5	Ponnakudi - Borewell
6.	W6	Alankulam- Borewell

FIGURE 3.7 – WATER MONITORING LOCATIONS



DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE, JELLY AND GRAVEL QUARRY OF TVL. SRI DURGAMBIKA BLUE METALS, PROP. THIRU.S.SUBASH CHANDRA BOSE OVER AN EXTENT OF 1.95.5 HA LOCATED AT S.F.NOS. 570(P) & 571(P) OF THARUVAI VILLAGE, PALAYAMKOTTAI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

TABLE 3.7 - WATER SAMPLING RESULTS

TABLE 3.7 - WATER SAMPLING RESULTS										
Si. No	Parameters	Unit	W1-Near Mine Lease Area	W2-Adaimithipankulam	W3-Kandithankulam	W4-Samathuvapuram	W5-Ponnakudi	W6-Alankulam	*Limits	
									Acceptable	**Permissible
Physical Parameters										
1	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
2	Turbidity	NTU	<1	<1	<1	<1	<1	<1	1	5
3	pH at 25 °C	-	7.41	7.53	7.35	7.74	7.13	7.38	6.5-8.5	No Relaxation
4	Electrical Conductivity	(µmhos/cm)	739.4	798.3	629.2	708.6	872.1	1167	-	-
Chemical Parameters										
5	Total Dissolved Solids	mg/L	452	468	389	433	586	704	500	2000
6	Total hardness as CaCO3	mg/L	224	257	174	257	451	469	200	600
7	Calcium as Ca	mg/L	54	67.3	38.3	50.8	89.7	98.5	75	200
8	Magnesium as Mg	mg/L	26	23.7	16.1	29.3	59.8	51.2	30	100
9	Calcium as CaCO3	mg/L	131	159	96.4	139	219	237	-	-
10	Magnesium as CaCO3	mg/L	93.0	98.0	77.6	118	232	232	-	-
11	Total alkalinity as CaCO3	mg/L	226	219	172	179	332	258	200	600
12	Chloride as Cl-	mg/L	141	132	144	134	92.4	193	250	1000
13	Free Residual chlorine as Cl-	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)	0.2	1.0
14	Sulphates as SO4	mg/L	53.2	49.9	23.2	52.4	191	102	200	400
15	Iron as Fe	mg/L	0.06	0.02	0.04	0.06	0.17	0.06	0.3	No Relaxation
16	Nitrate as NO3	mg/L	BDL (D.L - 1.0)	BDL (D.L - 1.0)	1.49	1.84	BDL (D.L - 1.0)	1.89	45	No Relaxation
17	Fluoride as F	mg/L	0.45	0.48	0.29	0.41	0.72	0.48	1.0	1.5
18	Manganese as Mn	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)	0.1	0.3

3.6.3.5 DISCUSSION

The results of the 6 sample analysis (Bore Well water) are shown in Table 3.7.

The pH values of bore well waters were ranging in between 7.13-7.74. TDS values were in the range of 389-704mg/L. Calcium (as Ca) and Magnesium (as Mg) values were in the range of 38.3 – 98.5 mg/L and 16.1 – 59.8 mg/L respectively. Chloride values were ranging from 92.4 - 193mg/L. Iron content was found to be in the range 0.02 – 0.17 mg/L.

From the above it is found that the water quality of ground water is found to be within the prescribed Permissible limits of IS: 10500 Norms in the absence of an alternative source as per Drinking Water Specifications. However, the TDS, Total Hardness, Calcium and Total Alkalinity values of certain water samples though they are above acceptable limits it is found to be within the prescribed Permissible limits of IS: 10500 Norms in the absence of an alternative source as per Drinking Water Specifications.

3.6.4 NOISE ENVIRONMENT

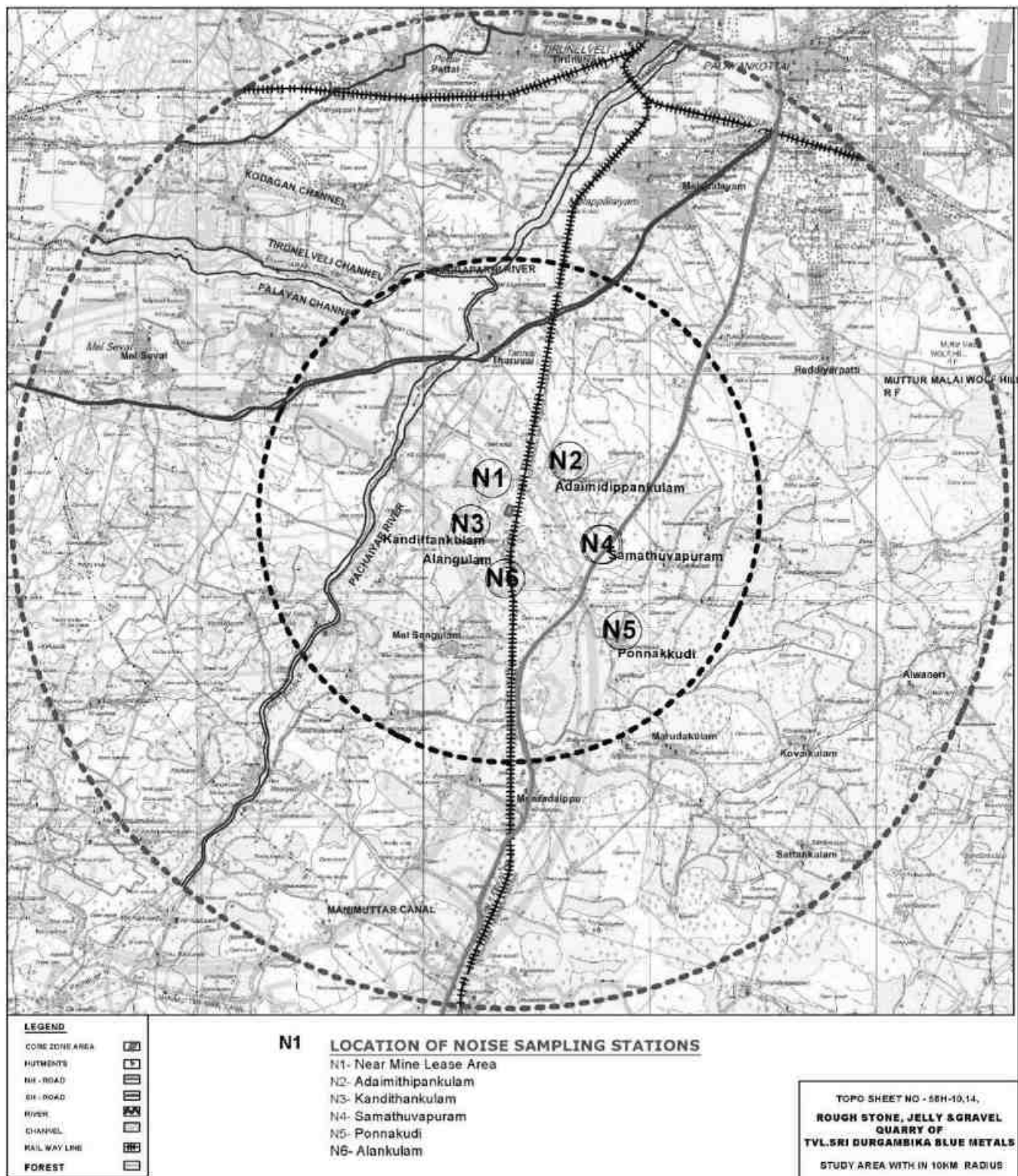
The vehicular movement on road and mining activities is the major sources of noise in study area, the environmental assessment of noise from the mining activity and vehicular traffic can be undertaken by taking into consideration various factors like potential damage to hearing, physiological responses, and annoyance and general community responses.

3.6.4.1 SAMPLING LOCATIONS

In order to assess the ambient noise levels within the study area, noise monitoring was carried out at Six (6) locations. The noise level of monitoring locations was carried out by covering 10 km radius of the project area. A noise monitoring methodology was chosen such that it best suited the purpose and objectives of the study. The noise monitoring locations are given in Figure 3.8 and in below table.

TABLE 3.8 - NOISE MONITORING LOCATIONS				
SI.NO	LOCATION CODE	LOCATION	DISTANCE FROM CORE ZONE(KM)	DIRECTION
1	N1	Near Mine Lease Area	-	-
2	N2	Adaimithipankulam	1.1 km	NE
3	N3	Kandithankulam	<0.6 km	SW
4	N4	Samathuvapuram	2.0 km	E
5	N5	Ponnakudi	3.3 km	SE
6	N6	Alankulam	1.0 km	SW

FIGURE 3.8 - NOISE MONITORING LOCATION



3.6.4.2 METHOD OF MONITORING

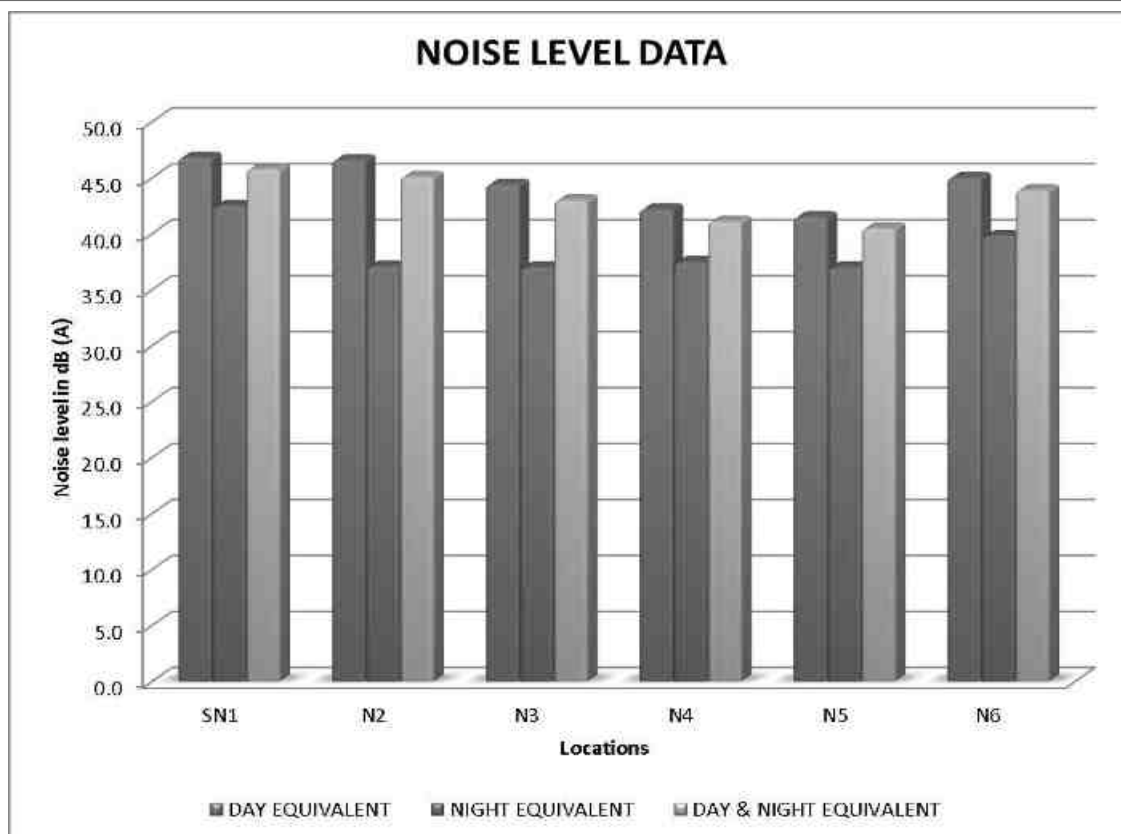
Noise levels were measured using sound level meter manufactured by (Model No - SL4001, Make - Lutron). Sound Pressure Level (SPL) measurements were measured at all locations where ambient air quality monitored; one reading for every hour was taken for 24 hours.

3.6.4.3 NOISE MONITORING RESULT

An analysis of the different Leq data obtained during the study period has been made. Variation was noted during the day-time as well as night-time. The results are presented in below Table 3.9.

TABLE 3.9 - NOISE MONITORING RESULTS

S. No	Location	Location Code	Day equivalent (dB)	Night equivalent (dB)	Permissible noise level standards by CPCB		Zone
					Day time (dB)	Night time (dB)	
1	Near Mine Lease Area	N1	43.4	38.2	75	70	Industrial Zone
2	Adaimithipankulam	N2	45.8	40.9	55	45	Residential Zone
3	Kandithankulam	N3	46.2	37.3			
4	Samathuvapuram	N4	45.0	40.2			
5	Ponnakudi	N5	41.9	37.3			
6	Alankulam	N6	44.6	39.1			



3.6.4.4 DISCUSSION

From the table it is observed that the day Equivalent Noise (Leq-d) level was ranging from 41.9 to 46.2 dB(A) and Night Equivalent Noise (Leq-n) level were ranging from 37.3 to 40.9dB(A). While comparing with the MoEF Norm of 55 dB(A) for day time and 45 dB(A) for night time in Residential areas, the monitored ambient noise levels are within the limit values. After commencement of mine operation, the anticipated noise level will be 52 dB – 65 dB in the N1 location. (Project Site). It is very negligible and within the prescribed standards of MoEF & CC and DGMS.

3.6.5 SOIL ENVIRONMENT

Soil quality of the study area is one of the important components of the land environment. The composite soil samples were collected from the study area and analyzed for different parameters. The locations of the monitoring sites are detailed in Table 3.10 and Figure 3.9.

3.6.5.1 MONITORING LOCATIONS

Soil samples were collected from 6 locations to assess the soil quality in and around the mines. Soil samples collected using sampling augers and field capacity apparatus.

TABLE 3.10 – SOIL SAMPLING LOCATIONS		
S.No	Location Code	Monitoring Locations
1	S1	Near Mine Lease Area
2	S2	Adaimithipankulam
3	S3	Kandithankulam
4	S4	Samathuvapuram
5	S5	Ponnakudi
6	S6	Alankulam

3.6.5.2 METHODOLOGY

For studying soil quality, sampling locations were selected to assess the existing soil conditions in and around the project site representing various land use conditions. The samples were collected by auger boring into the soil up to 90-cm depth. Three locations were selected for soil sampling on the basis of soil types, vegetative cover, industrial & residential activities including infrastructure facilities, which would accord an overall idea of the soil characteristics.

Composite grab samples of the topsoil were collected by specified depth, and mixed to provide a representative sample for analysis. They were stored in airtight Polythene bags and analyzed at the laboratory.

FIGURE 3.9 - SOIL SAMPLING STATIONS

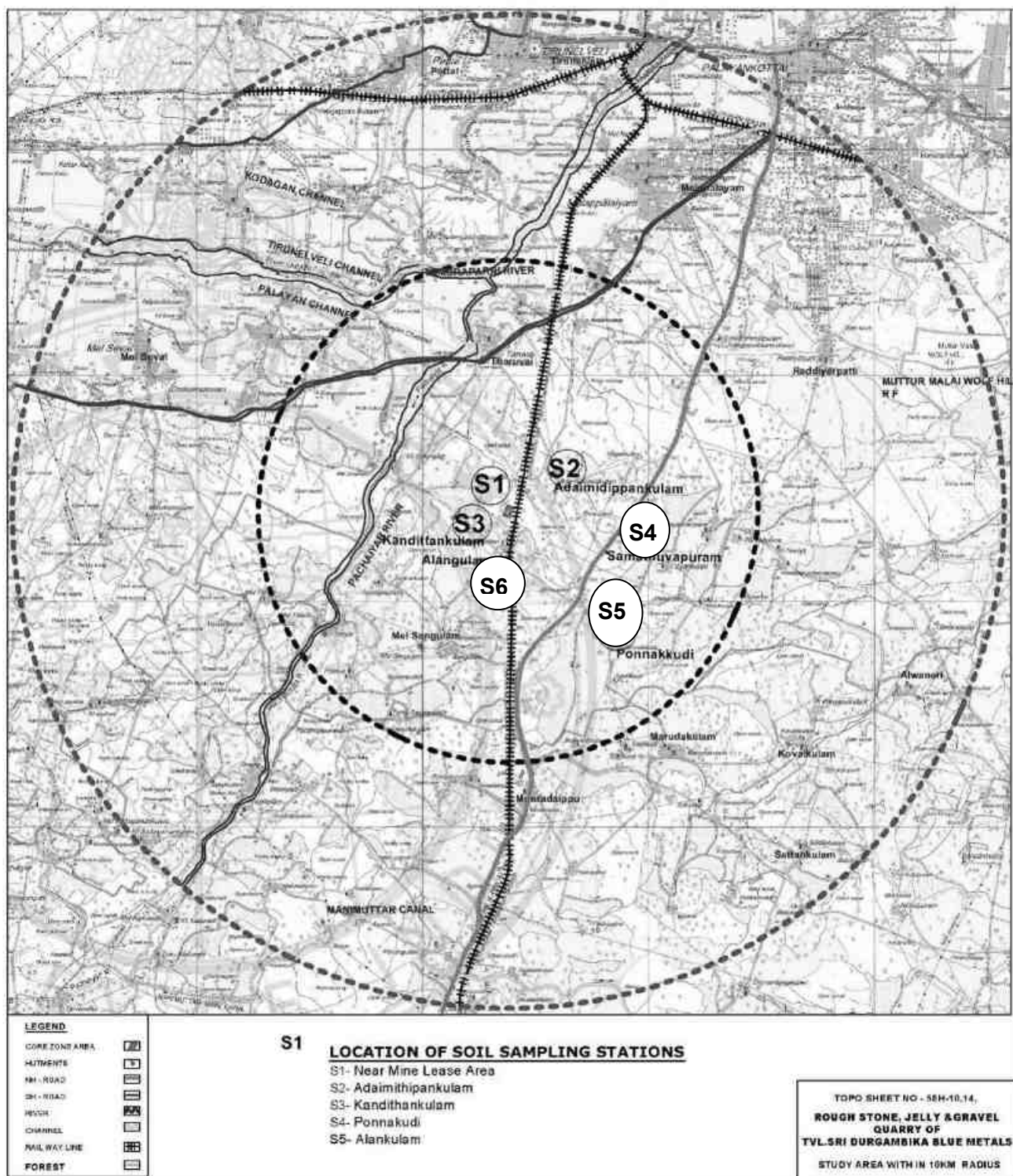


TABLE 3.11 - SOIL TESTING RESULT

SI. No.	Parameters	Unit	S1- Near Mine Lease Area	S2- Adaimithi pankulam	S3- Kandithankulam	S4- Samathuvapuram	S5- Ponnakudi	S6- Alankulam
1	pH at 25°C	-	6.32	7.38	7.67	6.98	7.14	6.57
2	Electrical Conductivity	(µmhos/cm)	108.2	134	92.43	73.12	121.4	48.36
3	Dry matter content	%	96.65	98.23	99.05	95.89	96.93	97.43
4	Water Content	%	3.35	1.77	0.95	4.11	3.07	2.57
5	Organic Matter	%	1.21	1.44	0.86	1.12	1.34	1.14
6	Soil texture	-	Sandy Clay loam	Silty Loam	Silty Clay Loam	Silty Clay Loam	Silty Clay Loam	Silty Clay Loam
7	Grain Size Distribution i. Sand	%	48.47	34.72	11.82	6.47	15.17	9.95
8	ii. Silt	%	18.06	49.94	61.18	66.74	46.86	47.26
9	iii. Clay	%	33.47	15.34	27.00	26.79	37.97	42.79
10	Phosphorous	µg/g	1.38	1.94	1.71	1.26	1.47	1.85
11	Sodium	mg/kg	552	439	394	362	417	494
12	Potassium	mg/kg	988	1195	704	791	968	1018
13	Total Nitrogen	mg/kg	134	178	116	99.8	78.2	103
14	Total Sulphur	%	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	%	18.5	19.4	18.2	31.4	17.4	22.3
16	Water holding capacity	%	38	29	34	32	33	30

3.6.5.3 SOIL TESTING RESULT

Results of the soil samples show that the pH values were found to be 6.32 to 7.67 and Electrical Conductivity values were ranging between 48.36 – 134.0 μ mhos/cm. Soils are generally clay Loam, sandy clay loam and silt clay loam types. Organic matter values were ranging between 0.86 – 1.44%. Total Nitrogen values were ranging between 78.2 - 178mg/kg. Phosphorus values were ranging between 1.26 – 1.94 μ g/g. Potassium values were ranging between 704 - 1195mg/kg. Sodium values were ranging between 362 - 552mg/kg. Total Sulphur values were observed to be BDL.

3.6.6 LAND ENVIRONMENT

The main objective of this section is to provide a baseline status of the study area covering 10km radius around the project periphery; so that temporal changes due to the mining activities on the surroundings can be assessed in future.

3.6.6.1 LAND USE PATTERN OF THE PROJECT AREA

The present and the post mining land use pattern is shown below.

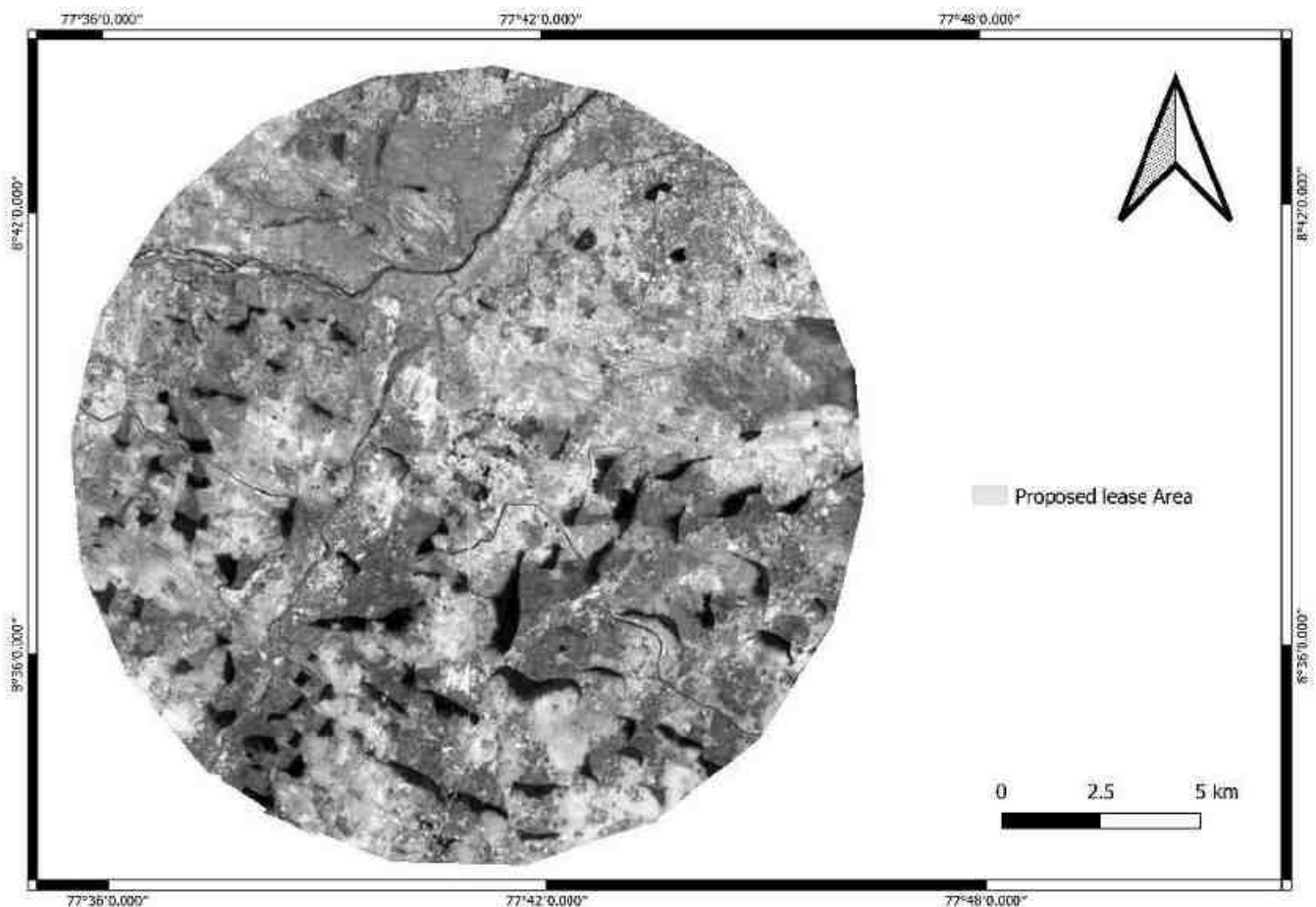
TABLE 3.12 - LAND USE PATTERN OF THE PROJECT SITE		
Description	Present Area in Ha.	Area in use during the quarrying period (Ha)
Quarrying Pit	Nil	1.51.0
Infrastructure	Nil	0.01.0
Roads	Nil	0.01.0
Green Belt	Nil	0.20.0
Unutilized	1.95.5	0.22.5
Total	1.95.5	1.95.5

At the end of life of mine, the excavated mine pit / void of 1.51.0 Ha. Will act as artificial reservoir for collecting rain water and helps to meet out the demand or crises during drought season. After mine closure the greenbelt (0.20.00 Ha.) will be developed along the safety barrier and top benches and 0.02 ha are approach road and Infrastructure.

3.6.6.2 LAND USE PATTERN OF THE STUDY AREA

For the present study on land use pattern of buffer area around the proposed Rough stone, Jelly and gravel quarry, an archived historical data of Landsat 8 data has been used as base data acquired on April 2021 (Figure 3.10) has been used to generate the require landuse map showing their spatial pattern within the buffer area. The 10 km radius map of study area was taken for analysis of Land use cover.

FIGURE 3.10 - LANDSAT 8 SATELLITE DATA OF THE STUDY AREA



The landuse categorization and nomenclature used in the present study is based on the national level landuse classification system, which is adopted for the entire country as recommended by National Remote Sensing Centre (NRSC), Department of Space, Government of India (Table 3.13).

Table 3.13 - MAJOR LANDUSE UNITS OF THE STUDY AREA

S.No	Major Category	Landuse unit
1	Built-Up Land	Village Town Industrial / Vacant Area
2	Agricultural Land	Crop Land Fallow Land Plantation Farm Land
3	Forest Land	Open Scrub Forest
4	Waste Land Mining Area	Land With Scrub Land Without Scrub Barren / Rocky/ Stony Waste Quarries / Abandoned Quarries
5	Waterbodies	Tanks Rivers / Streams

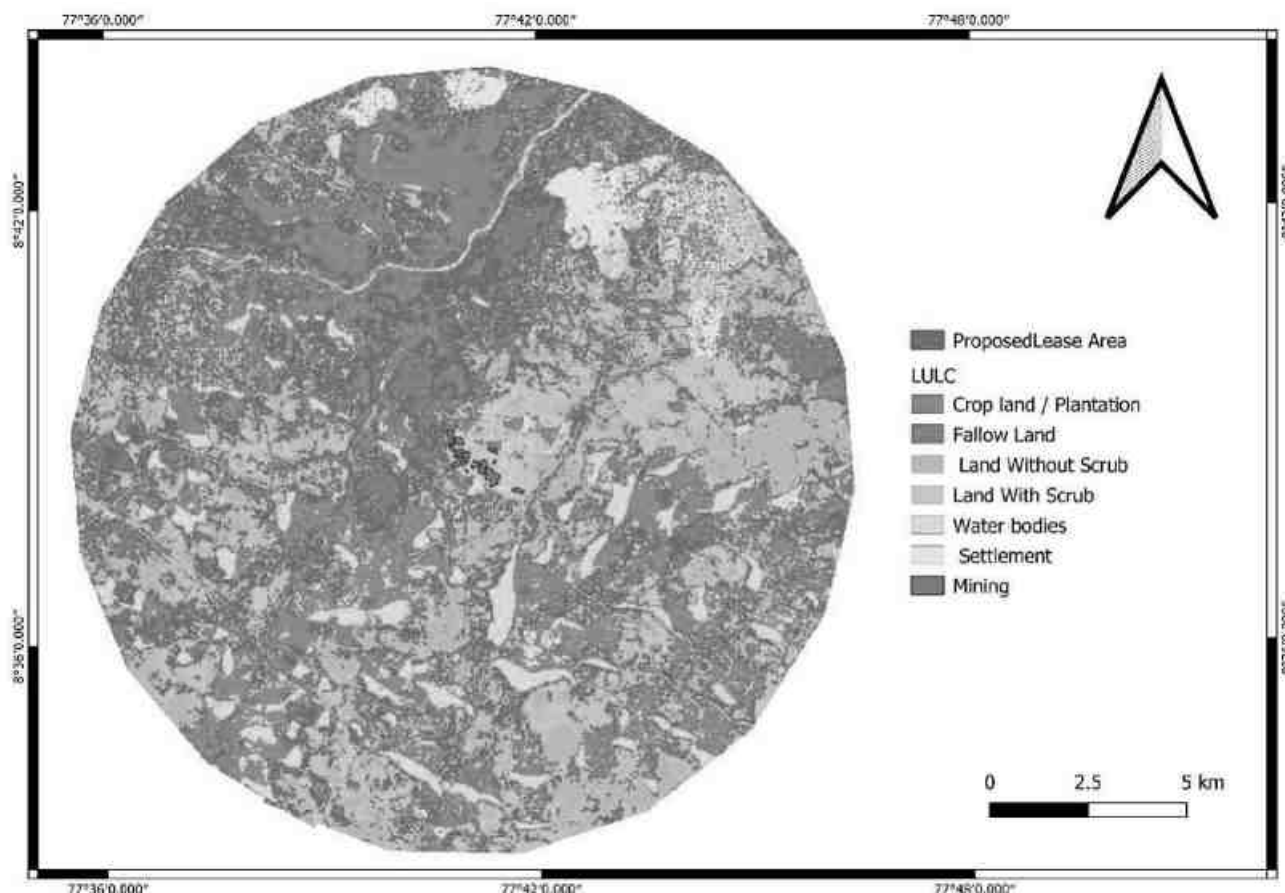
An interpreted final landuse map has been generated (Figure 3.11) using above such elaborate procedure and transformed into GIS environment for its spatial distribution and area estimation. Spatial nature and extent of various landuse categories within the buffer area is discussed is given below:

Table 3.14 - AREA ESTIMATION OF LANDUSE CATEGORIES AROUND 10 KM BUFFER OF QUARRY ML AREA

S.No	Land use Feature	Area (Sq.Km)	Percentage
1	Agriculture/ Crop	108.69	34.96
2	Fallow Land	71.60	23.04
3	Land Without Scrub	23.23	7.48
4	Land With Scrub	68.85	22.16
5	Water bodies	26.90	8.66
6	Settlement	11.05	3.56
7	Mining/Industries	0.43	0.14
Total		310.75	100

From the above table it is seen that 34.96 % of the study area is agriculture land and 23.04 % are fallow land. Land with scrub constitutes 22.16 %.

FIGURE 3.11 - MAP SHOWING LAND USE CATEGORIES AROUND 10KM RADIAL BUFFER AND IT'S ENVIRON



LAND USED BASED ON REVENUE RECORDS:

The study area falls in Tirunelveli, Ambasamudram, Palayamkottai, Nanguneri Taluk of Tirunelveli District, Tamilnadu state. Land use pattern within the buffer zone is shown as chart in Figure 3.12.

- **FOREST AREA:**

No forest land in the 10 km study area from the project site.

- **AREA UNDER NON-AGRICULTURAL USES:**

About 8568.5 Ha (24.52 %) area is classified under non-agricultural area

- **BARREN & UN-CULTIVABLE LAND AREA**

About 2677.51 Ha is un-cultivable which comprises about 7.66 % of the total area

- **PERMANENT PASTURES AND OTHER GRAZING LAND AREA**

Permanent pastures and other grazing land area account for about 427.68 Ha (1.22%) of the total area

- **LAND UNDER MISCELLANEOUS TREE CROPS ETC**

218.49 Ha (0.63 %) of the total area has miscellaneous tree crops

- **CULTURABLE WASTE LAND:**

This land includes the land which was cultivated sometime back and left vacant during the past 5 years in succession. Such lands may either be fallow or covered with shrubs, which are not put to any use and all grazing lands and village common lands are also included in this category. The study area comprises of about 4550.88 Ha (13.02%) of cultivable wasteland.

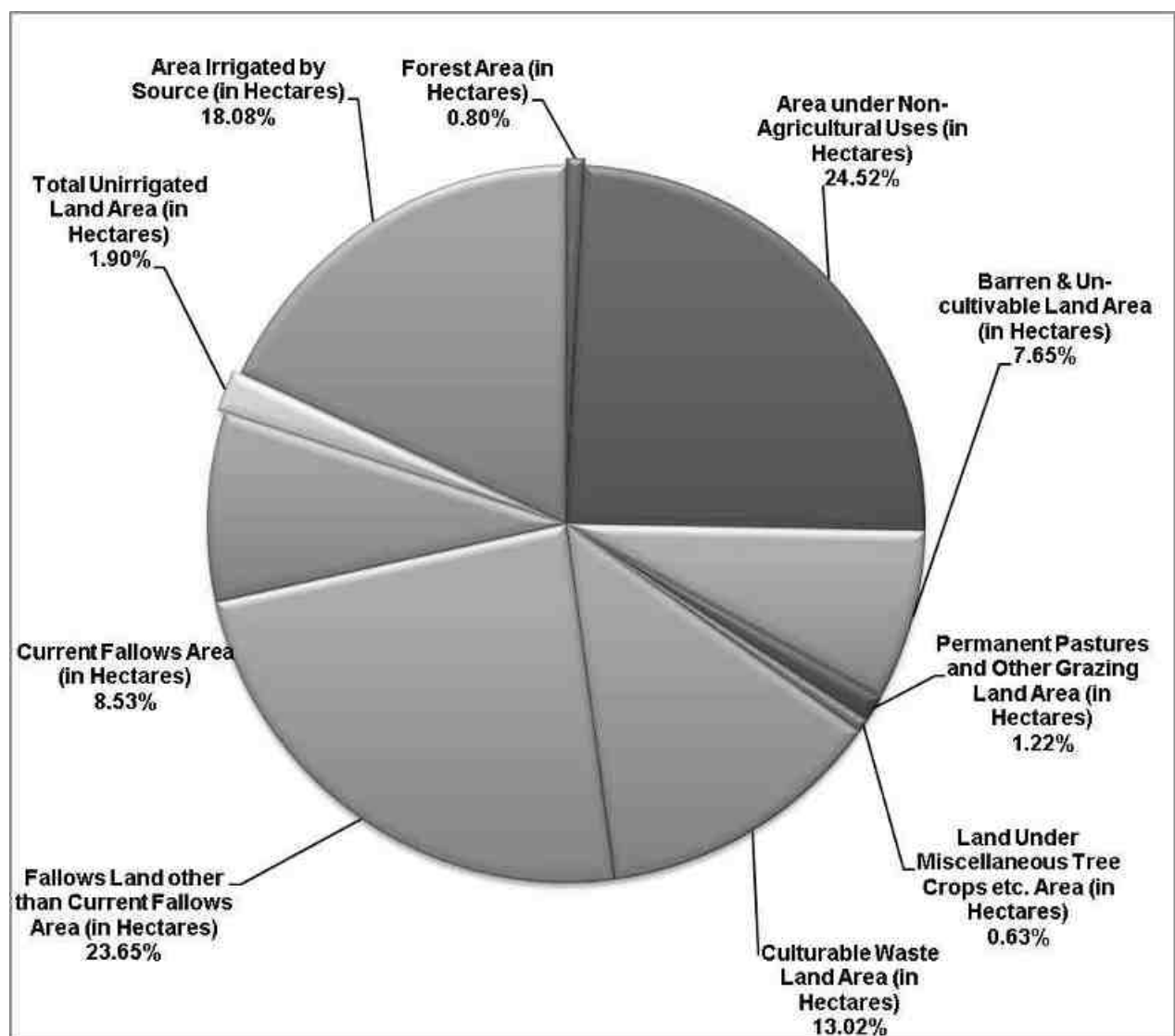
- **FALLOW LAND:**

Fallow lands excluding current fallows occupy about 8266.69 Ha (23.65%) of the total area of buffer zone and current fallows occupy 2979.86 Ha (8.53%)

- **UNIRRIGATED & IRRIGATED LANDS:**

Total unirrigated land area occupies 664.1 Ha (1.90%) and irrigated area occupies 6318.30 Ha (18.08%)

FIGURE 3.12 - LAND USE PATTERN WITHIN THE BUFFER ZONE



3.6.7 BIOLOGICAL ENVIRONMENT

An ecological survey was conducted to collect the baseline data regarding flora and fauna in the study area of 10 km radius. Data were also collected from different sources, i.e., government departments such as District Forest Office, Government of Tamil Nadu. On the basis of onsite observations as well as forest department records the checklist of flora and fauna was prepared.

3.6.7.1 ETHODOLOGY

Sampling locations were selected with reference to topography, land use, vegetation pattern, etc. In this study, quadrats of 25m × 25m were laid down to assess trees and quadrats of 10m × 10m were laid down for shrubs.

3.6.7.2 FLORA

An ecological survey of the study area was conducted with reference to listing of species and assessment of the existing baseline ecological (Terrestrial Ecosystems) conditions. The objective of the survey is as follows:

- Generate existing data from field observations of various terrestrial floristic occurrences.
- Collect secondary data from Government records as well as through discussion with Forest officials, knowledgeable public etc.,
- Compare the data with authentic past records to identify changes, if any.
- Identify the impact of project operations on the biological aspects.
- To accomplish the above objectives, a general ecological survey covering an area of 10 km radius was conducted. The locations were identified for phyto-sociological aspects to assess the current status.

3.6.7.3 FLORISTIC COMPOSITION IN CORE ZONE

The PP has planned to operate in the mine lease area. There are no plant species in the mining lease area.

FLORA IN 300m RADIUS ZONE

There are some plantations within 300 m radius. It contains a total of 12 species belonging to 10 families have been recorded from the buffer zone of 300 m radius. Trees 3 (25%), Shrubs 3 (25%) Herbs 6 (50%) were identified.

TABLE 3.15 - FLORA IN 300 m RADIUS

Sl.No	Species Name	Common Name	Family
Trees			
1	<i>Prosopis juliflora</i>	Cimaikkaruvel	Fabaceae
Shrubs			
1	<i>Calotropis gigantea (L.) R. Br.</i>	Yerukku	Asclepiadaceae
2	<i>Lantana camara L.</i>	Unni chedi	Lythraceae
3	<i>Senna auriculata (L.) Roxb.</i>	Avaram	Fabaceae
4	<i>Dodonaea viscosa L.</i>	Virali	Sapindaceae
Herbs			
1	<i>Acalypha indica L.</i>	Kupaimeni keera	Amaranthaceae
2	<i>Achyranthes aspera L.</i>	Nayuruvi	Amaranthaceae
3	<i>Abutilon indicum (L.) Sweet</i>	Thuththi	Malvaceae

3.6.7.4 FLORISTIC SCENARIO IN BUFFER ZONE AREA

The Dominated species are *Prosopis juliflora*, *Calotropis gigantea*, *Borassus flabellifer*, *Syzygium cumini*, *Ziziphus jujube*, *Abutilon indicum*, *Ficus benghalensis*, *Acacia nilotica*, *Jatropha glandulifera*, *Morinda tinctoria*, etc. The detailed list of plants found in the core zone is given in Table 3.16.

TABLE 3.16 - LIST OF FLORA IN THE BUFFER ZONE			
S.NO	BOTANICAL NAME	LOCAL NAME	FAMILY NAME
Trees			
1	<i>Casuarina equisetifolia</i> L.	Savukku	Casuarinaceae
2	<i>Acacia nilotica</i> (L.) Wild. Ex. Delile	Karuvelan	Fabaceae
3	<i>Zizyphus mauritiana</i>		Rhamnaceae
4	<i>Acacia planifrons</i>	Karuvelan	Fabaceae
5	<i>Punica grandam</i> L.	Madulai	Lythraceae
6	<i>Albizia amara</i>	Unja	Fabaceae
7	<i>Tamarindus indicus</i> L.	Puli	Fabaceae
8	<i>Albizia lebek</i> L.	Vaagai	Fabaceae
9	<i>Pongamia glabra</i> (L.) Pierre	Pongai	Fabaceae
10	<i>Annona squamosa</i> L.	Sithapalzham	Annonaceae
11	<i>Ziziphus jujuba</i>	Elanthai Pazham	Rhamnaceae
12	<i>Areca catechu</i> L.	Pakku maram	Arecaceae
13	<i>Artocarpus integrifolia</i> Lam.	Pala maram	Moraceae
14	<i>Citrus melenoxylon</i> L.	Lemon	Rutaceae
15	<i>Azadirachta indica</i> (L.) Adr. Juss	Vembu	Meliaceae
16	<i>Cocos nucifera</i> L.	Thennai	Arecaceae
17	<i>Borassus flabellifer</i> L.	Panai maram	Arecaceae
18	<i>Phyllanthus embelica</i> Gaertn.	Nelli	Phyllanthaceae
19	<i>Terminalia bellerica</i> Ruxb.	tanri	Combretaceae
20	<i>Terminalia paniculata</i> Ruxb.	Pumarutu	Combretaceae
21	<i>Peltophorum pterocarpum</i> (DC.) K.Heyne	Copper pod	Fabaceae
22	<i>Delonix regia</i> (Boj. Ex Hook) Raf.	Flame of Forest	Cesalpiniaceae
23	<i>Mangifera indica</i> L.	Mango	Anacardiaceae
24	<i>Ficus bengalensis</i> L.	Aalla maram	Moraceae
25	<i>Eucalyptus lanciolatus</i> Dehnh.	Thaila maram	Myrtaceae
26	<i>Polyalthia longifolia</i> Sonn.	Nettilingam	Annonaceae
27	<i>Pterolobium indicum</i>		Fabaceae
28	<i>Ficus hispida</i> L.	Arasa maram	Moraceae
29	<i>Moringa olifera</i> Lam.	Murungai	Moringaceae
30	<i>Odina wodiar</i> L.	Othiyan	Fabaceae
31	<i>Samanea saman</i> (Jacq.) Merr.	Rain Tree	Fabaceae
32	<i>Tectona grandis</i> L.	Teak	Lamiaceae

TABLE 3.16 - LIST OF FLORA IN THE BUFFER ZONE

S.NO	BOTANICAL NAME	LOCAL NAME	FAMILY NAME
Shrubs			
1	<i>Acalypha wilkesiana</i> L.	Copper leaf	Euphorbiaceae
2	<i>Aerva scandens</i> (L.) Juss. ex. Schult	Kulzhipoo	Amaranthaceae
3	<i>Allamanda cathartica</i> L.	Golden trumpet	Apocyanaceae
4	<i>Allamanda violacea</i> Gradn & Field.	Violet allamanda	Apocyanaceae
5	<i>Calotrophis gigantia</i> (L.) R. Br.	Yerukku	Asclepiadaceae
6	<i>Cassia auriculata</i> L.	Avarampoo	Cesalpiniaceae
7	<i>Datura metal</i> L.	Oomaththai	Solanaceae
8	<i>Dodonea viscosa</i> L.	Virali	Sapindaceae
9	<i>Duranta repens</i> L.	Golden dew drop	Verbanaceae
10	<i>Hibiscus rosa-sinensis</i> L.	Sembaruthi	Malvaceae
11	<i>Jatropha grandulfera</i> Roxb.	Oil plant	Euphorbiaceae
12	<i>Lantena camera</i> L.		Lythraceae
13	<i>Lawsamia innermis</i> L.	Maruthani	Lythraceae
14	<i>Nerium olender</i> L.	Arali	Apocyanaceae
15	<i>Ocimum sanctarum</i> (L.) R.Br.	Thulasi	Amaranthaceae
16	<i>Parthenium hysterophorus</i> L.	Whitetop weed	Asteraceae
17	<i>Sida cordata</i> (Burm. f.) Borss.Waalk.	Long-stalk sida	Malvaceae
18	<i>Sida acuta</i> L.f.	Sida	Malvaceae
Herbs			
1	<i>Alternanthera sesilis</i> (L.) R.Br ex DC.	Joy weed	Amaranthaceae
2	<i>Amaranthus viridis</i> (L.) R.Br.	Green Amaranth	Amaranthaceae
3	<i>Phyllanthus nirurii</i> Schum&Thonn.	Kilzhanelli	Phyllanthaceae
4	<i>Hemidesmus indicus</i> Ruxb.	Nannari	Apocynaceae
5	<i>Euphorbia zylanica</i> L.	Kalika plant	Euphorbiaceae
6	<i>Achyranthus aspera</i> L.	Nayuruvi	Amaranthaceae
7	<i>Tridax procumbens</i> L.	Vettukkai poondu	Asteraceae
8	<i>Tephrosia purpurea</i> (L.)	Poondu sedi	Fabaceae
9	<i>Acalipha indica</i> L.	Kupaimeni keera	Amaranthaceae
10	<i>Solanum xanthocarpum</i>	Kandangkathari	Solanaceae
11	<i>Asperagus racemosus</i> Wild.	Shatawari plant	Asparagaceae
12	<i>Euphobia prostens</i> Des Moul.	Crown of thorns	Euphorbiaceae
13	<i>Helecteris isora</i> L.	Vadampiri	Malvaceae
14	<i>Gomphrena globosa</i> L.	Vaadamalli	Amaranthaceae
15	<i>Gynandropsis pentafilla</i> L.	Ajagandha	Cleomaceae
16	<i>Cleome viscosa</i> L.	Ajagandha	Amaranthaceae
17	<i>Boerhavia diffusa</i> L.	Erect spiderling	Nyctaginaceae
18	<i>Leucas aspera</i> (Wild.) Link.	Thumbai	Lamiaceae
19	<i>Luzula canprestris</i> (L.) R.Br.	Field wood-rush	Asteraceae

TABLE 3.16 - LIST OF FLORA IN THE BUFFER ZONE

S.NO	BOTANICAL NAME	LOCAL NAME	FAMILY NAME
20	<i>Crotalaria juncea L</i>	Vakkunnar	Fabaceae
Climbers			
1	<i>Coccinia indica L.</i>	Kovai	Cucubitaceae
2	<i>Abrus precatorius L.</i>	Indian licorice	Fabaceae
3	<i>Cardiospermum halicacabum L.</i>	Ballon plant	Sapindaceae
4	<i>Citrullus colocynthis</i>	Paeikkumati	Cucubitaceae
5	<i>Cucurbita pepo L.</i>	Poosani	Cucubitaceae
Grasses			
1	<i>Cynodon dactylon (L.) Pers.</i>		Poaceae
2	<i>Kyllinga cylindrica (Jacq.) DC.</i>		Cyperaceae
3	<i>Chrysopogon zeylanicus (L.) R.Br.</i>		Poaceae
Cactuses			
1	<i>Agave Americana L.</i>	Kaththalzhi	Asparagaceae
2	<i>Euphorbia tirucalli L.</i>	Thirukalli	Euphorbiaceae
Agricultural Crops			
1	<i>Sesbania sesban L.</i>	Agaththi	Fabaceae
2	<i>Oryza sativa L.</i>	Paddy	Poaceae
3	<i>Saccharum officinarum L.</i>	Karumbu	Poaceae
4	<i>Musa acuminate L.</i>		Musaceae
5	<i>Sorghum vulgare L.</i>	Solam	Poaceae
6	<i>Cajanus cajan (L.) Millsp.</i>	Dhuvarai	Fabaceae

3.6.7.5 LIST OF FAUNA

There is no Wild Life Sanctuary or National Park within the study area of 10 km. Domesticated animals like Cows, Buffalos, Dogs, Cats etc., are commonly found. The lease and 10 Km buffer zone does not fall in the Western Ghats ESA boundary. There is no Schedule I animals. The list of fauna within the study area is given in Table 3.17.

TABLE 3.17 - LIST OF FAUNA WITHIN THE STUDY AREA			
S.No	Common Name	Scientific name	IWPA, Schedule
Mammals			
1	Indian Palm squirrel	<i>Funambulus palmarum</i>	IV
2	Wild Boar	<i>Sus scrofa cristatus</i>	III
3	Bonnet macaque	<i>Macaca radiata</i>	II
4	Common Indian Hare	<i>Lepus ruficaudatus</i>	IV
5	Indian Grey Mongoose	<i>Herpestes edwardsii</i>	II
Birds			
7	Cattle Egret	<i>Bubulcus ibis</i>	IV
8	House Sparrow	<i>Passer domesticus</i>	IV
9	Common Crow	<i>Corvus splendens</i>	V
10	Black Drongo	<i>Dicrurus macrocercus</i>	IV
11	Spotted Dove	<i>Streptopelia chinensis</i>	IV
12	Indian Cuckoo	<i>Cuculus micropterus</i>	IV
13	Red-vented Bulbul	<i>Pycnonotus cafer</i>	IV
14	Indian Pond Heron	<i>Ardeola grayii</i>	IV
15	Common Myna	<i>Acridotheres tristis</i>	IV
16	Little Egret	<i>Egretta garzetta</i>	IV
17	Common Kingfisher	<i>Alcedo atthis</i>	IV
18	Common Babbler	<i>Turdoides caudatus</i>	IV
19	Rose-ringed Parakeet	<i>Psittacula krameri</i>	IV
Reptiles			
1	Garden Lizard	<i>Calotes versicolor</i>	IV
Amphibians			
1	Common Indian toad	<i>Bufo melanostictus</i>	IV

3.6.8 HYDROGEOLOGICAL STUDY

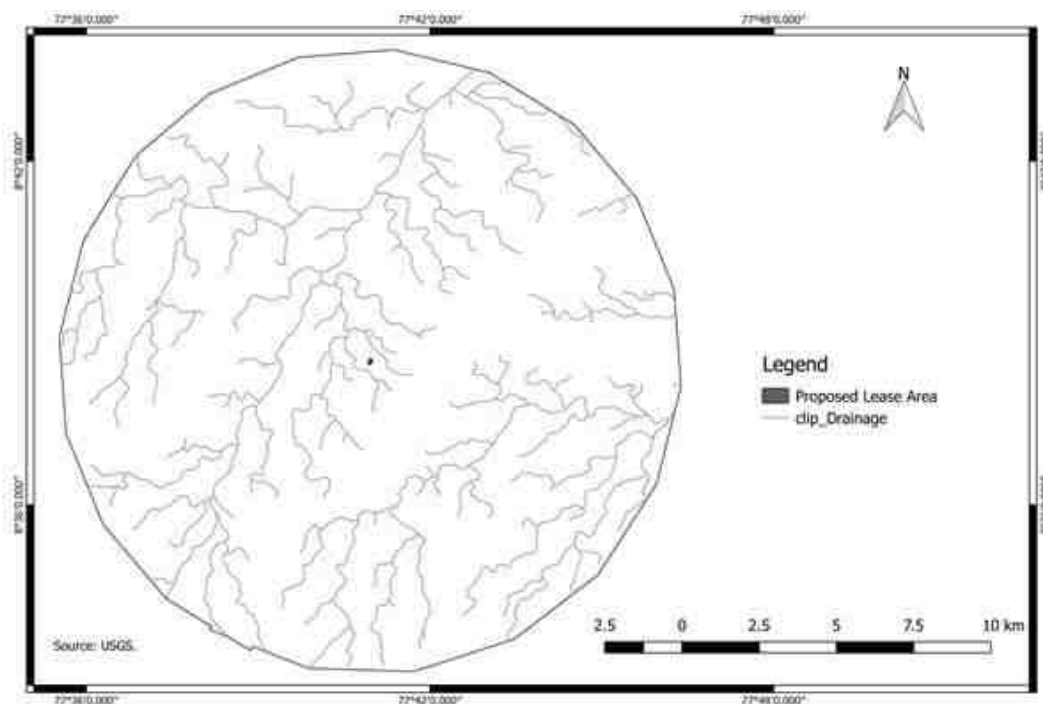
3.6.8.1 TOPOGRAPHY

The area applied for quarry lease is exhibits almost plain topography covered by Gravel formation. The massive Charnockite formation is noticed below 1m (avg) Gravel and 1m Weathered rock formation and sloping towards southeastern side of the area, the altitude of the area is above 95m (maximum) from MSL.

3.6.8.2 DRAINAGE PATTERN OF THE AREA

There is one Tank 410m southeastern side of the area. Pachaiyar River is located at a distance of 2.5 km (W). Tirunelveli district falls in Tamiraparani river basin, which is the main river of the district. The river has a large network of tributaries which includes the Peyar, Ullar, Karaiyar, Servalar, Pampar, Manimuthar, Varahanatha, Ramanathi, Jambunatha, Gadana nathi, Kallar, Karunaiyar, Pachaiyar, Chittar, Gundar, Aintharuvai, Hanumanathi, Karuppanathi and Aluthakanniar draining the district. The river Tamiraparani originates from the hills in the west and enters Thoothukudi District. The other two rivers draining the district are river Nambiar and Hanumanathi of Nanguneri taluk in the south that are not part of the Tamiraparani river basin. The small part of the district in the northern part falls in river Vaippar basin. The drainage map of the buffer zone is given below

FIGURE 3.13 - DRAINAGE MAP



3.6.8.3 GEOMORPHOLOGY

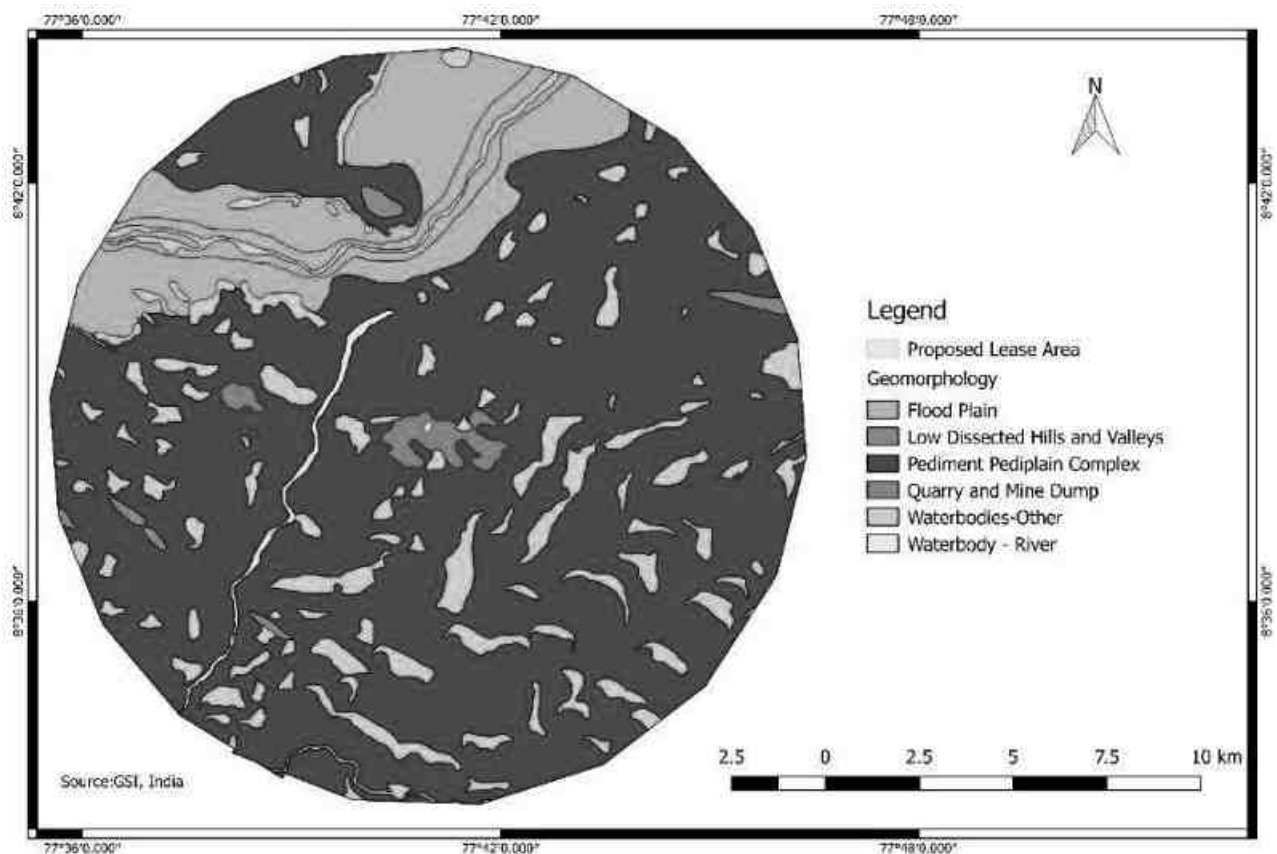
The buffer zone consists of different regions of varying geomorphologies.

The main types found in the area are

- Pediment Pediplain complex
- Flood Plain
- Low Dissected Hills & Valleys

Pediment Pediplain complex is dominate the study area followed by Flood Plain, while the lease area falls in the Pediment Pediplain complex. Refer Figure 3.14 below:

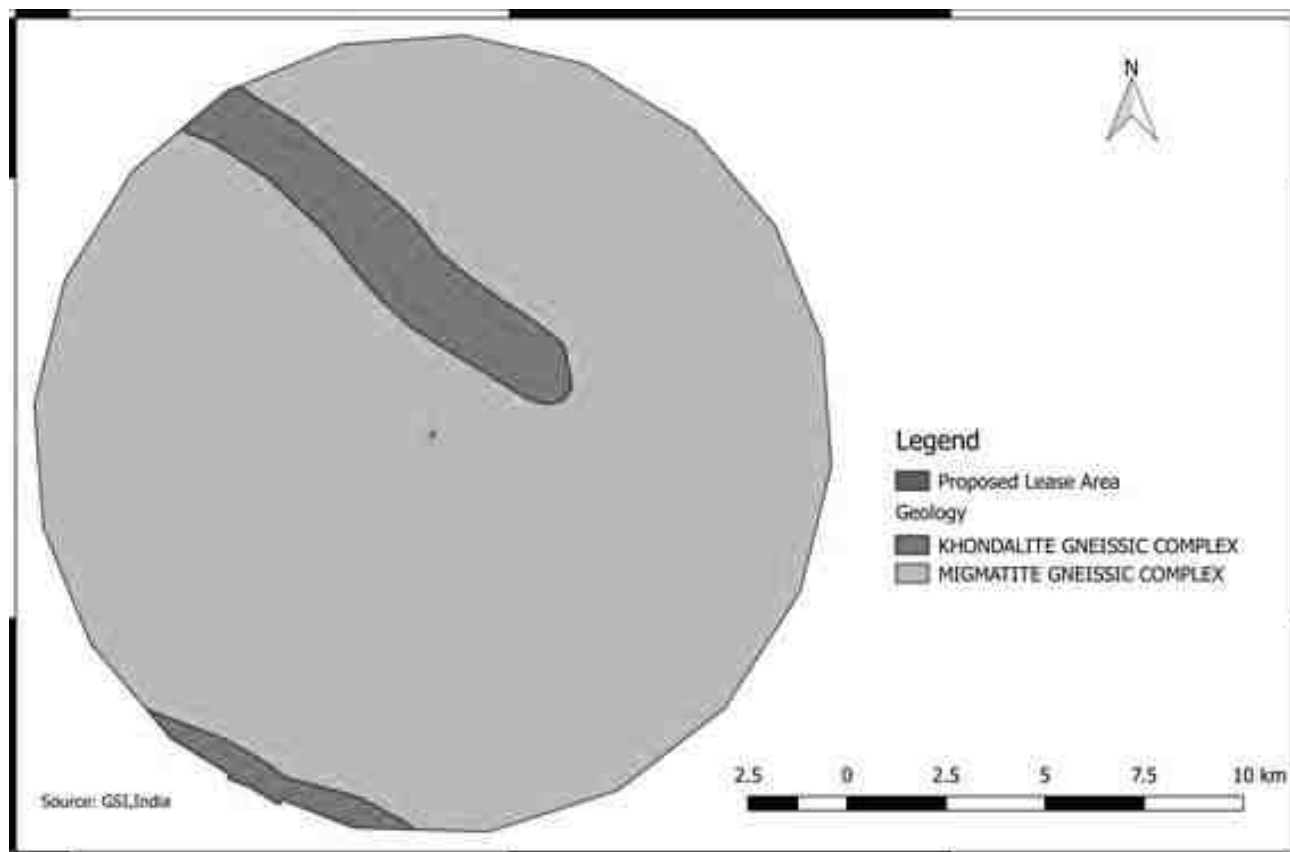
FIGURE 3.14 - GEOMORPHOLOGY OF THE STUDY AREA



3.6.8.4 GEOLOGY

The regional geology of the study area is shown below in Figure 3.15. The types of rock formation in the buffer zone are composed of Migmatite Gneissic complex followed by Khondalite Gneissic complex. The lease area falls under Migmatite Gneissic complex category.

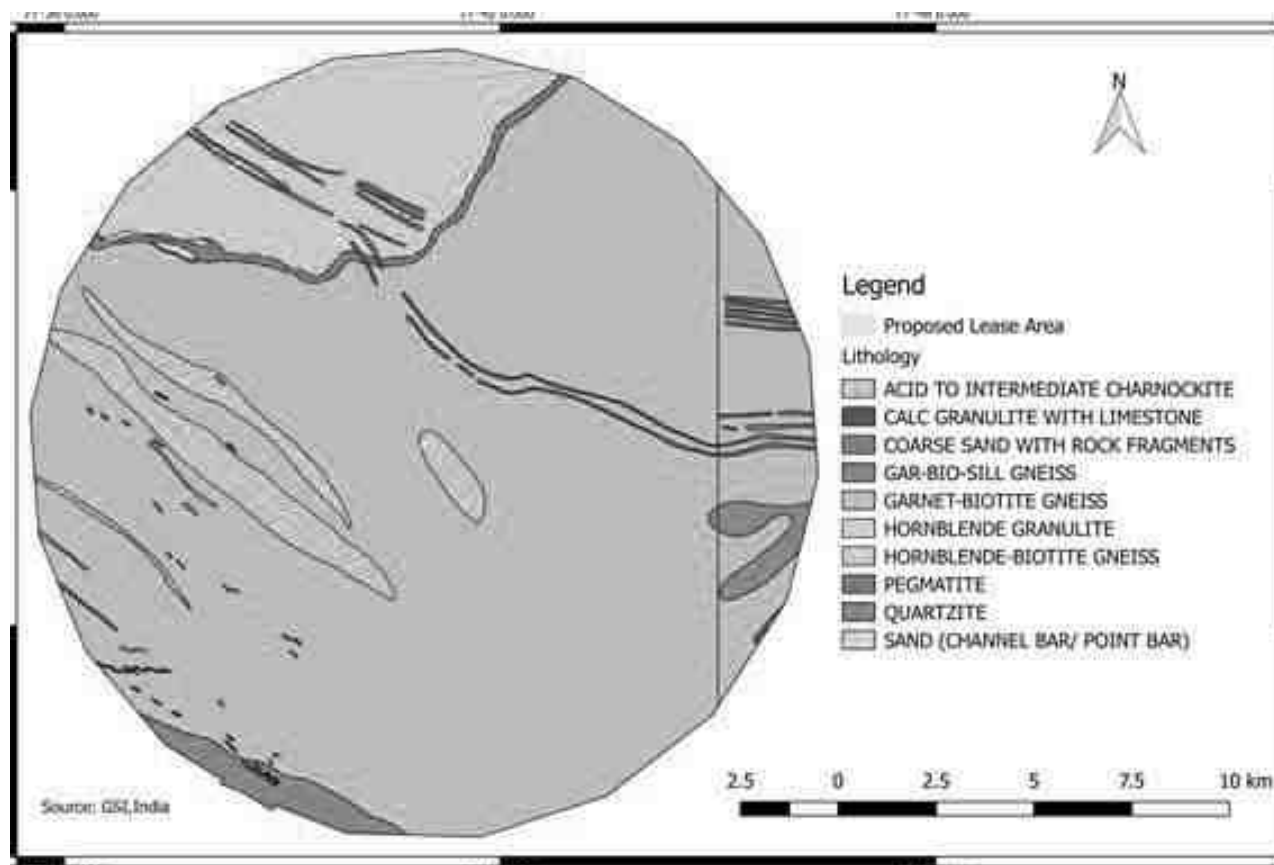
FIGURE 3.15 - GEOLOGY OF THE STUDY AREA



3.6.8.5 LITHOLOGY

The study area is mainly dominated by Garnet Biotite Gneiss followed by hornblende Biotite Gneiss and Charnockite. Lithology of Core & Buffer Zone map is given in (Figure No. 3.16)

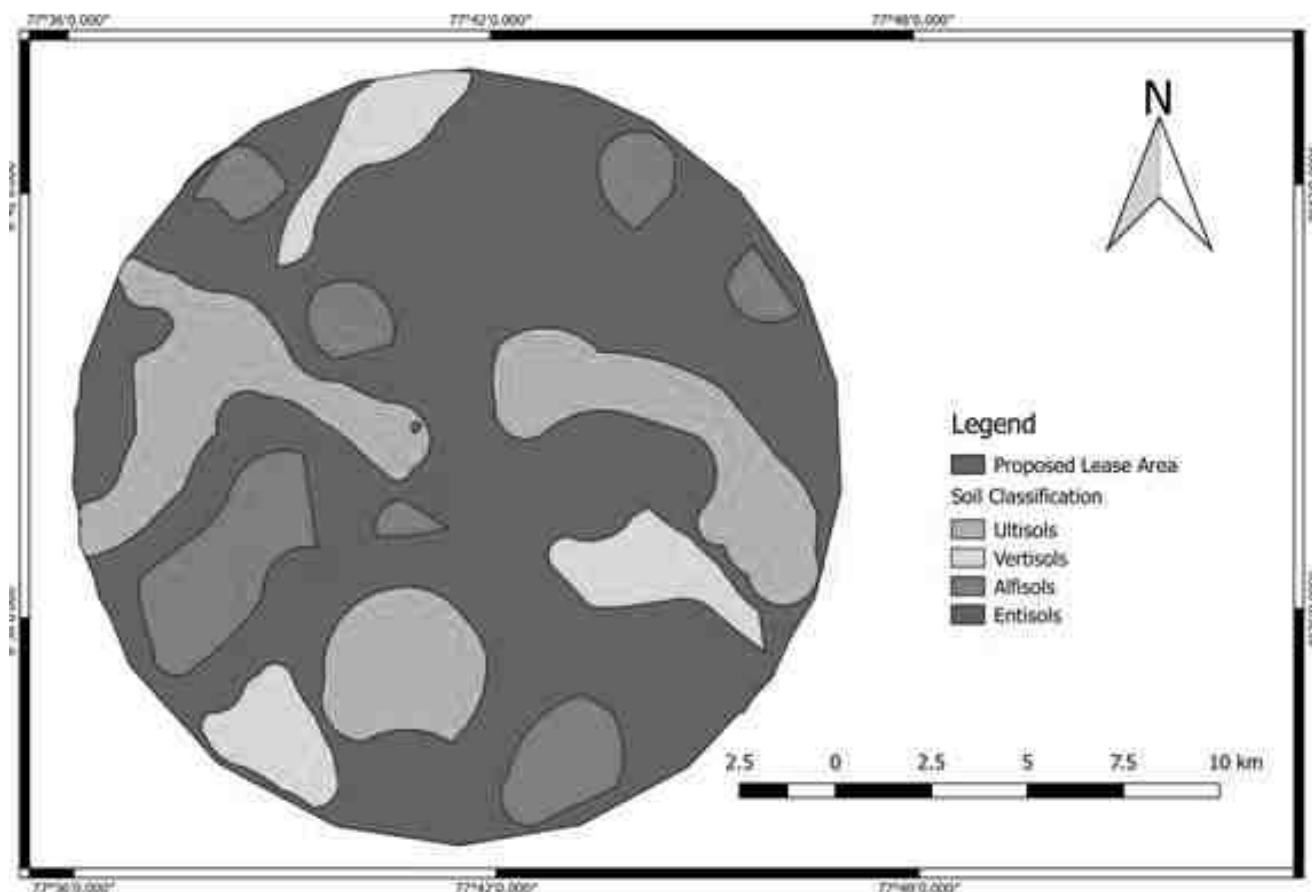
FIGURE 3.16 - LITHOLOGY BUFFER ZONE MAP



3.6.8.6 SOIL TYPE

The study area is characterized by Entisols, ultisols, Alfisols and Vertisols. (Figure 3.17), the project area was dominated with ultisols type of soil and buffer zone was dominated with Entisols.

FIGURE 3.17 - SOIL MAP



3.6.9 SOCIO-ECONOMIC ENVIRONMENT

Socio-economic study is an essential part of environmental study. It includes demographic structure of the area, provision of basic amenities viz., housing, education, health and medical services, occupation, water supply, sanitation, communication, transportation, prevailing diseases pattern as well as feature like temples, historical monuments etc., at the baseline level. This will help in visualizing and predicting the possible impact depending upon the nature and magnitude of the project.

It is expected that the Socio-Economic Status of the area will substantially improve because of this proposed project. As the proposed project will provide direct and indirect employment and improve the infrastructural facilities in that area and, thus, improve their standard of living.

3.6.9.1 SECONDARY DATA DESCRIPTION

The proposed Rough Stone, Jelly and Gravel quarry is located in Tharuvai Village, Palayamkottai Taluk, Tirunelveli District, Tamil Nadu. Based on 2011 census data, in the 10km radius there are 45 Rural villages from Four Taluks namely Tirunelveli, Ambasamudram, Palayamkottai, Nanguneri, and 4 urban areas of two taluks namely, Gopalsamudram (TP), Pathamadai (TP), Melacheval (TP) of Ambasamudram Taluk and Tirunelveli (M Corp.) of Tirunelveli Taluk.

POPULATION IN THE BUFFER ZONE:

- The total population of these 45 rural villages and 4 urban areas is 619362 in which the male population is 306370 (49.47%) and the female population is 312992 (50.53%). This shows that the male and female population ratio is almost equal.
- Among the total population 0.33% is Scheduled Tribes, 14.93% is Scheduled Caste and 84.73% people belong to other castes mainly the Most Backward Communities and Backward Communities.
- Among the total population, 79.99% of the people are literate and 20.01% of the people are illiterate. This shows that nearly quarter of the population is illiterate.
- The literate's males are 41.49% and females are 35.50 in total population. This shows that the male literates are slightly more than the female literates.

- Totally the illiterate constitutes 7.97% of males and 12.04% of Females in total population

OCCUPATIONAL STRUCTURE IN THE BUFFER ZONE:

- Among the total population, non-workers are about 59.50% (368728) and remaining part constitute the working population i.e. 40.50% (250634).
- In total population about 36.30% are main workers (224560) and 4.20% are marginal workers (26074).
- Among the Main Workers 8.77% are Agri- Labours, 4.06% are Cultivators and remaining 87.17% are house hold and others.
- The demographic structure within the buffer zone is shown diagrammatically in Figure – 3.18 & 3.19.

FIGURE 3.18 - DEMOGRAPHIC STRUCTURE OF POPULATION WITHIN THE BUFFER ZONE

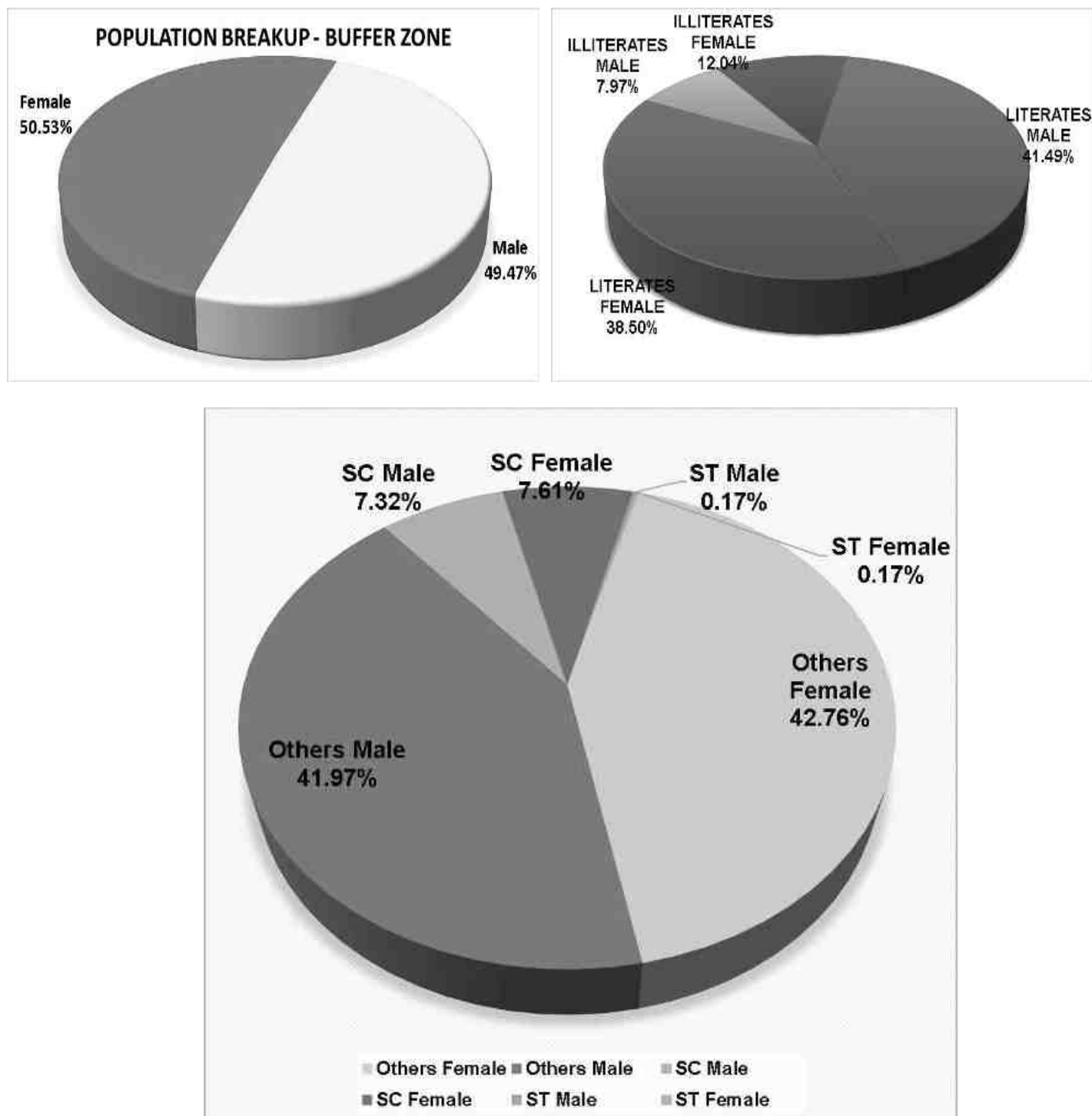
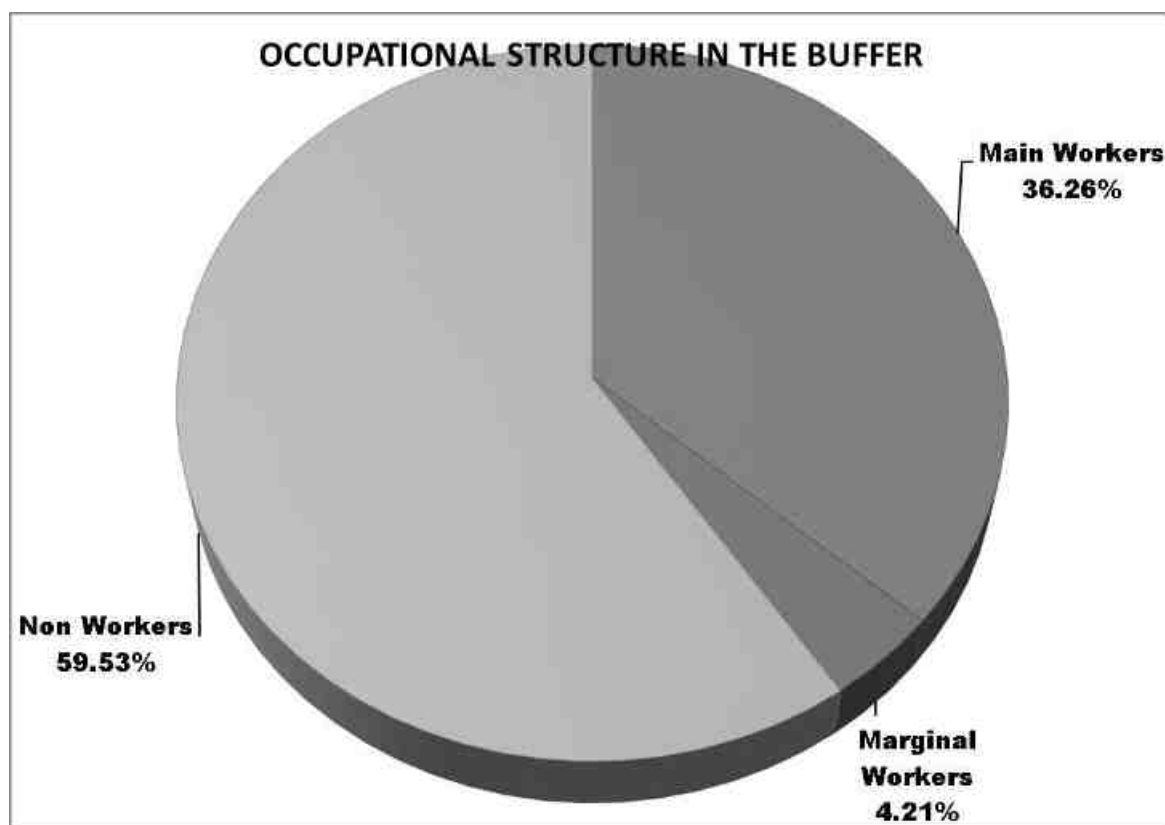
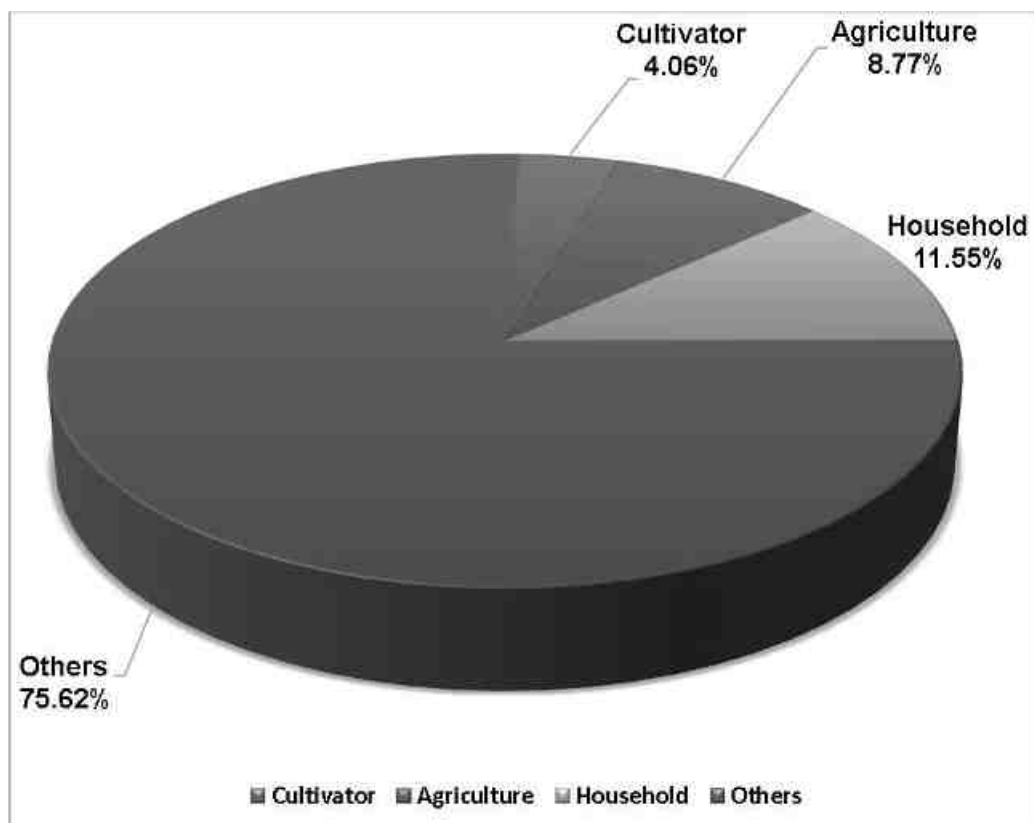


FIGURE 3.19 - DEMOGRAPHIC STRUCTURE OF OCCUPATIONAL WITHIN THE BUFFER ZONE



DETAILS OF AMENITIES:

Based on 2011 census data, regarding the educational facilities, among the 42 rural villages have this facility. 3 village have no educational facility. Details in the buffer zone of rural villages given below.

1. <u>Educational Facilities:</u>					
A	Primary School	S. No	Villages	Number of primary schools	Total
		1	7	0	0
		2	16	1	16
		3	7	2	14
		4	5	3	15
		5	7	4	28
		6	3	5	15
		Total	45		88
		*Urban area 5 towns data not available			
B	Middle School	14 villages has this facility,			
C	Secondary School	8 villages has this facility Schools			
D	Senior Secondary	4 villages has this facility			
Remarks: Better education facilities are available in Tirunelveli.					
2. <u>Medical facilities:</u>					
A	Medical facilities	20 villages has this facility			
		25 Villages does not has this facility			
B	Dispensary	5 villages has this facility			
C	TB Clinic	5 villages has this facility			
D	Maternity and child welfare centre (MCW)	5 Village has this Facility			
E	Primary Health Centre	5 villages has this facility			
F	Primary Health Sub centers	20 villages has this facility			
G	Family welfare centre (FWC)	5 villages has this facility			
Remarks: Good medical facilities are available in Tirunelveli.					
3. <u>Infrastructure Facilities:</u>					
A	Drinking water facility	All villages has this facility			

B	Drinking water with tap facility	42 villages has this facility
C	Covered Well	12 villages has this facility
D	Tube Well	33 villages has this facility
E	Hand Pump Facility	29 villages has this facility

Remarks: Better infrastructural facilities are available in almost all the villages.

4. Post office

A	Post Office	3 villages has this facility
B	Sub Post Office	22 villages has this facility
C	Post And Telegraph Office	5 villages has this facility

5. Banking facility:

A	Commercial bank	3 villages has this facility
B	Co-operative Bank	5 villages has this facility
C	Agricultural Credit Societies	5 villages has this facility

Remarks: As per the secondary data, all the villages have the bus facility. Only some hamlets are not having this facility.

4.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 GENERAL

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

In order to maintain the environmental commensuration with the mining operation, it is essential to undertake studies on the existing environmental scenario and assess the impact on different environmental components. This would help in formulating suitable management plans sustainable resource extraction.

This chapter deals with the various anticipated environmental impacts and mitigation measures of the proposed mining activity. The proposed method of mining is Opencast Mechanized and the quarry operation involves Shallow Jack Hammer Drilling, Blasting, Excavation, Formation of benches, Loading and Transportation of minerals.

All these operations can disturb the environment in various ways, such as removal of mass, change of landscape, flora and fauna of the area, surface drainage, and change in air, water and soil quality. Therefore, it is essential to assess the impacts of mining on different environmental parameters before starting the mining operations, so that abatement measures could be planned in advance for eco-friendly mining in the area. The likely impacts on various environmental aspects and mitigation measures are discussed below. The following parameters are of significance in the Environmental Impact Assessment and are being discussed in detail in this chapter.

- Land environment
- Soil environment
- Water Environment
- Air Environment
- Noise Environment

- Socio economic environment
- Biological Environment

The proposed mining activity is small and not likely to have any serious impacts on the existing environment of the area. However, the potential impacts of the proposed mining and related activities on various environmental parameters are discussed.

4.2 LAND ENVIRONMENT

The entire mine lease area of 1.95.5 Ha is in the proponent's possession. At the end of the life of the mine, entire 1.51.0 Ha of mined out area will be left as water body. 0.02.0Ha will be the mine roads & infrastructure and 0.20.0 Ha will be covered with vegetation.

4.2.1 LAND RECLAMATION

TABLE 4.1 - LAND USE DURING POST OPERATIONAL PERIOD					
S.No	Description	Land use (Ha.)			
		Plantation	Water body	Others	Total
1	Quarrying Pit	-	1.51.0	-	1.51.0
2	Infrastructure	-	-	0.01.0	0.01.0
3.	Roads	-	-	0.01.0	0.01.0
4.	Green Belt	0.20.0	-	-	0.20.0
5	Undisturbed	-	-	0.22.5	0.22.5
TOTAL		0.20.0	1.51.0	0.24.5	1.95.5

There is no waste generation anticipated in this quarry operation since the entire excavated material will be utilized. Hence, there is no external overburden dump involved. Ultimately the entire mined out area of 1.51.0 Ha will be left as water body. 0.01.0Ha will be Infrastructure, 0.01.0Ha will be the mine roads, 0.22.5 will be undisturbed and 0.20.0 Ha will be covered with vegetation. Entire mined out area will be properly fenced to prevent inadvertent entry of men and animals. In the post mining stage, the rainwater harvested in the mined out void shall be utilized.

4.2.2 ANTICIPATED IMPACTS AND MITIGATION MEASURES

Aspect	Impact	Mitigation measures																																	
Topography	The area is exhibits almost plain covered by top soil formation. Quarrying activity will lead to change in geological setting of the area i.e., Due to the quarrying activity in the mine lease area will leads to affect the aesthetic view on the environment. Further, due to the movement of heavy vehicles in and around the mine lease area will leads to affect the surrounding agricultural lands, ecology and biodiversity, human habitations due to the emissions from vehicles like SO2, NOx, PM10, PM2.5, etc., The existing land use pattern is given as under.	The major impact due to this project on land environment is the change in land use. Since this quarry is a small one and the production is less, mining activity will be carried out only up to 42m BGL. At the end of mining period, the quarried pit will act as a water reservoir to store the rain water. Land Use at the end of mine will be as follows.																																	
	<table><tr><th>Land Use</th><th>Present Area (Hect)</th><th>Area in use during the quarrying period (Hect)</th></tr><tr><td>Quarrying Pit</td><td>Nil</td><td>1.51.0</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>0.20.0</td></tr><tr><td>Unutilized</td><td>1.95.5</td><td>0.22.5</td></tr><tr><td>Total</td><td>1.95.5</td><td>1.95.5</td></tr></table>	Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)	Quarrying Pit	Nil	1.51.0	Infrastructure	Nil	0.01.0	Roads	Nil	0.01.0	Green Belt	Nil	0.20.0	Unutilized	1.95.5	0.22.5	Total	1.95.5	1.95.5	<table><tr><th>Land Use</th><th>Area in use during the quarrying period (Hect)</th></tr><tr><td>Area left for water body</td><td>1.51.0</td></tr><tr><td>Green Belt</td><td>0.20.0</td></tr><tr><td>Remaining area</td><td>0.02.0</td></tr><tr><td>Unutilized</td><td>0.22.5</td></tr><tr><td>Total</td><td>1.95.5</td></tr></table>	Land Use	Area in use during the quarrying period (Hect)	Area left for water body	1.51.0	Green Belt	0.20.0	Remaining area	0.02.0	Unutilized	0.22.5	Total	1.95.5
	Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)																																
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	Roads	Nil	0.01.0																																
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Green Belt	0.20.0																																		
Remaining area	0.02.0																																		
Unutilized	0.22.5																																		
Total	1.95.5																																		

The proposed ultimate pit dimension of the mine lease area is given below.

Ultimate pit dimension at the end of Mining Plan Period			
Pit No.	Length (max) (m)	Width (Avg) (m)	Depth (max) (m)
I	172	88	42m BGL

If mining is not done systematically it will lead to the dumping failure in the mining area.

Greenbelt shall be developed around the mine lease area and the details has been given below.

Year	Species	No. of trees	Spacing	Survival
I	Neem, Pungam, vaigai	200	3m x 3m	80%
II		0		
III		0		
IV		0		
V		0		
Total		200		

Due to the thick vegetation around the mine lease area and sprinkling of water around the haul roads the dust emissions arise 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 Mechanized method. As per the approved mining plan a safety distance of 7.5m shall be provided to the adjoining patta land. There is overburden in the form of topsoil, after excavation, it will be utilized for afforestation purpose. The excavated Rough Stone will be

		directly loaded into tipper to the needy crusher/other buyers.
Drainage	Mine drainage is surface water or groundwater that drains from an active or abandoned mine. One of the adverse impacts of mine drainage is it will contaminate the ground water.	As per the ToR, ultimate pit limit is 42m BGL. The ground water table is reported as 57m to 60m BGL. In the proposed mining plan only 42m (below ground level) depth has been envisaged as workable depth for safe & economic quarrying for the entire lease period. Hence the quarrying operation may not affect the ground water.
Soil Quality and Agriculture	In monsoon seasons due to the excavation of minerals soil erosion and sediment deposition will occur in the nearby water bodies.	It is proposed to quarry upto a depth of 42m BGL and the nearby water table is 57m to 60m BGL. So, the mining activity will not affect the ground water. To prevent the soil erosion during monsoon season, garland drain will be constructed with silt traps.
Visual impact on surrounding environment	Quarrying activities and rock extraction generally cause several environmental effects on the surrounding areas. The alteration of landscape due to activities like excavation, drilling or blasting, in particular, often generates a visual impact on the receptors set in the surroundings. Among these effects, the shape, extent, or chromatic contrast of the mining surface with the original land form may represent a huge loss of appeal for the growth of new urban settlements.	The reclamation of the post mined quarry surface is aimed at restoring the ecological balance taking into account geological parameters but also local flora and climate. Further the ultimate depth of mining is 42m BGL. In the post mining stage, the quarried-out pit will be used for rainwater harvesting. At the mine closure stage, 1.51.0 Ha of lease area will be left as rain water harvesting pond. 0.20.0 Ha will be developed with green belt.

4.3 SOIL ENVIRONMENT

4.3.1 ANTICIPATED IMPACTS ON SOIL ENVIRONMENT

Mining activities often disrupt the existing environment as they involve disturbing the untouched earth materials. The massive Charnockite formation is noticed below 1m (avg) Gravel and 1m Weathered rock formation and sloping towards southeastern side of the area, the altitude of the area is above 95m (maximum) from MSL. After excavation of topsoil will be utilized for afforestation purpose. During rainy season surface run off may cause sedimentation in low lying areas.

4.3.2 MITIGATION MEASURES FOR SOIL EROSION AND SOIL CONSERVATION

- Runoff water will be collected in bottom of the quarry and used for plantation and dust suppression during dry season. No runoff water will be discharged beyond lease area.
- Wet drilling and haul road water sprinkling will be carried out to minimize airborne dust at source level, which may cause soil pollution due to sedimentation.
- Garland drains will be constructed around the project area with silt traps to control the soil erosion during rainy seasons.
- Greenbelt development (0.20.0 Ha.) all along the periphery of the project area (i.e., 7.5m safety barrier) will ensure binding strength and minimizes soil erosion.
- Soil sampling will be carried out in the core zone for every season to ensure the soil quality is not affected due to the quarrying activities.

4.3.2.1 SEVEN EFFECTIVE EROSION CONTROL MEASURES

I. PLANTING VEGETATION

- This method entails planting vegetation with deep roots to ensure the soil is held in place, which is particularly important in areas that are more susceptible to erosion, like hillsides, steep slopes, and along streams and rivers.
- The flow of water is impeded by vegetative barriers due to densely concentrated thick stems. They can spread the water runoff to flow through them slowly without erosion. Plants that would serve the purpose of erosion control include deep-rooted native plants like native prairie grasses, wildflowers, and woody perennials.

II. THE APPLICATION OF MULCHES

This method involves applying mulch materials to cover bare soil and prevent it from being washed away. Mulching is often used to control erosion in the earliest stages of growing shrubs or seedlings. It can modify soil temperature and conserve moisture to reduce the fluctuation of both factors.

III. REFORESTATION

- Restoring an ecosystem that has become degraded while protecting existing ones is a good way to ensure the efficiency of soil erosion control. Trees that are correctly planted and maintained can cut down on erosion by as much as 75%.
- The removal of forest cover also means an increased risk of earth flow, which is kicked off by the absence of forest canopy as well as a dense network of interwoven roots within the subsoil. Reforestation is another way to stabilize earth flows, gullies, and shallow landslides that are actively eroding.

IV. EROSION CONTROL BLANKETS AND ANCHORING DEVICES

- Erosion control blankets, geotextiles, mats, and various plastic covers are typically used to control soil erosion in the early stages of growing vegetation or for temporary stabilization during construction projects. These measures are made from natural or synthetic materials designed to hold soil in place and allow vegetation to grow through them. They work by slowing down the flow of water, protecting the soil from wind and rain and promoting the establishment of vegetation.
- Anchoring devices are used to secure erosion control blankets in place. They are normally made of metal or plastic and come in a variety of shapes and sizes, including staples, pins, and stakes. Anchoring devices are inserted through the erosion control blanket and into the soil to hold it in place. Anchoring ensures that the blanket stays put during heavy rain or wind and prevents soil erosion from occurring.

V. USING SILT FENCING

- A silt fence or super silt fence is used as a temporary barrier to control sediments. Made of geotextile fabric and supported by wooden stakes or metal posts and chain-link fencing, it is one of the most common devices

used in construction projects to control soil erosion and prevent sediment from leaving the site. It works by trapping sediment as water flows through it, allowing the water to pass through while retaining the sediment.

- If using silt fencing, ensure that the fence is appropriately installed to ensure its effectiveness. It should not be installed across ditches, waterways, or areas with a concentrated flow of water, as silt fencing cannot cope with higher water pressure.

VI. THE APPLICATION OF SEEDING

- When it comes to construction and land development projects, there are two main seeding types permanent and temporary.
- Temporary seeding is used to quickly establish vegetation on disturbed soil to reduce erosion during a construction project. Temporary seeding typically involves fast-growing annual grasses. This can be done by spreading seed over the soil surface or by a process called hydro-seeding. Hydro-seeding is the process of spraying a mixture of seed, mulch, fertilizer, and water onto the soil surface.
- Permanent seeding is done to establish long-term vegetation on disturbed soil after construction is complete. Permanent seeding typically uses a mixture of grasses and other native vegetation. The goal of permanent seeding is to establish a diverse plant community that can help stabilize the soil and prevent erosion over the long term.

VII. INSTALLING ENERGY DISSIPATERS

- Energy dissipaters are another common component of erosion control systems, especially in high-velocity areas. These structures are designed to absorb the energy of flowing water. They then disperse it evenly over a wider area, reducing the erosive power of the water. Various types of energy dissipaters can be used depending on the specific site and requirements, including check dams, riprap, gabions, rock chutes, and more.
- Proper erosion control measures are essential for any construction or land development project, no matter how big or small. Without these measures in place, the risk of wildlife habitat loss, water pollution, and soil loss can be severe.

4.4 WATER ENVIRONMENT

4.4.1 ANTICIPATED IMPACT ON SURFACE WATER

The impact due to quarrying on the water quality is expected to be insignificant because of no use of chemicals or hazardous substances during quarrying process. There is no nalla or water body location within the leasehold area. Details of Water bodies in study area are:

- Tank – 410 m (SE),
- Pachaiyar River - 2.5 km (W),
- Thamirabarani River – 4.74 km (NW),
- Manimuttar Canal - 8.5 km (S),
- Kodagan Channel - 6.9 km (NW)

Based on the drainage map given in the Figure 3.13, it is found that there is no stream connect the lease area to the water body. As the proposed mining activity takes place in the existing quarry with 100% recovery. Moreover, no toxic element will be quarried out or no chemicals or hazardous substances are used during mining process. No other water bodies close to the project site, there is no proposal for discharging of wastewater outside the project area. There is no proposal for a Rough Stone processing or workshop within the project area, so no effluent is anticipated in the mine. During rainy season rain water will be collected in the quarry pit and later used for greenbelt development and for the water sprinkling in the haul roads.

MITIGATION MEASURES

- The garland drainage will be provided around the area to prevent the escape of runoff.
- The repair works of the machineries are strictly prohibited within the lease area to prevent the spillage of grease, oil etc.
- Regular water quality will be carried in nearby villages to ensure the water quality is not affected due to the quarrying activities.
- Domestic sewage from site office & urinals/latrines provided in project area will be discharged through septic tank followed by soak pit system.
- De-silting will be carried out before and immediately after the monsoon season and the settling tank and drains will be cleaned weekly, especially during monsoons.

4.4.2 ANTICIPATED IMPACT ON GROUND WATER

The quarrying activity will not intersect ground water table as quarrying is proposed upto a depth of 42m BGL and water table is found at a depth of 57m to 60m BGL. No chemical having toxic elements will be used for carrying out mining activity. Also, Rough Stone does not contain any kind of toxic element which can contaminate the water. So, the rain water or water used for drilling purposes which infiltrates into the ground in the lease area does not affect the quality of ground water.

MITIGATION MEASURES

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

GROUND WATER ENVIRONMENT IN BUFFER ZONE

The scenario of ground water in Tirunelveli District, Palayamkottai Taluk is given below.

TABLE 4.2 - GROUND WATER LEVEL STATUS IN PALAYAMKOTTAI FIRKA

S. No.	Firka	Net Annual Ground water availability	Existing gross ground water consumption for irrigation	Existing gross ground water consumption for domestic and industrial water supply	Existing gross ground water consumption for all uses	Stage of ground water development	Category
1	Palayamkottai	811.75	172.80	8.91	181.71	22	safe

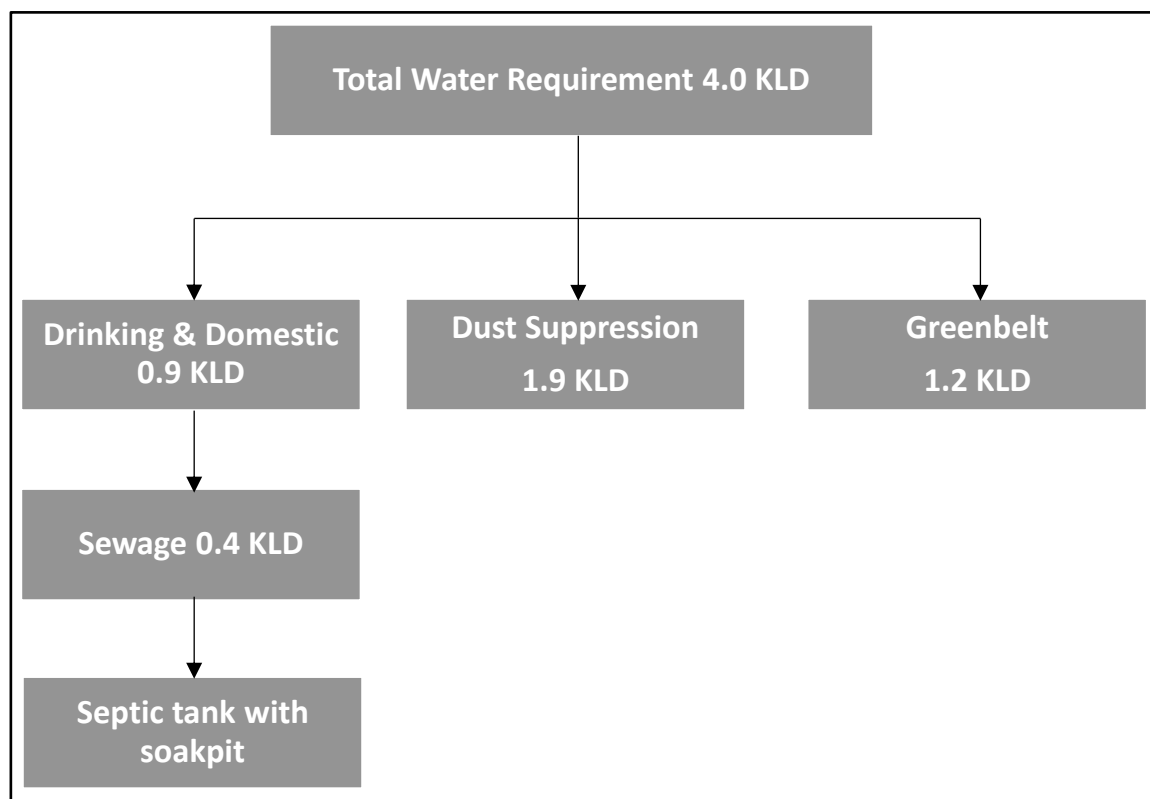
Source: nwm.gov.in

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

4.4.3 ANTICIPATED IMPACT DUE TO WATER USE IN MINE'S

The total water requirement for the project will be 4.0 KLD comprising Drinking & Domestic is 0.9 KLD, Dust suppression is 1.9 KLD and Greenbelt is 1.2 KLD. The water will be sourced initially from outside agencies. Later the rainwater collected in the mine pit sump will be used for this purpose. The water balance diagram for the same is shown in Figure 4.1.

FIGURE 4.1 - WATER BALANCE DIAGRAM



MITIGATION MEASURES

The following mitigation measures are suggested for water management:

- Rainwater will be collected in lower part of the quarry pit by construction of garland drains to divert surface run-off and will be connected to setting tank to allow suspended solids to settle down if any. This collected water will act as a rain water harvesting system and will be used for dust suppression and greenbelt development.
- Regular monitoring (every 6 month once) and analyzing the quality of water in open well, bore wells and surface water.

4.4.4 RAINWATER HARVESTING PLAN

Since the lease proximate areas are with less water potential and the rainwater is the major source for replenishment of ground water, effective rainwater harvesting and other water augmentation measures are proposed in this project.

- Development of garland drain around the quarry connected to settling tank.
- Cleaning of drain periodically to prevent siltation.
- The supernatant clear water from the settling pond will drain into the nearby channel on the eastern side of the lease.

- Utilizing the rainwater harvested in the mine pit to meet the water requirement of the project.
- The rain water stored in the pond will be utilized for plantation, dust suppression activities. The capacity of Rain water harvesting post will be sufficient to arrest the surface runoff from the lease area considering the highest amount of rainfall.

4.5 AIR ENVIRONMENT

The existing ambient air quality in the area has been described in Chapter-3. Opencast mechanized mining, using jackhammer drilling, blasting, and excavation through an excavator, as well as mineral transport through tippers, will be carried out for the excavation of Rough Stone.

4.5.1 ANTICIPATED IMPACT ON AIR ENVIRONMENT

The proposed mining and allied operations may cause deterioration of air quality due to pollution arising from the project operation if prompt care is not taken. The principal sources of air pollution in general due to mining and allied activities will be:

The air-borne particulate matter generated by quarrying operations and transportation is mainly PM₁₀ and PM_{2.5}, and emissions of sulfur dioxide (SO₂) and oxides of nitrogen (NO₂) due to excavation/loading equipment and vehicles plying on haul roads are the cause of air pollution in the project area.

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

4.5.2 MITIGATION MEASURES TO CONTROL AIR POLLUTION

The following measures will be adopted to control impact on the air quality due to mining operations in the lease area due to adoption of which, no major impact on air quality is envisaged due to this proposed opencast mining operation.

TABLE 4.3 - MITIGATIVE MEASURES FOR AIR ENVIRONMENT

S.NO	Activity	Consequence	Mitigative Measures
1	Drilling	Dust Emission	Usage of wet drilling
			Covering of drill holes with wet cloth
			Usage of sharp drill bits for drilling of holes.
			Provision of dust mask to workers working at highly dust prone and affected areas.
2	Blasting	Prompt dust emission	Well-designed blasting parameter, effective stemming to achieve optimum breakage occurs without generating fines.
			Use of appropriate explosives for blasting and avoiding overcharging of blast holes.
			Avoiding blasting during high wind periods where the fine dust is carried out away easily affecting the ambient air quality.
			Use of controlled blasting techniques with milli second delay detonators to keep the dust generation, noise as well as vibration level within the prescribed limits.
3	Excavation and Loading	Dust emission, Gaseous Emission	Proper maintenance of HEMM will be carried out to minimize dust and gaseous emission at the source level.
			Water sprinkling will be carried out at excavation and loading area.
			Imparting sufficient training to operators on safety and environmental parameters.
			Avoiding overloading of dumpers.
4	Transportation	Dust emission, Gaseous Emission	Regular wetting of transport road using mobile water tanker.
			Proper maintenance of haul road and other roads
			Avoiding overloading of tippers
			Covering of loaded tippers with tarpaulins during transportation
5	Greenbelt	Dust emission, Gaseous Emission	Vehicular emissions will be controlled through regular and proper preventive maintenance only PUC valid vehicles will be used for transportation.
			Development of greenbelt / barriers around mine in the safety zone and carrying out plantation within the lease area.
6	Occupation Health	Dust emanation, Gaseous Emission	Dust mask will be provided to the workers and their use will be strictly monitored
			Annual medical checkups, trainings and campaigns will be arranged to ensure awareness about importance of wearing dust masks among all mine workers & tipper drivers
			Ambient Air Quality Monitoring will be conducted six months once to assess effectiveness of mitigation measures proposed

4.5.2.1 AIR QUALITY IMPACT PREDICTION

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

TABLE 4.4 - TYPES OF SOURCE FOR AIR POLLUTION IN MINING		
S. No.	Type of mining operation	Type of Source
1	Wet drilling	Point
2	Loading	Point
3	Transportation	Line

4.5.2.2 ARRIVING EMISSION FACTOR

Emission factor for PM₁₀ for different activities are given below.

TABLE 4.5 - EMISSION FACTORS FOR MINING ACTIVITIES			
S. No.	Activity	Emission factor	Unit
1	Wet drilling	0.00008	lb/s
2	Ore loading	0.0014	Kg/t/s
3	Transportation	0.26	Kg/VKT

Source

1. Jose I. Huertas & Dumar A, Camacho & Maria E. Huertas, Standardized emissions inventory methodology for open pit mining areas, Environmental Science Pollution Research, 2012.
2. AP-42. U.S Environmental Protection Agency, Office of Air Quality Planning and Standards

4.5.2.3 MODEL INPUT DATA

The air pollution modeling carried out represents the normal operating scenarios. As the project is a mining project the major source of pollution is particulate matter. The SO_x and NO_x emission will be very less only due to vehicular emission. So, the pollutant taken for prediction of incremental concentration is particulate matter (PM 10 & PM 2.5). The predicted incremental Ground Level Concentrations (GLCs) for particulate matter is likely to be contributed by the proposed project. The average predicted 24 hr average concentration has been tabulated as below.

4.5.2.4 EMISSION ESTIMATION

Based on the emission factors, after adopting necessary control measures like dust suppression, Proper maintenance of HEMM, using better quality diesel, using latest equipment, proper maintenance of roads, trained operators etc. the expected emission rate due to various operations in this project is calculated and is given below:

TABLE 4.6 - EMISSION RATE MEASURES IN g/sec		
ACTIVITIES/POLLUTANTS	PM ₁₀	PM _{2.5}
Ore Loading	0.0334	0.0047
Drilling	0.1486	0.0595
Hauling inside lease area	0.1477	0.0212
Total	0.3298	0.0853

4.5.2.5 RESULTS AND DISCUSSIONS

The results of the Peak GLC's for various environmental parameters are given below:

TABLE 4.7 - RESULTS OF THE PEAK GLC'S		
S.No	Parameters	Peak incremental concentration $\mu\text{g}/\text{m}^3$
1	PM ₁₀	5.09
2	PM _{2.5}	2.30

It is observed that the peak incremental concentration for PM₁₀, PM_{2.5} is occurring very near the source. At away from the source the values are getting reduced due to dispersion effects. No adverse effect in this front is envisaged. The Isopleths of PM₁₀, PM_{2.5} concentrations have been drawn and these are given in **Figure 4.2 to 4.3**. The incremental and predicted concentrations at the locations of ambient air quality have been discussed in the following section.

FIGURE 4.2 - ISOPLETH OF GLC PREDICTION FOR PM₁₀

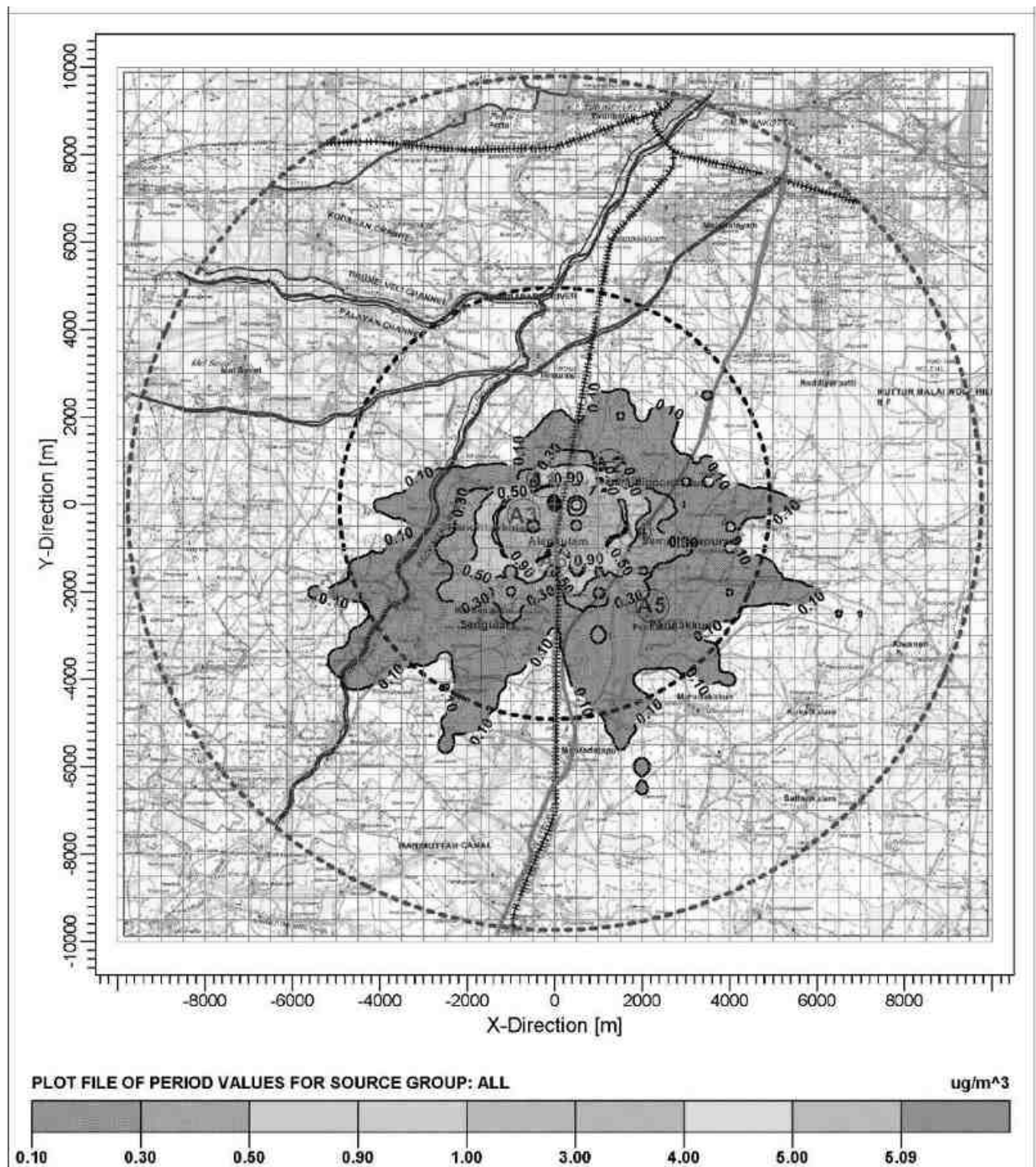
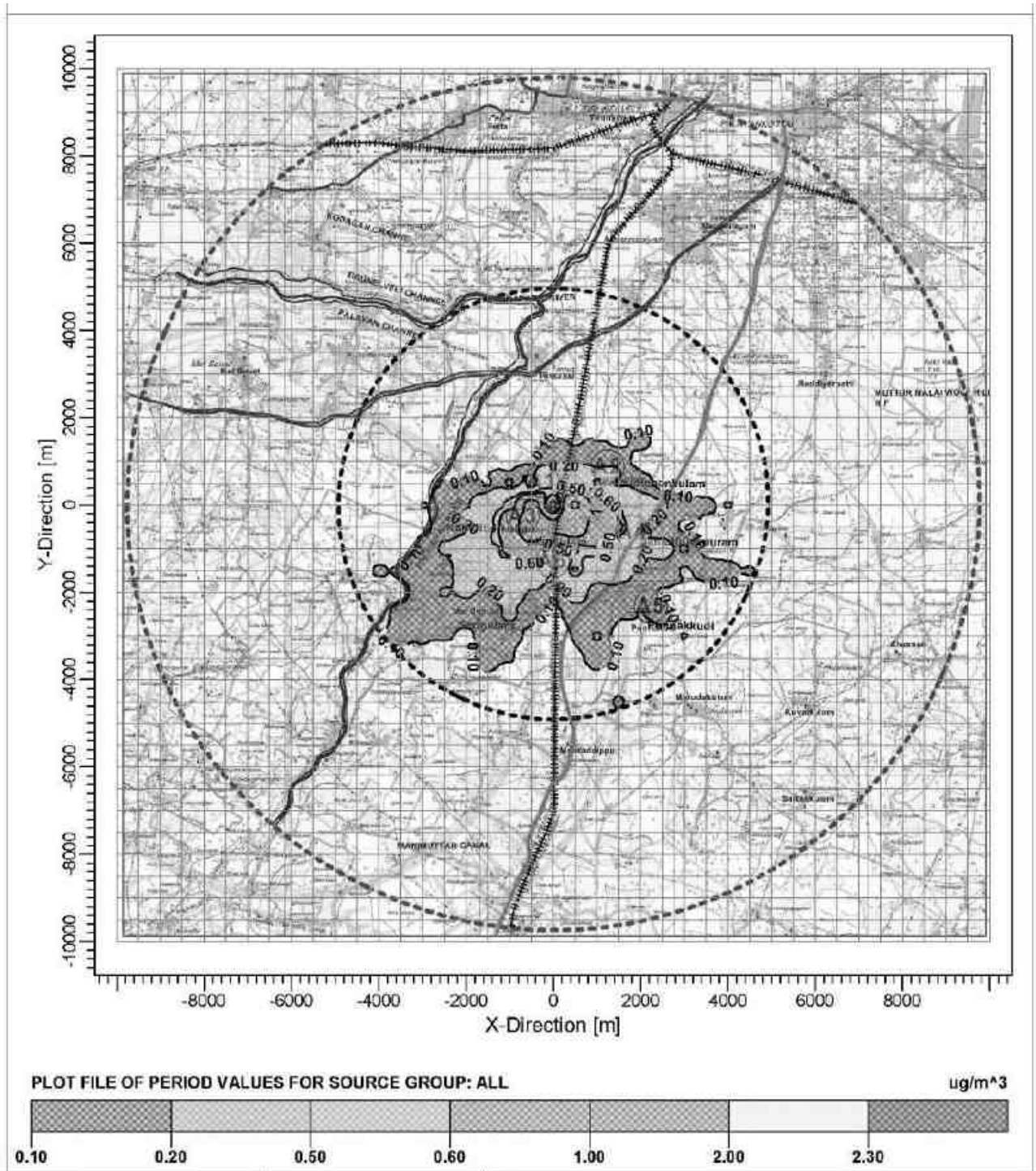


FIGURE 4.3 - ISOPLETH OF GLC PREDICTION FOR PM_{2.5}



4.5.2.6 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 4.8 & 4.9.

TABLE 4.8 - 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	A1- Near Mine Lease Area	40.4	2.3	42.7	-
2	A2 - Adaimithipankulam	34.2	<1.0	35.2	60
3	A3- Kandithankulam	34.6	<1.0	35.6	
4	A4- Samathuvapuram	32.1	<1.0	33.1	
5	A5- Ponnakudi	32.6	<1.0	33.6	
6	A6- Alankulam	31.6	<1.0	32.6	

TABLE 4.9 - 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	A1- Near Mine Lease Area	79.2	5.0	84.2	1200 $\mu\text{g}/\text{m}^3$ for particulate emissions
2	A2 - Adaimithipankulam	67.2	1.0	68.2	100
3	A3- Kandithankulam	71.3	2.0	73.3	
4	A4- Samathuvapuram	62.9	<1.0	63.9	
5	A5- Ponnakudi	63.2	<1.0	64.2	
6	A6- Alankulam	61.1	<1.0	62.1	

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 62.1 $\mu\text{g}/\text{m}^3$ to 84.2 $\mu\text{g}/\text{m}^3$ and with respect to PM_{2.5} are in the range of 32.6 $\mu\text{g}/\text{m}^3$ to 42.7 $\mu\text{g}/\text{m}^3$ 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.

4.6 NOISE ENVIRONMENT

The ambient noise levels in the study area have been discussed in Chapter - 3. The data shows that the existing noise levels are within statutory limits. The impact prediction and control measure for noise environment due to mining and allied activities is described below:

4.6.1 IMPACT DUE TO NOISE AND VIBRATION

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

TABLE 4.10 - THE LIKELY NOISE LEVEL IN THE LEASE AREA			
SL.No	Source Name	Inside Cabin in dB (A)	Noise Level in dB (A) 10m. from source
1	Shovel	84-91	59-68
2	Dumpers/Tippers	87-96	75-85
3	Drill	88-95	75-83

Anticipated noise levels resulting from operation of the various machineries like excavator, tippers, drill have been computed using point source model. Computation of cumulative noise levels at the nearby villages is made based on the assumption that there are no attenuation paths between the source and the boundary. Noise modeling is carried out using the following formula:

$Lp2 = Lp1 - 20 \log R2/R1$, Where, $Lp1$ and $Lp2$ are sound pressure levels at points located at distances $R1$ and $R2$ respectively from the source.

The study results are as follows:

Sl.NO	Location	Baseline Day Eq.in dB(A)	Post project noise Eq in dB(A)	Limit dB(A) as per MoEF&CC
1.	North West Corner	43.1	57.8	90
2.	North East Corner	43.1	57.0	90
3.	South East Corner	43.1	56.0	90
4.	South West Corner	43.1	57.1	90
5.	Adaimithipankulam	46.6	47.0	55
6.	Kandithankulam	44.4	44.5	55
7.	Samathuvapuram	42.2	43.1	55
8.	Ponnakudi	41.5	41.8	55
9.	Alankulam	45.0	45.3	55

From the studies, it is found that the predicted Noise Levels due to mining operations at the periphery of the mine lease itself will be less even without considering any attenuation factor. However, practically there will be attenuation due to vegetation etc., and as such there will not be any adverse noise propagation outside the lease boundary. Since the habitations are also away the effect of noise due to mining operations will not be felt at all in the surrounding villages.

4.6.2 MITIGATION MEASURES FOR NOISE CONTROL

The following noise mitigation measures are proposed for control of Noise

- Usage of sharp drill bits while drilling which will help in reducing noise;
- Secondary blasting will be totally avoided and hydraulic rock breaker are utilized for breaking boulders;
- Controlled blasting with proper spacing, burden, stemming and optimum charge/delay will reduce noise;
- The blasting will be carried out during favorable atmospheric condition and less human activity timings by using nonelectrical initiation system;
- Proper maintenance, oiling and greasing of machines will be done every week to reduce generation of noise;
- Provision of sound insulated chambers for the workers working on machines (HEMM) producing higher levels of noise;
- Green Belt will be developed around the project areas and along the haul roads. The plantation minimizes propagation of noise;
- Personal Protective Equipment (PPE) like ear muffs/ear plugs will be provided to the operators of HEMM and persons working near HEMM and their use will be ensured through training and awareness.
- Regular medical check-up and proper training to personnel to create awareness about adverse noise level effects

4.6.3 GROUND VIBRATION

The vibration due to blasting can cause damage to the nearby structures if appropriate technology and control measures are not adopted in the blasting operation. Fly rock is another possible damage causing outcome of blasting. There are many factors which influence fly rock during blasting. Most important of these factors are long explosive column with little stemming column, improper burden, loose material or pebbles near the holes and long water column in the hole.

MITIGATIVE MEASURES

- Proper quantity of explosive, suitable stemming materials and appropriate delay system should be adopted to avoid overcharging and for safe blasting;
- Adequate safe distance from blasting should be maintained as per DGMS guidelines;
- Blasting shelter should be provided as per DGMS guidelines;
- Blasting operations shall be carried out only during day time;
- The charge per delay shall be minimized and preferably a greater number of delays will be used per blasts;
- During blasting, other activities in the immediate vicinity shall be temporarily stopped;
- Drilling parameters like depth, diameter and spacing will be properly designed to give proper blast;
- Blasting will be carried out under the supervision of statutory persons as approved by DGMS.
- A well-defined SOP will be framed under the leadership of top management and the same will be followed for each blasting.
- Regular PPV monitoring will be carried out to ensure PPV limits i.e., 0.5 mm/s.

4.7 BIOLOGICAL ENVIRONMENT

The details and list of flora, fauna, reserved forest and cropping pattern within the 10km radius of study area is given in chapter 3. The impact on ecology and biodiversity due to the proposed mining activity has to be studied in detail to prepare the management plan to safeguard the flora, fauna, forest products and aquatic living organism etc. A detailed anticipated impact of Ecology and Biodiversity due to mining activity is described in below Table.

TABLE 4.11 - ECOLOGICAL IMPACT ASSESSMENTS AND ITS MITIGATIONS -PART 1

S.NO	Issues	Assessment	Mitigations
1	Proximity to national park/ wildlife sanctuary / reserve forest / mangroves / coastline/estuary/sea	Nearest R.F. is Muttur Malai Wolf Hill R.F. – 8.3 km (NE) and Nearest Sanctuary is Kalakad Mundanthurai Tiger Reserve – 14.84 km (NW). Western Ghats ESA boundary as per MoEF & CC draft notification dated 3rd October 2018 is located 16.2km from the lease area on the Southwestern side. No forests are situated within 1.0 km radius. The proposed project does not attract Forest Conservation Act, 1980. There are no wild life sanctuaries found around 10km radius and the area does not attract Wildlife Protection Act, 1972 and C.R.Z. Notification, 1991.	The fugitive dust generated by the mining activity will be suppressed by frequent sprinkling of water based on evaporation rate in the site specific.
2	Activities of the project affects the breeding/nesting sites of birds and animals	No breeding and nesting site was identified in mining lease site. The fauna sighted mostly migrated from buffer area. The fauna in the buffer zone may be affected by noise generated due to mining activity.	The noise due to the mining activity will be controlled by developing green belt all along the lease boundary, regular maintenance of tippers, excavators, transporting the tippers within speed limits.
3	Located near an area populated by rare or endangered species	No endangered, critically endangered, vulnerable species sighted in core mining lease area and also in buffer zone.	NIL
4	Proposed project restricts access to waterholes for wildlife	No waterholes are in core zone. No Wild life sanctuary within 10km radius.	NIL

5	Proposed mining project impact surface water quality that also provide water to wildlife	"NO" scheduled or threatened wildlife animal sighted regularly in core area. There is no proposal for discharge of wastewater to nearby water bodies.	NIL
6	Proposed mining project increase siltation that would affect nearby Biodiversity area.	Surface runoff management structures like garland drain, settling pond etc. as explained above will be constructed and as such there will not be any appreciable impact on surface water quality which in turn can affect the bio diversity of the area.	
7	Risk of fall/slip or cause death to wild animals due to project activities	In the post mining stage, wire fencing is proposed all around the mined-out void to prevent falling of animals in the mine pits.	
8	The project release effluents into a water body that also supplies water to a wildlife	As the proposed project is mining activity there will be no possibilities of release of effluents. Also, no Wild life sanctuary within 10km radius.	NIL
9	Mining project effect the forest-based livelihood/ any specific forest production which local livelihood depended	Reserved forests is located beyond 1 km radius. So, the proposed mining activity does not affect forest and forest products.	NIL
10	Project likely to affect migration routes	No migration route observed during monitoring period.	NIL
11	Project likely to affect flora of an area, which have medicinal value	No such significantly important medicinal value species within the ML area and its nearby region.	NIL
12	Forestland is to be diverted, has carbon high sequestration	"NO". There is no forest land within the lease area.	NIL
13	The project likely to affect wetlands, fish breeding grounds, marine ecology	"NO". No wetland, fish breeding grounds, marine ecology present in core mining area.	NIL

Format Source: EIA Guidance Manual-Mining and Minerals, 2010

TABLE 4.12 - ECOLOGICAL IMPACT ASSESSMENTS AND ITS MITIGATIONS - PART 2

Identified Impacts	Ecological Significance of impact	Magnitude	Phase / duration	Reversibility	Mitigation
Project site Habitat due to Site Clearance.	There are no trees present in the lease area. The Mining activity will be carried within the lease area. No clearance of vegetation in the buffer zone	Low impact	Planning stage	Irreversible	The quarried-out pit will be used as water storage pond which increases agricultural activity in the buffer zone.
Impact on Surrounding habitat due to fugitive emission	The fugitive emission due to the mining activities such as drilling, blasting, loading and transportation on the haul road will be deposited on the flora and crop field in the buffer zone which affects growth and its productivity.	Temporary Impact	Operational stage	Reversible	The sprinkling of water over the haul road will be done. Then completely wet drilling will be taking place. The transportation vehicles will be maintained and serviced Properly.
road construction	No Road construction is required to assess the project site. The existing internal Road connects the project site to the existing SH and NH	No Impact	-	-	-
Ecological Impact on Surrounding/ Eco sensitive habitat due to waste water generated from the project activity.	Since the proposed project is a mining activity no waste water generation is expected. Sewage will be generated due to the workers	No impact	-	-	-
Ecological Impact on Surrounding / Eco sensitive habitat due to Noise generated from the project activity.	During drilling or blasting, transportation of Rough Stone noise will be generated and it may slightly affect the movement of fauna around the lease area.	Temporary impact	Only during drilling, blasting operation and Transportation period. (5 years)	No	Avenue trees will be planted along the lease area to minimize the noise level. Milli second detonators shall be used preferably 25-50ms per delay to control vibrations. Regular maintenance of vehicles and

					driving the tipper within specified limits also control the noise generations.
Ecological Impact on Surrounding/ Eco sensitive habitat due to Transportation	There is no eco sensitive habitat found around the lease area. The fugitive emission from drilling, blasting, vehicle movement will form layer in leaves thus reducing the gaseous exchange process. This ultimately affects the growth of plants. The animals like dog, cattle may get accident due to truck movement.	Temporary impact	During Operation Phase	NO	The truck driver will be advised to drive the vehicle within 20km/hr inside the lease area and 40km/hr outside the lease area. The sprinkling of water over the haul road will be done. Then completely wet drilling will be take place.

4.7.1 ANTICIPATED IMPACTS ON BIOLOGICAL ENVIRONMENT

- The deforestation, soil degradation, water, air, and noise pollution caused by mining operations typically have a direct or indirect negative impact on the fauna and floral composition of the project region.
- Although impacts on important habitat components will happen on a local level, they would not be crucial for the life cycle requirements of the species as seen or anticipated on a regional level.
- Additionally, during the conceptual stage, the top bench's mined-out areas will be re-vegetated by planting native or local species, and the lower benches will be converted into rainwater harvesting structures after the mining activities are finished, replacing habitat resources for fauna species in this area for a longer period of time.

4.7.2 MITIGATION MEASURES

- Necessary mitigative measures like dust suppression, proper maintenance of equipment's, roads will be carried out to prevent dust generation.
- There is no proposal to discharge any effluent into nearby water bodies.
- Surface runoff management structures like garland drain, settling pond, protective bund etc. as explained above will be constructed and as such there will not be any appreciable impact on surface water quality which in turn can affect the bio diversity of the area.
- Construction of barbed wire fencing all around the boundary to prevent falling of animals in the mine pits.

4.7.3 GREENBELT DEVELOPMENT PLAN

In order to compensate the loss of vegetation cover, it is suggested to carry out afforestation program mainly in proposed mine lease area earmarked for plantation program as per Approved Mining Plan in different phases. This habitat improvement program would ensure the faunal species to re-colonize and improve the abundance status in the core zone. Greenbelt / Plantation will be carried out to enhance the vegetative growth and aesthetic in the safety zone area.

Table – 4.13 - GREENBELT DEVELOPMENT PLAN

Year	No. of trees proposed to be planted	Survival %	Name of the Species	No. of trees expected to be grown
I	200	80%	Neem, Casuarina, Pongamia pinnata, etc.,	160
II	0	-		-
III	0	-		-
IV	0	-		-
V	0	-		-

Nearly 2000 Sqm of area is proposed for Greenbelt development by planting 200 Nos of trees during first year and expected growth is around 160 Nos @ survival rate of 80%. The objectives of the green belt cover will cover the following:

- Noise abatement.
- Reuse of waste water to the extent possible.
- Prevention of soil erosion.
- Ecological restoration.
- Aesthetic, biological and visual improvement of area due to improved vegetative and plantations cover.

4.8 SOCIO – ECONOMIC STUDY

From the primary Socio-economic survey & through secondary data available from established literature and census data 2011, it is found that there would be positive impact on Socio-economic condition of the nearby area. There is no habitation within 300 m of the proposed mining lease area. Therefore, no major impact is anticipated on the nearby habitation during the entire life of the mine. The entire lease area is in the proponent's possession. Hence, there are no habitations or hutments in the core zone area and no rehabilitation or resettlement problems will arise here.

ANTICIPATED IMPACT

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

The mining operations in the proposed mine will employ about 13 persons directly and 8 people on indirect basis through allied opportunities in logistics, trading, repairing works etc. Good employment potential will arise, which will provide raising income levels and standards of living in the area through various service related activities connected with the project operations as shown under.

- Project related logistical operations for transport of Rough Stone, etc.,
- Various trading services for consumer goods, spare parts, sundry items, etc.
- Contractual services connected with the project.
- Green belt and horticultural works in the project.
- Casual labor needs for various activities.

The State and the Central governments will also get benefited through financial revenues by way of royalty, tax etc., from this project.

MITIGATION MEASURES

- Good maintenance practices will be adopted for plant machinery and equipment, which will help to avert potential noise problems.
- Green belt will be developed in and around the project site as per Central Pollution Control Board (CPCB) guidelines.
- Air pollution control measure will be taken to minimize the environmental impact within the core zone.
- For the safety of workers, personal protective appliances like hand gloves, helmets, safety shoes, goggles, aprons, nose masks and ear protecting devices will be provided as per mines act and rules.

From above details, the quarry operations will have highly beneficial positive impact in the area. Mine management will contribute for the upliftment of these villages by conducting regular medical camps, assistance in developing necessary infrastructure facilities like maintenance of schools, village roads, drinking water supply, etc.

From above details, it is clear that the project operations will have highly beneficial positive impact in the area. However, towards the socio economic development of the surrounding area, the proponent has earmarked an amount of Rs.5.0 Lakhs under Corporate Environmental Responsibility.

4.9 OCCUPATIONAL HEALTH AND SAFETY

Primary data collection through field survey conducted in the study area reveals that there is no reported incident of any occupational diseases in the area. Hazardous jobs like blasting, loading, etc. are planned to be executed safely and with all precautionary measures as prescribed in Metalliferous Mines Regulations of 1961, so as to minimize hazards and incidences of health problems.

Occupational health and safety hazards occur during the operational phase of mining and primarily include the following:

- Respiratory hazards
- Noise
- Explosive storage and handling

RESPIRATORY HAZARDS

Long-term exposure to silica dust may cause silicosis the following measures are proposed:

- Cabins of excavators and tippers will be enclosed with AC and sound proof
- Use of personal dust masks will be made compulsory

NOISE

Workers are likely to get exposed to excessive noise levels during mining activities. The following measures are proposed for implementation.

- No employee will be exposed to a noise level greater than 85 dB(A) for a duration of more than 8 hours per day without hearing protection.
- The use of hearing protection will be enforced actively when the equivalent sound level over 8 hours reaches 85 dB(A), the peak sound levels reach 140 dB(C), or the average maximum sound level reaches 110 dB(A).
- Ear muffs provided will be capable of reducing sound levels at the ear to at least 85 dB(A).
- Periodic medical hearing checks will be performed on workers exposed to high noise levels.

OCCUPATIONAL HEALTH SURVEY

All the persons will undergo pre-employment and periodic medical examination as per DGMS and 12th National Mines Safety Council recommendation.

- The PP will maintain occupational health history card for their Employees.
- The PP will establish first aid station within project site.
- Good Drinking Water specialty will be provided at the site level.

4.10 WASTE MANAGEMENT

4.10.1 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.

4.10.2 LIQUID WASTE

There is no process effluent generation from this mine. Hence no liquid waste is generated. Domestic wastewater i.e 0.4 KLD will be discharged in soak pit via septic tank.

4.10.3 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 of as per the Hazardous waste (Trans-boundary Movement) Management Rules, 2016.

4.10.4 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.

5.0 ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

5.1 ALTERNATE TECHNOLOGY

The mining technology is mechanized open cast 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 2.

5.2 ALTERNATE SITE

The 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.

6.0 ENVIRONMENTAL MONITORING PROGRAMME

6.1 GENERAL

The monitoring and evaluation of environmental parameters indicates potential changes occurring in the environment, which paves way for implementation of rectifying measures wherever required to maintain the status of the natural environment. Evaluation is also a very effective tool to judge the effectiveness or deficiency of the measures adopted and provides insight for future corrections.

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

6.2 MONITORING MECHANISM

The PP will undertake effective monitoring and implementation of various environmental control measures promptly and effectively and to oversee various environmental management schemes for air quality control, water quality status, noise level control, plantation programme, social development schemes, etc. in the mine.

6.3 ENVIRONMENTAL MONITORING SCHEDULE AND FREQUENCY

The monitoring schedules are planned for systematic study of various pollution levels with respect to air and water qualities, noise levels, etc. to ensure that they conform to the standards laid down by Environmental Protection Act and various statutory Limits. However, based on the need and priority it may be suitably modified / improved in consultation with local authorities. Monitoring may include socio-economic interaction, through local liaison activities or even assessment of complaints. The monitoring schedules to be adopted in this quarry are given below.

TABLE 6.1 - ENVIRONMENTAL MONITORING SCHEDULE

S.NO	Environmental Attribute	Parameters to be monitored	Monitoring Locations	Frequency
1	Air Quality	Particulate Matter (PM2.5 and PM10), Sulphur dioxide (SO2), Oxides of Nitrogen (NO2), Respirable.	4 locations in the buffer zone and 2 work zone locations.	Once in season
2	Water Quality	General, Physical, and chemical parameters	Ground Water samples (around the project area) and Mine Pit water samples	Once in season
3	Hydrogeology	Water Levels	Nearby wells and Borewells	On yearly basis pre and post monsoon level
4	Noise	Leq. Lmax Lmin, Leq Day & Leq Night dB (A)	Work zone locations and buffer zone villages	Once in Season
5	Vibration	Peak Particle Velocity	Mine periphery	Regular Interval
6	Soil	Physical and Chemical Characteristics	2 Locations (1 Core & 1 Buffer)	Once in Season.
7	Greenbelt	Maintenance	Within the lease area	Regular interval

6.4 BUDGET FOR IMPLEMENTAION

The cost in respect of monitoring of environmental attributes, parameter to be monitored, sampling/monitoring locations with frequency and Monitoring work will be outsourced to external laboratory approved by NABL / MoEF. Total EMP Cost for 5 years is 18.07 lakhs i.e., 7.07 Lakhs of Capital cost and 11.00 lakhs of Recurring cost for Five years. The breakup of EMP cost is detailed in Table 10.2 of Chapter 10.

6.5 SUBMISSION OF PERIODICAL REPORTS

The monitored data on air quality, water quality, noise levels and other environmental attributes will be periodically examined by the Mine Management Coordinator and Respective Head of Organization for taking necessary corrective measures. The

monitoring data will be submitted to Tamil Nadu State Pollution Control Board in the Compliance to CTO Conditions & environmental audit statements every year to MoEF & CC and Half-Yearly Compliance Monitoring Reports to MoEF & CC Regional Office and SEIAA.

Periodical reports to be submitted to: -

- MoEF & CC – Six month EC compliance report
- TNPCB - Half yearly CTO Compliance report
- MOEF & CC & TNPCB – annual Environmental Statement Report. (Form – V)
- Annual Hazardous Waste Return (Form – IV)
- Department of Geology and Mining: quarterly, half yearly and annual reports.

7.0 ADDITIONAL STUDIES

The following Additional Studies were done as per items identified by project proponent and the regulatory authority.

- Public Consultation
- Risk Assessment
- Disaster Management Plan
- Cumulative Impact Study
- Mine Closure Plan
- Slope Stability Plan

7.1 PUBLIC CONSULTATION

This draft EIA/EMP report will be exposed to public consultation as per mandatory procedures through the District Collector and State Pollution Control Board officials after giving 30 days advance notice in two local newspapers about the scheduled date and time for conduct of the public hearing procedures. The opinions, concerns and objections of stakeholders will be recorded during the public hearing. All the public queries and the replies to the query by the project proponent and officials concerned will be recorded and incorporated in the EIA/EMP report for approval by SEIAA, Tamil Nadu.

7.2 RISK ASSESSMENT

The DGMS risk assessment process is intended to identify existing and probable hazards in the work environment and all operations and assess the risk levels of those hazards in order to prioritize those that need immediate attention. Further, mechanisms responsible for these hazards are identified and their control measures, set to timetable are recorded along with pinpointed responsibilities.

The whole quarry operation will be carried out under the direction of a Qualified Competent person holding certificate of competency to manage a metalliferous mine granted by the DGMS. Factors of risks involved due to human induced activities in connection with this proposed mining & allied activity with detailed analysis of causes and control measures for the mine is given in below Table 7.1.

TABLE 7.1 - RISK ASSESSMENT AND CONTROL MEASURES

S.NO	Risk Factor	Causes of risk	Control Measures
1	Accidents due to explosives and heavy mining machineries	Improper handling and unsafe working practice	- All safety precautions and provisions of Mine Act, 1952, Metalliferous Mines Regulation, 1961 and Mines Rules, 1955 will be strictly followed during all mining operations. - Entry of unauthorized persons will be prohibited. - Fire-fighting and first-aid provisions in the mine office complex and mining area. - Provisions of all the safety appliances such as safety boot, helmets, goggles etc. will be made available to the employees and regular check for their use. - Quarry operation will be done as per approved mining plan and other applicable statutory guidelines issued by DGMS, Dept. of Mining & Geology-Tamil Nadu. - Handling of explosives, charging and firing shall be carried out under competent statutory persons. - A comprehensive standard operating procedure (SOP) will be prepared as per DGMS guidelines and the same will be circulated to all the employees and it will be strictly followed in the all face of mining operation.
2	Drilling	Improper and unsafe practices. Due to high pressure of compressed air, hoses may burst. Drill Rod may break.	- Safe operating procedure established for drilling (SOP) will be strictly followed. - Only trained operators will be deployed. - No drilling shall be commenced in an area where shots have been fired until the blaster/blasting foreman has made a thorough Examination of all places. - Drilling shall not be carried on simultaneously on the benches at places directly one above the other. - Periodical preventive maintenance and replacement of worn-out accessories in the compressor and drill equipment as per operator manual. - Drills unit shall be provided with wet drilling to ensure efficient working.

3	Blasting	Fly rock, ground vibration, Noise and dust. Improper charging, stemming & Blasting/ fining of blast holes. Vibration due to movement of vehicles.	• Restrict maximum charge per delay as per approved mining plan. • Proper blasting design with optimum spacing & burden, Charge per delay and stemming. • SOP for Charging, Stemming & Blasting/Firing of Blast Holes will be followed by blasting crew during initial stage of operation. • Shots are fired during day time only. • Charging and firing shall be carried out in the same day. • Siren will be done for each blasting. Blasting evacuation plan prepared and executed. • The danger zone will be distinctly demarcated (by means of red flags).
5	Transportation	Potential hazards and unsafe workings contributing to accident and injuries. Overloading of material. While reversal & overtaking of vehicle. Operator of truck leaving his cabin when it is loaded.	• Before commencing work, drivers personally check the dumper/truck/tipper for oil(s), fuel and water levels, tyre inflation, general cleanliness and inspect the brakes, steering system, warning devices including automatically operated audio-visual reversing alarm, rear view mirrors, side indicator lights etc., are in good condition. Unauthorized person will not be allowed to operate or ride on the vehicle. • Loading according to the vehicle capacity. • Periodical maintenance of vehicles as per operator manual.
6	Natural calamities	Unexpected happenings	• An emergency management plan will be prepared considering all possible natural calamity and the same will be executed if any such situation occurs. • Escape Routes will be provided to prevent inundation of storm water. • Fire Extinguishers & Sand Buckets in the designated areas.
7	Failure of Mine Benches and Pit Slope	Slope geometry, Geological structure	• Ultimate or over all pit slope shall be below 60° and each bench height shall be 5m height.

7.3 DISASTER MANAGEMENT PLAN

This being a small Rough Stone project that too working in a safe area, no major disaster is expected after following all the statutory rules and regulations.

7.3.1 MODEL DISASTER MANAGEMENT PLAN

The lessee has formulated the disaster Management plan keeping all eventualities in mind. The mining operation will be carried out under the direction of qualified mines manager and supervisors, based on the guidelines and directions of Directorate General of Mines Safety (DGMS) and Indian Bureau of Mines. Code of practice of different operations will be formulated to ensure safety of men and machines and to avoid various hazards mentioned above. Mine workers will be provided training on safe work practices. The following natural/ industrial hazards may occur during normal operation; slope failure at the mine faces; accident due to heavy equipment/ machinery. In order to prevent or take care of hazard / disasters if any the following control measures have been adopted.

- All safety precautions and provisions of Metalliferous Mines Regulations (MMR), 1961 is strictly followed during all mining operations.
- Observance of all safety precautions for blasting and storage of explosives as per MMR 1961.
- Entry of unauthorized persons into mine & allied areas is completely prohibited.
- Fire-fighting and first-aid provisions in the mines office complex and mining area are provided.
- Provisions of all the safety appliances such as safety boot, helmets, goggles, dust masks, ear plugs and ear muffs etc. are made available to the employees and the use of same is strictly adhered to through regular monitoring.
- Training and refresher courses for all the employees working in hazardous premises. Working of mine, as per approved plans and regularly updating the mine plans.
- Handling of explosives, charging and blasting are carried out only by qualified persons following SOP.
- Checking and regular maintenance of garland drains and earthen bunds to avoid any inflow of surface water in the mine pit.
- Provision of high-capacity standby pumps with generator sets with enough

quantity of diesel for emergency pumping especially during monsoon.

- A blasting SIREN is used at the time of blasting for audio signal.
- Before blasting and after blasting, red and green flags are displayed as visual signals. Warning notice boards indicating the time of blasting and NOT TO TRESPASS are displayed at prominent places.
- Regular maintenance and testing of all mining equipment were carried out as per manufacturer's guidelines.

7.3.2 OBJECTIVE OF DISASTER MANAGEMENT PLAN

The objective of disaster management plan is to identify mitigation measures to avoid hazards turning in risk, the materials required for implementing the same, the personnel requirement and their roles and responsibilities, and the communication and operating procedures to be adopted in case of an emergency.

COMMUNICATION SYSTEM

The telephone numbers and addresses of mine sites in the vicinity, nearest fire station, police station, local hospital, electricity department, ambulance, and local public representatives and revenue officials shall be prepared and kept in custody of PP.

FACILITIES

The office shed will have provision of first aid centre to provide first aid in the event of an emergency. The office shed will also function as emergency control room. It will be provided with telephone and mobile phones, and a vehicle for emergency transport.

PERSONNEL

The PP is responsible for overall supervision of the disaster management plan. He will be assisted by supervisors, in implementing the emergency management plan and procedures.

OPERATING PROCEDURES

The operating procedures during emergencies are related communication to the immediate supervisor, who would relay the same to PP. The PP may assess the requirement of first aid, external assistance, transportation to nearby hospital contingent on the emergency. In the absence of mines manager, the senior most supervisor will be made responsible for disaster management.

7.4 CUMULATIVE IMPACT STUDY

There are 3 existing, 1 Abandoned and 2 proposed quarries (including present proposal) within a radius of 500 m from this proposed project area. The existing, abandoned and proposed quarries details within 500m radius are presented in below Table 7.2 and the letter received from Dept. of Geology and Mining, Tirunelveli stating the quarries detail within 500m radius is enclosed in Annexure – 4.

TABLE 7.2 - DETAILS OF QUARRIES WITHIN 500M RADIUS				
S.No	Name of the Quarry Owner	S.F. Nos & Village	Lease Status	Area in Ha
a. Existing Quarry				
1.	P.Marimuthu, S/o. Petchi Thevar, 1/3A, Kasba Mel bagam, Ponnagudi, Palayamkottai, Tirunelveli.	S.F.Nos. 522/1, 522/2, 534, 535(P) & Tharuvai Village	Proceeding No. M1/36802/2016, dt.22.03.2018 for a period 5 years from 19.04.2018 to 18.04.2023	4.73.5
2.	S.Sankar, S/o. R.Subramaniam, 131/1, APT Road, Erode.	S.F.No. 524(P) & Tharuvai Village	Proceeding No. M1/43375/2015, dt.31.03.2018 for a period 5 years from 17.04.2018 to 16.04.2023	1.60.0
3.	Tvl. Sri Durgambika Blue Metals, 1A/115, Kandithankulam, Tirunelveli	S.F.No. 570(P) & Tharuvai Village	Proceeding No. M3/6065/2019, dt.02.03.2019 for a period 5 years from 24.07.2018 to 16.04.2023	1.38.5
b. Abandoned Quarry				
1.	S.Subbaiah S/o. Sorna Thevar,	S.F.Nos. 568/1, 569/1B & Tharuvai Village	Proceeding No. M1/41558/2011, dt.20.01.2012 for a period 5 years from 07.02.2012 to 06.02.2017	2.63.5
c. Proposed Quarry				
1.	Tvl. Sri Durgambika Blue Metals, Prop.Thiru.S.Subash Chandra Bose, No.1A/115, Kadithankulam, Tharuvai Village, Palayamkottai Taluk, Tirunelveli	S.F.Nos. 570(P), 571(P) & Tharuvai Village	Proposed Quarry	1.95.5
2.	S.Kasirajan, 760, Bazzar Street, Seevalaperi, Palayamkottai Taluk, Tirunelveli	S.F.Nos. 530/3A, 531/1A, 532, 533/1, 568/5A(P), 569/3A & Tharuvai Village	Proposed Quarry	4.97.0
Total Area of Cluster		14.64.5 Ha		

As seen above, although the individual lease area of this project is less than 5 hectares, the existing Quarries (3 Nos) within a 500-meter radius, along with this subject project, add up to more than 5 hectares i.e. 14.64.5 Ha. A Satellite image showing the existing and proposed quarries located within 500m radius is given in Figure 7.1.

FIGURE 7.1 - SATELLITE IMAGE SHOWING CLUSTER QUARRIES



The baseline monitoring carried out for this project reflects the cumulative impact of these existing quarries. The cumulative combined impact anticipated due to mining and allied activities in both the proposed quarries are given below.

TABLE 7.3 - SALIENT FEATURES OF TWO PROPOSED QUARRIES

1	Proponent Name	Tvl. Sri Durgambika Blue Metals	Thiru S.Kasirajan
2	Project Location		
	a. Survey No.	570(P) & 571(P)	530/3A,531/1A, 532, 533/1, 568/5A(P) and 569/3A
	b. Village	Tharuvai	Tharuvai
	c. Taluk	Palayamkottai	Palayamkottai
	d. District	Tirunelveli	Tirunelveli
	e. State	Tamil Nadu	Tamil Nadu
3	Lease Area	1.95.5Ha	4.97.0 Ha
4	Precise Area Letter No.	Rc.No.M3/10059/2020 dated 11.09.2020	Rc.No.M1/36182/2018 dated 21.05.2019
5	Production Capacity	2,89,000m ³ of Rough Stone, 14,620m ³ of Weathered Rock and 15,136m ³ of Gravel upto a restricted depth of 42m for the period of Five years	7,57,111m ³ of Rough Stone and 47,076m ³ of Weathered Rock and 24,080m ³ of Gravel upto a restricted depth of 54m for the period of Five years.
6	Method of mining	Opencast semi mechanized mining using jackhammer drilling, blasting, excavation through excavator & mineral transport through tippers	
6	Lease Period	5 Years	5 Years
7	Ultimate Pit Depth	42m	54m
8	Project cost	Rs.95,39,000/-	Rs.1,09,98,000/-
9	CER budget	Rs.5,00,000/-	Rs.5,00,000/-
10	Environmentally sensitive features	Nil	Nil

7.4.1 AIR ENVIRONMENT

The cumulative impact on ambient air quality for PM10 and PM2.5 due to the operations of both these proposed projects are predicted based on Air Quality Model simulations. The modeling is done for the peak production to know the worst scenario. The cumulative peak Ground Level Concentration (GLC) after effective implementation of various mitigative measures have been computed and given below:

TABLE 7.4 - CUMULATIVE PEAK INCREMENTAL CONCENTRATION ($\mu\text{g}/\text{m}^3$)

S.No	Parameters	Peak incremental concentration ($\mu\text{g}/\text{m}^3$) with control Measures
1	PM ₁₀	14.06
2	PM _{2.5}	6.19

The cumulative Isopleths of PM₁₀, PM_{2.5} concentrations have been drawn and these are given in Figure 7.2 & 7.3.

FIGURE 7.2 – CUMULATIVE ISOPLETH OF GLC PREDICTION FOR PM₁₀

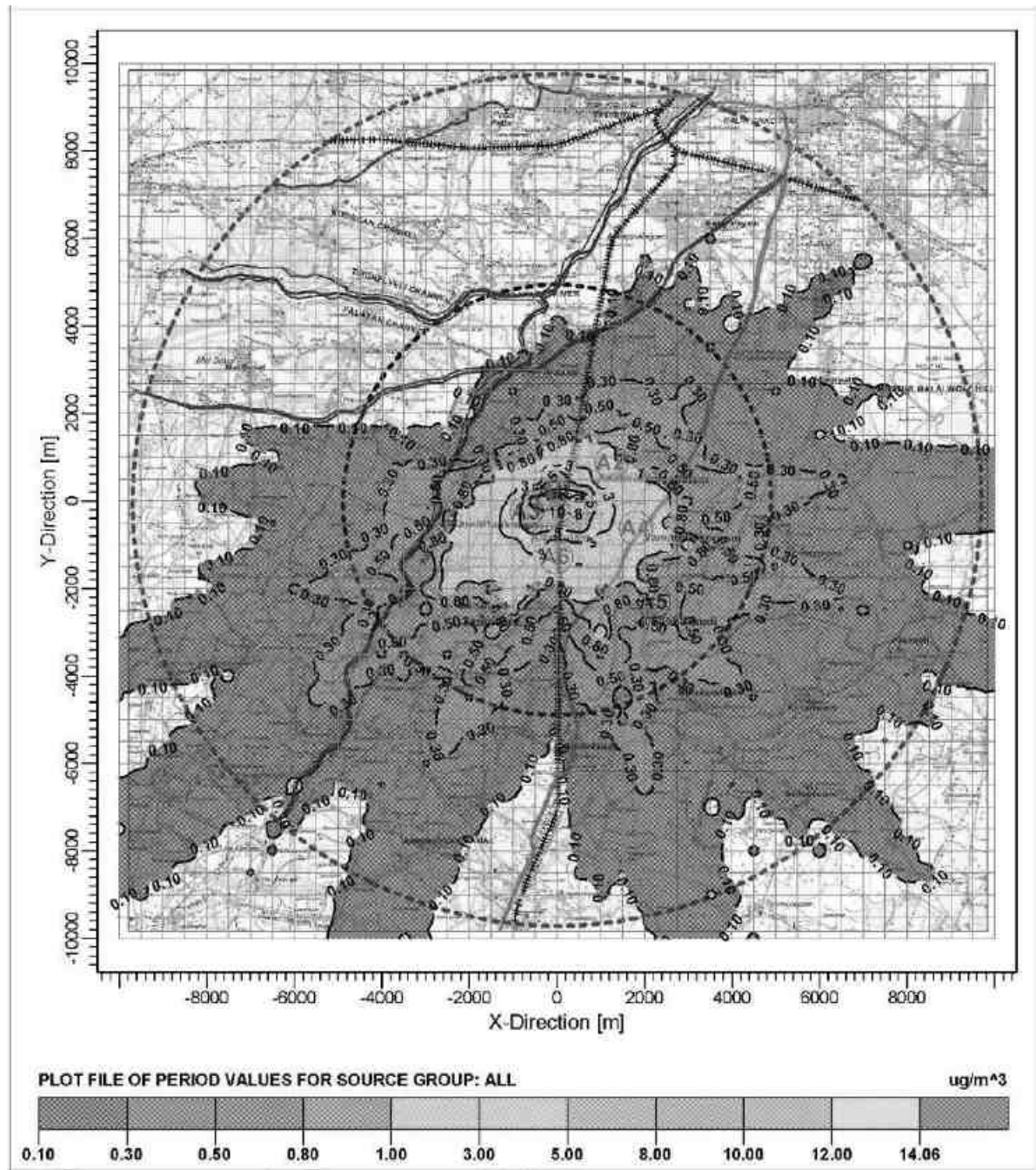
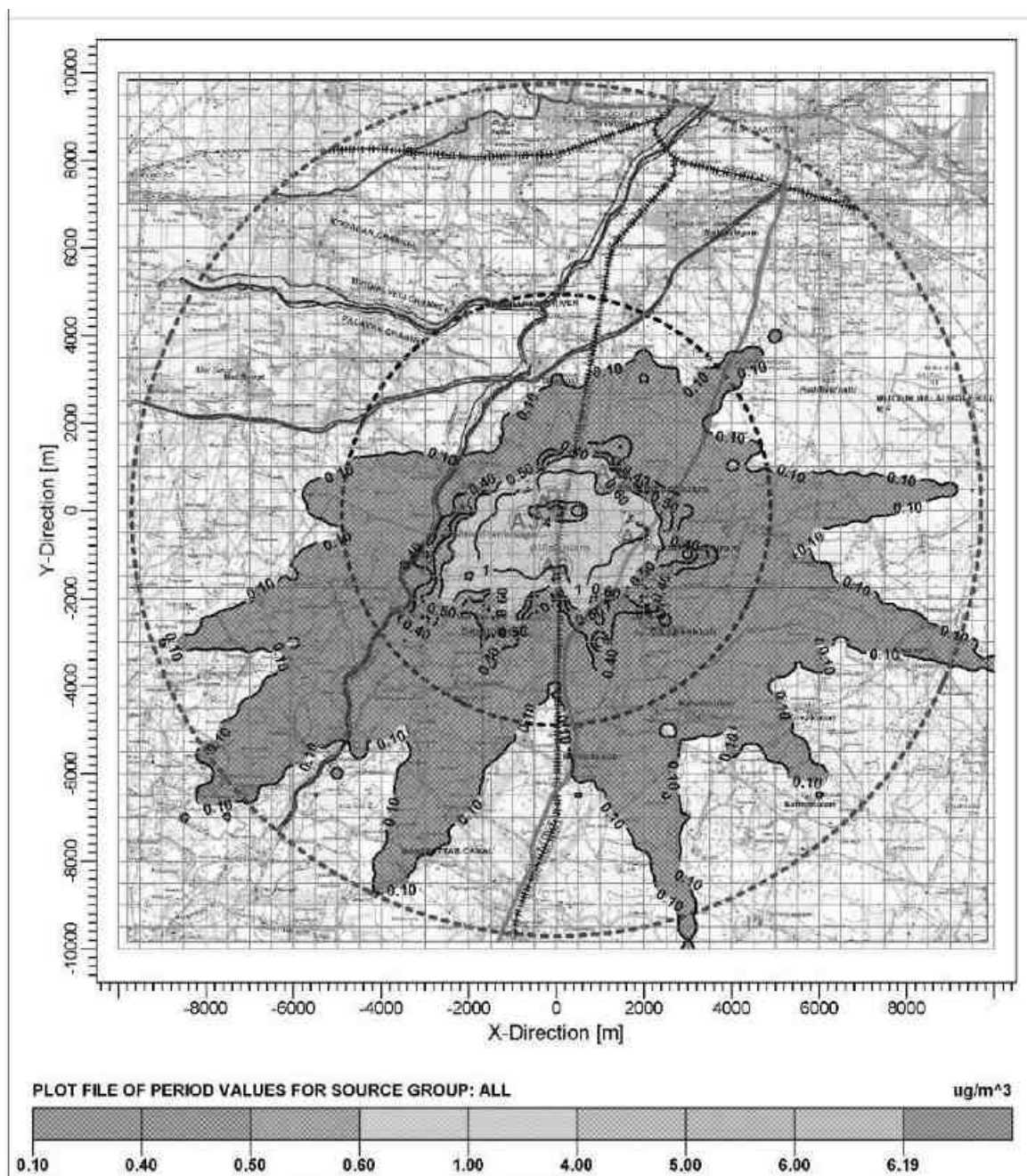


FIGURE 7.3 – CUMULATIVE ISOPLETH OF GLC PREDICTION FOR PM_{2.5}



7.4.1.1 PREDICTED AMBIENT AIR QUALITY

The Cumulative combined post project Concentrations of PM₁₀, PM_{2.5}, (GLC) (base line + incremental) after adopting necessary control measures is given in Table 7.5 & 7.6.

TABLE 7.5 - 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	A1- Near Mine Lease Area	40.4	6.2	46.6	-
2	A2 - Adaimithipankulam	34.2	1.0	35.2	60
3	A3- Kandithankulam	34.6	4.0	38.6	
4	A4- Samathuvapuram	32.1	1.0	33.1	
5	A5- Ponnakudi	32.6	<1.0	33.6	
6	A6- Alankulam	31.6	1.5	33.1	

TABLE 7.6 - 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	A1- Near Mine Lease Area	79.2	14.0	93.2	1200 $\mu\text{g}/\text{m}^3$ for particulate emissions
2	A2 - Adaimithipankulam	67.2	1.5	68.7	100
3	A3- Kandithankulam	71.3	5.0	76.3	
4	A4- Samathuvapuram	62.9	2.0	64.9	
5	A5- Ponnakudi	63.2	1.0	64.2	
6	A6- Alankulam	61.1	2.5	63.6	

It can be seen that the resultant added concentrations with baseline figures even at worst scenario and cumulative impact of both the projects show that the values of ambient air quality with respect to PM₁₀ are in the range of 63.6 $\mu\text{g}/\text{m}^3$ to 93.2 $\mu\text{g}/\text{m}^3$ and with respect to PM_{2.5} are in the range of 33.1 $\mu\text{g}/\text{m}^3$ to 46.6 $\mu\text{g}/\text{m}^3$ which are within the statutory stipulations in respective case.

7.4.2 WATER ENVIRONMENT

The mining area consists of hard compact rock, hence no major water seepage within the mine is expected from the periphery. From the nearby working quarries, it is observed there are no seepages in the mine faces because of the hard rock formation. The ground water table in this area is 57-60 m and the proposed ultimate depth is upto 42 m BGL. Hence, ground water intersection is not envisaged and ground water will not be affected appreciably due to the quarrying operation.

Besides, the stage of groundwater development of Palayamkottai Taluk where the study area falls is 22% as per the National Water Mission. In view of this, this area can be

categorized as 'Safe' from ground water development point of view. Thus, there is scope for further ground water development.

7.4.3 CUMULATIVE IMPACT ON SOCIO-ECONOMIC ENVIRONMENT

- All lease areas are Patta land. There are no habitations or hutments in the core zone area and no rehabilitation or resettlement problems will arise.
- The mining operations in the proposed mines will provide direct employment opportunity and indirect employment opportunity for scores of people through allied opportunities in logistics, contract workers, trading, repairing works etc.
- Towards development of the surrounding area, under Corporate Environmental Responsibility Rs 5.0 lakhs has been earmarked separately.
- Various mitigative measures suggested in this report will be properly implemented to ensure that no adverse impact is felt on the socio economic and ecological front in the area.

7.4.4 CLUSTER MINE CLOSURE PLAN

In the mine closure stage all necessary measures will be taken as per Act & Rules, there is no proposal for back filling, reclamation and rehabilitation in any of the proposals. The quarried pits after the end of life of mine will be properly fenced all around to prevent inherent entry of public and cattle and all the statutory requirements will be fulfilled. As already explained, in the post mining stage the rainwater harvested in the mined- out void shall be utilized for irrigation and domestic needs locally. The mine closure plan is provided in Figure 2.9.

7.4.5 SLOPE STABILITY PLAN

The factors that affect slope stability of the mine are detailed below.

- Geological structure comprising dip, intervening shear zone formation, clay intrusion, joints / discontinuities, faults etc.,
- Lithology of formation
- slope geometry
- Ground water availability which may cause increased thrust on the faces

SITE SPECIFIC ANALYSIS

- The quarry lease area is plain terrain which is covered by Top soil formation. The rock type noticed in the lease area is Charnockite which contains mostly Quartz and Feldspar with some ferromagnesian.

- Since the formation is of homogeneous rock type probability of slope failure is low and can be avoided if proper measures are adopted.
- There will be a 7.5m safety zone which will form a ridge which can also take care of the top section and as such no risk is envisaged on this front.

MITIGATION MEASURES

- Regular inspection of the mine faces to be carried out by pp for ensuring absence of any structural features like faults, joints, dyke, intrusive material in the rock strata which may affect the slope stability and cleared.
- No loose material or boulders is to be stacked on the mine top or pit benches.
- Height of the benches should be 5m.
- Haul road formation will be at 1 in 15 slope with adequate road width.
- There will be no ground water table intersection.
- No seepage is expected due to formation. Adequate drainage management system comprising peripheral garland drain, settling pond to regulate monsoon water will be created to prevent saturation of compact layers, apparent drainage over the bench slope to avert damages to quarry face and manage the water flow.

8.0 PROJECT BENEFITS

The project area is located on barren 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, Jelly and Gravel quarry of Tvl. Sri Durgambika Blue Metals, Prop. Thiru.S.Subash Chandra Bose will create direct employment opportunity for 21 local people. The PP has proposed CER amount of 5.0 Lakhs.

9.0 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.

10.0 ENVIRONMENTAL MANAGEMENT PLAN

The Environmental Management plan is a site-specific plan. It is developed to ensure that the project is implemented in an environmentally sustainable manner, where all contractors and subcontractors, including consultants if any, 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 project's life cycle.

10.1 ENVIRONMENTAL POLICY

The Project Proponent – Tvl. Sri Durgambika Blue Metals, Prop. Thiru.S.Subash Chandra Bose shall carry out all the quarrying operations and activities in an environmentally responsible manner and to continually improve environmental performance. The Proponent will:

- Meet the requirements of all laws, Acts, ordinances, rules, and regulations that are pertinent to its operations and activities.
- Allocate the resources required to guarantee that the environmental policy is carried out.
- Implement a programme to educate employees about environmental issues in general and their personal environmental responsibilities at work.
- Set up monitoring systems to alert as soon as there is a problem or a performance that is unexpected in relation to environmental protections.
- Conduct periodic reviews to verify environmental performance and to continuously strive towards improvement.

10.2 ENVIRONMENTAL MANAGEMENT PLAN

The impacts and detailed mitigation measures due to this mining project are detailed in chapter- 4. The overall Management Plan at the site level are elaborated in this chapter. Details of EMP measures for implementation in the mine are given in the table 10.1.

TABLE 10.1 - ENVIRONMENTAL MANAGEMENT PLAN

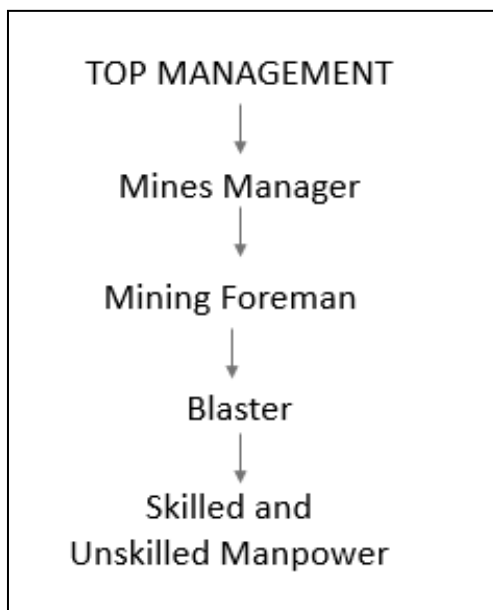
Environmental Parameter	Mitigation Measures
Air Environment	Wet drilling to suppress the dust emission from drill machine
	Regular water sprinkling on haulage road through fixed water sprinkler.
	1.9 m ³ /day of water will be used for dust suppression.
	Avoiding blasting during high wind period, night 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.
Water Environment	
i. Surface water	The nearest water bodies to the project site include • Tank – 410 m (SE), • Pachaiyar River - 2.5 km (W), • Thamirabarani River – 4.74 km (NW), • Manimuttar Canal - 8.5 km (S), • Kodagan Channel - 6.9 km (NW) ➤ There is no effluent discharge from this proposed Quarry. So, no impact is anticipated. ➤ Surface runoff management structures like garland drain of required length which is connected to a settling pond will be constructed around the quarry to collect the rain water. ➤ Monthly or after rainfall, inspection for performance of water management structures and systems. ➤ There is no discharge of any effluent into nearby water bodies.
ii. Ground Water	The quarrying operation is proposed upto a depth of 42m BGL maximum below ground level, the water table in the area is 57m -60m below ground level, hence the project will not intersect the Ground water table during entire quarry period.
Water Consumption and Wastewater generation	The required water of 4.0 KLD will be procured from outside agencies initially and later rainwater harvested in the mine pit shall be used other than drinking purpose.
	Domestic wastewater generation of 0.4 KLD will be discharged in soak pit via septic tank.
	Conduct ground water and surface water monitoring for parameters specified by CPCB
Noise Environment	The workers employed are provided with personal protective equipment (PPE) as such, earmuffs and ear-plugs for the protection from high noise level generated at the mine site wherever required.

	Noise levels are controlled by using optimum explosive charge, proper delay detonators and proper stemming to prevent blow out of holes.
	Development of thick greenbelt all along the Buffer Zone (7.5 Meters) of the project area to attenuate the noise and the same will be maintained.
	Preventive maintenance of mining machinery and replacement of worn-out accessories to control noise generation.
	Regular ambient noise level monitoring is carried out in the project area and in surrounding villages to assess the impact due to the mining activities and the efficacy of the adopted noise control measures.
Ground Vibration and Fly Rock Control	Controlled blasting using delay detonators will be carried out to maintain the PPV value well within the prescribed standards of DGMS.
	Drilling and blasting will be carried under the supervision of qualified persons.
	Ensure blast holes are adequately stemmed for the depth of the hole and stemmed with suitable angular material.
	Undertake noise or vibration monitoring.
Land Environment	There is no change will be in the land use pattern as mentioned in the approved mining plan a such mine pit, safety zone etc., At conceptual stage, the mining pits will be converted into Rain Water Harvesting. Remaining area will be converted into greenbelt area.
	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 waste anticipated in this Rough Stone Quarry. The entire quarried minerals will be utilized.
Biological Environment	During mining, three-layer thick plantation will be carried out around the project periphery, on safety barrier zone, on top benches of quarried out area etc.,
	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 4.

10.3 ADMINISTRATION AND TECHNICAL SETUP

The Environment Monitoring Cell discussed under Chapter - 6 will ensure effective implementation of environment management plan and to ensure compliance of environmental statutory guidelines through Mine Management Level. The organizational chart for the same has been given below.

FIGURE 10.1 - ORGANIZATION CHART



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.
- Green belt development plan.
- Monitoring the progress of implementation of the environmental monitoring programme.
- Compliance to statutory provisions, norms of State Pollution Control Board, Ministry of Environment and Forests and the conditions of the environmental clearance as well as the consents to establish and consents to operate.

10.4 OCCUPATIONAL SAFETY & HEALTH MANAGEMENT

Occupational safety and health are very closely related to productivity and good employer-employee relationship. The main factors of occupational health impact in quarries are fugitive dust and noise. Safety of employees during quarrying operation and maintenance of mining equipment will be taken care as per Mines Act 1952 and Rule 29 of Mines Rules 1955. To avoid any adverse effect on the health of workers due to dust, noise and vibration sufficient measures have been provided. The health status of workers in the mine shall be regularly monitored under an occupational surveillance program. Under this program, all the employees are subjected to a detail medical examination at the time of employment.

10.5 BUDGETARY PROVISION FOR ENVIRONMENTAL MANAGEMENT

Adequate budgetary provision has been made by the Company for execution of Environmental Management Plan. The below Table gives overall investment on the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures. The Proposal for Environmental Management Plan (EMP) and its cost is given as follows;

TABLE 10.2 - ENVIRONMENTAL MANAGEMENT PLAN BUDGET			
Activities	Mitigation Measure	Capital cost (In Lakhs)	Recurring Cost per Annum (In Lakhs)
Air Environment	Compaction, gradation and drainage on both sides for Haulage Road	0.10	0.10
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	5.00	0.25
	Muffle blasting –To control fly rocks during blasting	0.00	0.05
	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	0.30	0.06
	No overloading of trucks/tippers/tractors	0.00	0.05
	Stone carrying trucks will be covered by tarpaulin	0.00	0.10
	Enforcing speed limits of 20 km/hr within ML area	0.06	0.01
	Regular monitoring of exhaust fumes as per RTO norms	0.00	0.05
	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	0.00	0.39
	Installing wheel wash system near gate of quarry	0.20	0.05

Sub-Total (A)		5.66	1.11
Noise Environment	Provision for Portable blaster shed	0.30	0.02
Sub-Total (B)		0.30	0.02
Waste Management	Provision for domestic waste collection and disposal through authorized agency	0.20	0.10
	Installation of dust bins	0.05	0.02
Sub-Total (C)		0.25	0.12
Mine Closure	Plantation inside ML area (200 Nos.)	0.20	0.04
Sub-Total (D)		0.20	0.04
Implementation of EC, Mining Plan & DGMS Condition	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	0.05	0.01
	Air, Water, Noise and Soil Quality Sampling every 6 Months for Compliance Report of EC Conditions	0.00	0.50
	Workers will be provided with Personal Protective Equipment's	0.21	0.02
	Health checkup for workers will be provisioned	0.00	0.11
	First Aid facility Provision	0.00	0.02
	Signage & boards for safety precautions	0.05	0.01
	No parking will be provided on the transport routes. Separate provision will be made for vehicles /HEMMs. Flaggers will be deployed for traffic management	0.20	0.01
	Installation of CCTV cameras in the mines and mine entrance	0.15	0.02
Sub-Total (E)		0.66	0.70
Grant Total (A+B+C+D+E)		7.07	1.99

TABLE 10.3 - ENVIRONMENTAL MANAGEMENT PLAN BUDGET

Sl. No	Year	Capital cost* (Lakhs)	Recurring Cost @ 5% Escalation (Lakhs)
1	1 st	7.07	1.99
2	2 nd	0.0	2.09
3	3 rd	0.0	2.20
4	4 th	0.0	2.30
5	5 th	0.0	2.42
Total		7.07	11.00
Grand Total (Lakhs)		18.07	
Total EMP Cost for 5 years is 18.07 lakhs (This amount will be subjected to change after public hearing) i.e., 7.07 Lakhs of Capital Cost + 11.00 Lakhs of Recurring cost (For 5 Years)			

10.6 CONCLUSION

Various aspects of mining activities were considered and related impacts were evaluated. Considering all the possible ways to mitigate the environmental concerns, Environmental Management Plan was prepared and fund has been allocated for the same. The EMP is dynamic, flexible and subjected to periodic review. For project where the major environmental impacts are associated, EMP will be under regular review. Senior Management responsible for the project will conduct a review of EMP and its implementation to ensure that the EMP remains effective and appropriate. Thus, the proper steps will be taken to accomplish all the goals mentioned in the EMP and the project will bring the positive impact in the study area.

11.0 SUMMARY AND CONCLUSION

11.1 INTRODUCTION

This EIA Report is prepared for Rough Stone, Jelly and Gravel Quarry of Tvl. Sri Durgambika Blue Metals, Prop. Thiru.S.Subash Chandra Bose over an extent of 1.95.5 Ha of patta lands in S.F.Nos. 570(P) & 571(P) of Tharuvai Village, Palayamkottai Taluk, Tirunelveli District, Tamil Nadu State in compliance with ToR approved via Identification. No. TO25B0108TN5214231N Dated: 18.06.2025.

Although the individual lease area of this project is less than 5 hectares, the 3 existing quarries and 2 proposed quarries (including this present proposal) within a 500-meter radius, along with this subject project, add up to more than 5 hectares i.e. 14.64.50 Ha. A map showing the existing and proposed quarry located within 500m radius is given in Figure 1.1.

TABLE 11.1 - SALIENT FEATURES OF THE PROJECT

SL.No	PARTICULARS	DETAILS
1	Name of the Project	Rough Stone, Jelly and Gravel Quarry of Tvl. Sri Durgambika Blue Metals, Prop. Thiru.S.Subash Chandra Bose
2	Location of the project	Tharuvai Village, Palayamkottai Taluk, Tirunelveli District, Tamil Nadu
3	Mining Lease area (ML area)	1.95.5 Ha
4	Latitude & Longitude	Latitude: 08°38'26.34"N to 08°38'33.41"N Longitude: 77°40'54.60"E to 77°41'00.13"E
5	Topography	Plain
6	Type of land	Consent Patta land
7	Temperature °C (Mean Minimum & Mean Maximum)	22.9°C and 33.5°C
8	Average Annual rainfall	879mm
9	Nearest highway	(SH-40) Tirunelveli - Tenkasi Road - 3.0 km (N), (NH-44) Salem - Kanniyakumari Road - 2.0 Km (SE)
10	Nearest Railway station	Sengulam RS - 3.7 km (S)
11	Nearest Airport	Tuticorin - 39.0 km (NE)

TABLE 11.1 - SALIENT FEATURES OF THE PROJECT

SL.No	PARTICULARS	DETAILS
12	Nearest major water bodies	Tank – 410 m (SE), Pachaiyar River - 2.5 km (W), Thamirabarani River – 4.74 km (NW), Manimuttar Canal - 8.5 km (S), Kodagan Channel - 6.9 km (NW)
13	Nearest town/City	Tirunelveli - 9.0 Km (N)
14	Nearest Habitation	Tharuvai - 575m (S)
15	Hills / valleys	Nil within 10m radius
16	Notified Archaeologically important places, Monuments	Nil within 10m radius
17	Local Places of Historical and Tourism Interest	Nil within 10m radius
18	Environmental sensitive areas, Protected areas as per Wildlife Protection Act, 1972 (Tiger reserve, Elephant reserve, Biospheres, National parks, Wildlife sanctuaries, community reserves and conservation reserves)	Nil within 10m radius
19	Reserved / Protected Forests	Muttur Malai Wolf Hill R.F. – 8.3 km (NE)
20	Defence Installations	Nil within 10 km radius
21	Seismic Zone	Zone – II (Least Active)

TABLE 11.2 - PROJECT DESCRIPTION

S.No	Particulars	Details			
1.	Geological resources	Type of reserves	Rough stone (m ³)	Weathered Rock (m ³)	Gravel (m ³)
2.	Mineable reserves				
		Geological reserves	7,82,080	19,552	19,552
		Mineable reserves (upto 42m)	2,89,000	14,620	15,136
3.	Five Year Production Capacity				

		Year	Roughstone (m³)	Weathered Rock (m³)	Gravel (m³)
		I	57800	11696	12056
		II	57525	2924	3080
		III	58050	--	--
		IV	57775	--	--
		V	57850	--	--
		Total	289000	14620	15136
4.	Lease period	5 years			
5.	Total Waste	There is no waste generation anticipated in this quarry operation since the entire excavated material will be utilized.			
6.	Method of mining	Quarry operations involve jack hammer drilling, blasting, excavation, loading and transportation of Rough stone to needy buyers.			
7.	Bench parameters	Bench height - 5 m, bench widths - 5m			
8.	Ultimate mine depth	42m for the period of Five years.			
9.	Ore end use	The overburden in the form of Gravel will be loaded into tipper and marketed to needy customers on payment of necessary Seigniorage Fees to Government. The excavated rough stone will be excavated and loaded into tipper to the needy buyers.			
10.	Manpower	21 persons (Direct & Indirect)			
11.	Water Requirement & source	Total - 4.0KLD. The required water will be procured from outside agencies initially. Later, water collected in the mine pit will be used to meet the needs.			
12.	Power Requirement	All the equipment will be diesel operated. No electricity is needed for mining operation. The minimum power requirement for office, etc will be met from state grid.			
13.	Site services	This is a proposed project. Site services like mine office, first aid room, rest shelters, toilets etc. will be provided as semi-permanent structures.			
14.	CER Budget	Rs. 5.0 Lakhs			
15.	Project cost	Rs. 95,39,000/- (Operational + Fixed asset + EMP cost)			

11.2 DESCRIPTION OF THE ENVIRONMENT

The baseline monitoring study was carried out during March 2024 to May 2024 to assess the existing environmental scenario in the area. For the purpose of EIA studies, project area was considered as the core zone and area outside the project area up to 10km radius from the periphery of the project site was considered as buffer zone. Baseline Environmental data has been collected for: -

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

11.2.1 LAND ENVIRONMENT

The existing land use pattern of the study area is tabulated below in table 11.2.

Table 11.3 - LAND USE PATTERN OF THE STUDY AREA OF 10 KM RADIUS			
S.No	Land use Feature	Area (Sq.Km)	Percentage
1	Agriculture/ Crop	108.69	34.96
2	Fallow Land	71.60	23.04
3	Land Without Scrub	23.23	7.48
4	Land With Scrub	68.85	22.16
5	Water bodies	26.90	8.66
6	Settlement	11.05	3.56
7	Mining/Industries	0.43	0.14
Total		310.75	100

Source: Survey of India Toposheet and Landsat Satellite Imagery

11.2.2 SOIL CHARACTERISTICS

Results of the soil samples show that the pH values were found to be 6.32 to 7.67 and Electrical Conductivity values were ranging between 48.36 – 134.0 $\mu\text{mhos/cm}$. Soils are generally clay Loam, sandy clay loam and silt clay loam types. Organic matter values were ranging between 0.86 – 1.44%. Total Nitrogen values were ranging between 78.2 - 178mg/kg. Phosphorus values were ranging between 1.26 – 1.94 $\mu\text{g/g}$. Potassium values were ranging between 704 - 1195mg/kg. Sodium values were ranging between 362 - 552mg/kg. Total Sulphur values were observed to be BDL.

11.2.3 AMBIENT AIR QUALITY

The PM₁₀, PM_{2.5}, SO₂, NO₂ and CO is monitored as per prescribed guidelines / methods for Summer March 2024 – May 2024 season. The AAQ monitored data for all locations for above parameters are shown in Chapter 3. From the table it is seen that, in the ambient air, the PM₁₀ values were in the range of 49.6 – 79.8 µg/m³. PM_{2.5} values were in the range of 24.3 – 40.1 µg/m³. SO₂ levels were ranging from 4.2 – 8.1 µg/m³. NO₂ levels were ranging from 6.2 – 10.8 µg/m³. While comparing with the NAAQ Norms laid by MoEF, all monitored values of PM₁₀, PM_{2.5}, SO₂ and NO₂ were found to be well within the prescribed standards. The CO values in the all locations found to be below detectable limit (DL – 1144 µg/m³). Silica values in the study area are found to be below detectable limit (DL – 0.05mg/m³) which is well within the prescribed limit of 5mg/m³. The baseline value of ambient air quality in the monitored locations also reflect the cumulative impact due to the nearby mining, crushers, other activities.

11.2.4 WATER ENVIRONMENT

Suitability of ground water for drinking/irrigation/industrial purposes is determined keeping in view the effects of various chemical constituents present in water as required human use, plant use. Though many ions are very essential for the growth of plants and human body but when present in excess, have an adverse effect on health and growth.

As Per the data it has been observed that the pH values of bore well waters were ranging in between 7.13-7.74. TDS values were in the range of 389-704mg/L. Calcium (as Ca) and Magnesium (as Mg) values were in the range of 38.3 – 98.5 mg/L and 16.1 – 59.8 mg/L respectively. Chloride values were ranging from 92.4 - 193mg/L. Iron content was found to be in the range 0.02 – 0.17 mg/L. From the above it is found that the water quality of ground water is found to be within the prescribed Permissible limits of IS: 10500 Norms in the absence of an alternative source as per Drinking Water Specifications. However, the TDS, Total Hardness, Calcium and Total Alkalinity values of certain water samples though they are above acceptable limits it is found to be within the prescribed Permissible limits of IS: 10500 Norms in the absence of an alternative source as per Drinking Water Specifications. Total hardness of the samples ranged from soft to moderately hard waters and can be fairly used for drinking. Regular ground water monitoring is suggested as the quality of ground water may fluctuate with groundwater consumption and seasonal variations.

11.2.5 NOISE ENVIRONMENT

From the monitoring data, it is observed that the day Equivalent Noise (Leq-d) level were ranging from 41.9 to 46.2 dB(A) and Night Equivalent Noise (Leq-n) level were ranging from 37.3 to 40.9dB(A). While comparing with the MoEF Norm of 55 dB(A) for day time and 45 dB(A) for night time in Residential areas, the monitored ambient noise levels are within the limit values.

11.2.6 BIOLOGICAL ENVIRONMENT

There is no schedule I species of animals observed within study area as per Wildlife Protection Act 1972 as well as no species is in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area. Hence this small operation over short period of time will not have any significant impact on the surrounding flora and fauna.

11.2.7 SOCIO-ECONOMIC ENVIRONMENT

An attempt has been made to assess the impact of the proposed mining project at Tharuvai Village on Socioeconomic aspect of the study area. The various attributes that have been taken into account are population composition, employment generation, occupational shift, household income and consumption pattern. Implementation of the Proposed Mine Project will generate both direct and indirect employment. Besides, Mining operation will be legally valid and it will bring income to the state exchequer.

11.3 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

11.3.1 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 42m BGL. Other than quarrying of minerals, no other change will be done since

there is no dumping. To prevent soil erosion during monsoon season, garland drain will be constructed with silt traps. At the mine closure stage, 1.51.0 Ha of lease area will be left as rain water harvesting pond. 0.20.0 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 200 trees are planned to be planted. Spacing will be 3m x 3m.

11.3.2 WATER ENVIRONMENT: IMPACT AND MITIGATION MEASURES

There is no water body present inside the lease area. The entire water requirement for the project is 4.0 KLD which will be sourced from outside agencies. Negligible sewage of 0.4 KLD will be generated, for which a septic tank with soak pit will be set up. During monsoon season, the excess rain water, if any, will be led through garland drain to the collection pond with silt traps. Since the mining operation will be limited upto depth of 42 m 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 7.5HP 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 water bodies found in the buffer zone are.

- Tank – 410 m (SE),
- Pachaiyar River - 2.5 km (W),
- Thamirabarani River – 4.74 km (NW),
- Manimuttar Canal - 8.5 km (S),
- Kodagan Channel - 6.9 km (NW)

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

11.3.3 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.

11.3.4 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 unfavorable weather conditions, Using explosives of good quality, Using mist sprayers Regular wetting of transport, Covering the materials carried in tippers with tarpaulin, Proper maintenance of vehicles used for transportation, Conducting regular emission tests for vehicles used for transport Development of greenbelt is proposed in the safety zone of 7.5m barriers in the lease area. The anticipated data is calculated using AERMOD software and the projected values are found to be within limits.

11.3.5 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.

11.3.6 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 fly Rocks
- It may frighten the birds and small insects in the lease area. However, it will be felt only for a short period

MITIGATION MEASURES

- 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 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.

11.3.7 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.

11.3.8 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.

A detailed account of the emission sources, emissions control equipment, background Air quality levels, Meteorological measurements, Dispersion model and all other aspects of pollution like effluent discharge, Dust generation etc., have been discussed in Chapter 4 of this report. The project proponent will adopt all the necessary mitigation measures and management plan mentioned in this report and also comply the conditions stipulated in Environmental clearance and CTO of this project.

11.4 ENVIRONMENTAL MONITORING PROGRAM

Environmental Monitoring program will be conducted for various environmental components as per conditions stipulated in Environmental Clearance Letter issued by SEIAA & Consent to Operate issued by TNPCB. Post project monitoring program is detailed in Chapter 6.

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.

PP will supervise the overall environmental management plan of the project during operation. Total EMP Cost for 5 years is 18.07 lakhs i.e., 7.07 Lakhs of Capital + 11.00 lakhs of Recurring cost for Five years.

11.5 PROJECT BENEFITS

FINANCIAL BENEFITS

- This project will contribute financially through payment of taxes like royalty, GST, etc.
- The project will also contribute via CSR.

SOCIAL BENEFITS

- This project provides employment to 21 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.

11.6 CONCLUSION

EIA study was performed as per the approved ToR. Various environmental attributes were studied relating with aspects of mining activities. The related impacts were identified and evaluated. Considering all the possible ways to mitigate the environmental concerns, Environmental Management Plan was prepared and accordingly fund was allocated. The EMP has been dynamic, flexible and subject to periodic review. The project will increase the revenue of the State Govt. as well as it will help in the social upliftment of the local community. The green belt development programme will help in increasing the green cover in the area. Thus, the proposed project is not likely to affect the environment or adjacent ecosystem adversely. The Mine Management will be responsible for the project review of EMP and its implementation to ensure that the EMP remains effective and appropriate. Thus, the proper steps will be taken to accomplish all the goals mentioned in the EMP and the project will bring the positive impact in the study area.

12.0 DISCLOSURE OF CONSULTANTS

Declaration by Experts contributing to the Proposed Rough Stone, Jelly and Gravel Quarry of Tvl. Sri Durgambika Blue Metals, Prop. Thiru.S.Subash Chandra Bose over a lease extent of 1.95.5 Ha., & Cluster extent of 14.64.5 Ha., located at Tharuvai Village, Palayamkottai Taluk, Tirunelveli District, Tamil Nadu State.

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

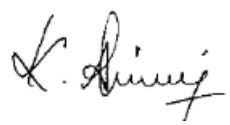
EIA Coordinator Name: M. Manikandan

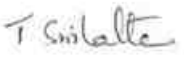

Signature & Date

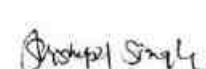
Period of involvement: March to May 2024.

Contact information:

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

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. Period: Mar 2024 to May 2024.	
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. Period: Mar 2024 to May 2024.	
3	SHW	Ramadoss N	Assessment of waste generated from the project, suggested waste management practices. Period: Mar 2024 to May 2024.	

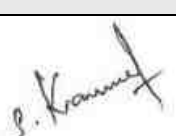
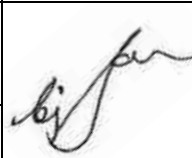
4	SE	Saraswathy K	Baseline SE studies. Data compilation and assessment. Impact of the project on SE status of the area. Formulation of CER plan. <u>Period: Mar 2024 to May 2024.</u>	
5	EB	Saravanan S	Baseline data collection of related to ecology of the area. <u>Period: Mar 2024 to May 2024.</u>	
6	HG	Ravinthiran N	Hydrogeological feature of the area. Ground water depth and impact of project on ground water of the area. <u>Period: Mar 2024 to May 2024.</u>	
7	AQ	Srilatha Thiruveedhula	Air quality modeling utilizing the area source model. Predication of the ground level concentration of the dust. Suggesting suitable mitigation measures. <u>Period: Mar 2024 to May 2024.</u>	
8	NV	Dhanalakshmi Ramanathan	Ambient noise study of the area. Incremental noise generation due to quarry operation and impact of the noise due to the project. <u>Period: Mar 2024 to May 2024.</u>	
9	LU	Srilatha Thiruveedhula	Preparation of land use map based on satellite imagery. Land use classification and analysis. Impact prediction of the project on the surrounding land environment. <u>Period: Mar 2024 to May 2024.</u>	

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

TM-EC:

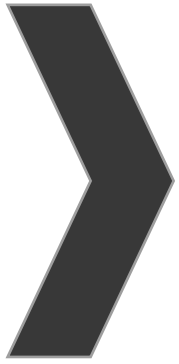
S.No	Name of TM (EC)	Sector(s) proposed	Name of EC with whom to be attached	Period of involvement	Type of work	Signature
1	R. Dhanalakshmi	1	Manikandan Manickam	<u>March 2024 to May 2024.</u>	Associated with EIA Coordinator in overall preparation of Draft EIA/EMP report.	

TM- FAE:

S. No	Name of TM (FAE)	Functional Area	Approved FAE (to work under)	Period of involvement	Type of work	Signature
1	Kamaraj S	HG	Ashok Kumar Rajagopal	<u>March 2024 to May 2024.</u>	Associated with Experts in studying hydrogeological pattern of study area, Studying ground water and the impact of the project on ground water	
2	B.J.Sampatkumar	SE	Saraswathy K	<u>March 2024 to May 2024</u>	Assisted by the Expert in preparation of socio-economic report.	
		SC	Shishupal Singh	<u>March 2024 to May 2024</u>	Assisted by the Expert in interpretation of soil sampling and their quality involved in the project.	

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE, JELLY AND GRAVEL QUARRY OF TVL. SRI DURGAMBIKA BLUE METALS, PROP. THIRU.S.SUBASH CHANDRA BOSE, PROP. THIRU.S.SUBASH CHANDRA BOSE OVER AN EXTENT OF 1.95.5 HA LOCATED AT S.F.NOS. 570(P) & 571(P) OF THARUVAI VILLAGE, PALAYAMKOTTAI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

3	Mownica Balaji	AP	Dhanalakshmi Ramanathan		Associated with expert team in assessing existing air quality, impact of the project on ambient air and suggesting mitigation measures for air pollution	Mownica B
4	Balasubramani G	Geo	Valliappan Meyyappan	<u>March 2024 to May 2024</u>	Overall site investigation and Mining Plan preparation. Associated with the expert in preparing Geological map.	G. Balasubramani
5	Suresh Mani	LU	Srilatha Thiruveedhula	<u>March 2024 to May 2024</u>	Associated with Experts in preparing Land use map based on satellite imagery, Land use classification and analysis, Impact prediction on surrounding land environment.	M. Suresh
6	Asan Ali S	NV	Srilatha Thiruveedhula	<u>March 2024 to May 2024</u>	Associated with the expert in monitoring and analysis of blast induced ground vibration in order to develop the site-specific equation for its prediction, monitoring of fly rocks & air blast (noise), preparation of SOP's for the safety blasting practice in the mines.	S. Asan ali
7	Prabu M	Geo	Valliappan Meyyappan	<u>March 2024 to May 2024</u>	Associated with Experts and involved in Field Investigations, Mapping /Geo-referencing	M. Prabu
8	Abirami Kaliyaperumal	RH	S V Prashant	<u>March 2024 to May 2024</u>	Involved with Expert team and involved in identification of Risk / Hazards and Safety Measures for various activity	K. Prashant
9	Dhanalakshmi Ramanathan	AQ	Srilatha Thiruveedhula	<u>March 2024 to May 2024</u>	Involved with Expert team and involved in calculating air emission values using Meteorological data and Providing inputs for running modelling (ISCT3, AERMOD).	R. Dhanalakshmi
10	Manikandan Manickam	WP	Abirami Kaliyaperumal	<u>March 2024 to May 2024</u>	Associated with Identification of the source of water, impact and suggesting suitable mitigation measures for water pollution	Manikandan



ANNEXURE-1



THIRU. K.V. GIRIDHAR, I.F.S.,
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY – TAMIL NADU

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

Phone No. 044-24359973

Fax No. 044-24359975

TERMS OF REFERENCE (ToR)

Lr No.SEIAA-TN/F.No.8153/SEAC/ToR-929/2020 Dated: 16.04.2021

To

Tvl.Sri Durgambika Blue Metals
Prop.Thiru.S.Subash Chandra Bose
No.1A/115, Kadithankulam
Tharuvai Village
Palayamkottai Taluk
Tirunelveli District



Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference with Public Hearing (ToR) for the Proposed Rough stone, Jelly & Gravel Quarry lease over an extent of 1.95.5Ha in S.F.Nos.570 (P) & 571 (P) of Tharuvai Village, Palayamkottai Taluk, Tirunelveli District, Tamil Nadu by Tvl.Sri Durgambika Blue Metals 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/59328/2020, Dated: 22.12.2020.
 2. Your application submitted for Terms of Reference dated: 23.12.2020.
 3. Minutes of the 203rd SEAC Meeting held on 23.02.2021.
 4. Minutes of the 436th SEIAA Meeting held on 30.03.2021.

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

The proponent, Tvl.Sri Durgambika Blue Metals has submitted application for ToR with public Hearing on 23.12.2020, in Form-I Report & Feasibility report for the Rough stone, Jelly &




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SEIAA-TN

Gravel Quarry lease over an extent of 1.95.5Ha in S.F.Nos.570 (P) & 571 (P) of Tharuvai Village, Palayamkottai Taluk, Tirunelveli District, Tamil Nadu.

Discussion by SEAC and the Remarks:-

The proposal was placed in the 203rd SEAC Meeting held on 23.02.2021. Based on the presentation and documents furnished by the project proponent, SEAC decided to recommend the proposal for the grant of Terms of Reference (ToR) with Public Hearing, subject to the following specific conditions in addition to the points mentioned in 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. Restricting the maximum depth of mining from 42m to 37m considering the environmental impacts due to the mining, safety of the working personnel and following the principle of the sustainable mining and consequently the maximum minable quantities of 281575cu.m of Rough stone, 14620cu.m of weathered rock formation & 15136cu.m of Gravel are permitted for mining over five years.
2. A bench height of 5m needs to be maintained as per the approved mining plan considering the hydrogeological regime of the surrounding area as well as for safe mining.
3. The Project Proponent shall furnish the contour map of the water table detailing the number of wells located around the site and its impacts on the wells due to mining activity.
4. The Project Proponent shall conduct the hydro-geological study to evaluate the impact of proposed mining activity on the groundwater table, agriculture activity, and water bodies such as rivers, tanks, canals, ponds etc. located nearby by the proposed mining area.
5. The Project Proponent shall furnish the details on the number of groundwater pumping and open wells within 1 km (radius) along with the water levels in both monsoon and non-monsoon seasons. The proponent also shall collect the data of water table level from the PWD / TWAD in this area in both monsoon and non-monsoon seasons.
6. The Proponent shall carry out the Cumulative impact study on the Agricultural area due to Mining, Crushers and other activities around the site area.
7. The details of surrounding well and the cumulative impact on the groundwater shall be part of EIA study

The Socio-economic studies should be carried out within a 10 km buffer zone from the mines.

8. A tree survey study shall be carried out (nos. name of the species, age) in the mining lease




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SEIAA-TN

applied area and its management during mining activity.

9. CER activities should be carried out taking into consideration the requirement of the local habitants available within the buffer zone as per Office Memorandum of MoEF & CC.
10. A Detailed mining closure plan for the proposed project shall be submitted.
11. A detailed report on the safety and health aspects of the workers and for the surrounding habitants during operation of mining for drilling and blasting shall be submitted.
12. The recommendation for the issue Terms of Reference is subject to the outcome of the Hon'ble NGT, Principal Bench, New Delhi in O.A No.186 of 2016 (M.A.No.350/2016) and O.A.No.200/2016 and O.A.No.580/2016 (M.A.No.1182/2016) and O.A.No.102/2017 and O.A.No.404/2016 (M.A.No.758/2016, M.A.No.920/2016, M.A.No.1122/2016, M.A.No.12/2017 & M.A.No. 843/2017) and O.A.No.405/2016 and O.A.No.520 of 2016 (M.A.No.981/2016, M.A.No.982/2016 & M.A.No.384/2017).
13. A detailed study of the lithology of the mining lease area shall be furnished.
14. The project proponent shall furnish the details of the existing Green belt area earmarked with GPS coordinates and list of trees are planted with a copy of photos/documents along with the EIA Report.

Discussion by SEIAA and the Remarks:-

The proposal was placed before the 436th SEIAA Meeting held on 30.03.2021. After detailed discussions, the Authority unanimously accepts the recommendation of SEAC and decided to grant **Terms of Reference (ToR) 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 condition in addition to the following conditions.

1. As per the recommendation of SEAC and as accepted by the proponent, the ultimate depth of mining is restricted to 37m and accordingly the quantity of mineral to be mined out is 281575 cu.m of Rough stone, 14620 cu.m of weathered rock formation & 15136 cu.m of Gravel for a period of five years.
2. As per the MoEF & CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan




MEMBER SECRETARY
SEIAA-TN

A. STANDARD TERMS OF REFERENCE

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

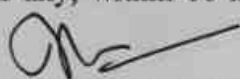



MEMBER SECRETARY
SEIAA-TN

and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.

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




MEMBER SECRETARY
SEIAA-TN

mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.

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




MEMBER SECRETARY
SEIAA-TN

- 22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
- 23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.
- 24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
- 25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
- 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
- 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
- 28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of




MEMBER SECRETARY
SEIAA-TN

- ground water should also be obtained and copy furnished.
- 29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
 - 30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
 - 31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
 - 32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
 - 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
 - 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
 - 35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
 - 36) Public health implications of the Project and related activities for the population in the




MEMBER SECRETARY
SEIAA-TN

impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.

- 37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
- 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
- 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
- 40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
- 41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
- 42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
- 43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
- 44) Besides the above, the below mentioned general points are also to be followed:-
 - a) Executive Summary of the EIA/EMP Report
 - b) All documents to be properly referenced with index and continuous page numbering.
 - c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
 - d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.
 - e) Where the documents provided are in a language other than English, an English translation should be provided.
 - f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.
 - g) While preparing the EIA report, the instructions for the Proponents and instructions




MEMBER SECRETARY
SEIAA-TN

for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.

- h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the ToR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.
- i) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the Environment Clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.
- j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

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

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

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




MEMBER SECRETARY
SEIAA-TN

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.
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



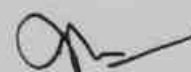

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SEIAA-TN

- 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 note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
- All documents may be properly referenced with index, page numbers and continuous page numbering.
- Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
- 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.
- 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 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.



TOR EXTENSION



File No: 11992
Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment Authority(SEIAA),
TAMIL NADU)



Dated 18/06/2025



To,

Thiru.Subash Chandra Bose S
TVL.SRI DURGAMBIKA BLUE METALS
No.1A/115, Kadithankulam, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District ,
TIRUNELVELI, TAMIL NADU, , 627356
durgambikablumetals@hotmail.com

Subject: Grant of Terms of Reference along with Public Hearing under the provision of the EIA Notification 2006-as amended regarding.

Sir/Madam,

Sub:SEIAA, Tamil Nadu – Terms of Reference along with Public Hearing (ToR) for the Proposed Rough Stone and Gravel Quarry lease over an extent 1.95.5 Ha at S.F. Nos. 570(P) & 571(P) Tharuvai Village, Palayamkottai Taluk, Tirunelveli District Tamil Nadu TvL Sri Durgambika Blue Metals – “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/529483/2025, Dated: 16/03/2025.
2. Your application submitted for Terms of Reference dated: 25.03.2025.
3. Minutes of the 569th Meeting of SEAC held on 22.05.2025.
4. Minutes of the 837th Meeting of Authority held on 12.06.2025.

2. The particulars of the proposal are as below :

(i) TOR Identification No.	TO25B0108TN5214231N
(ii) File No.	11992
(iii) Clearance Type	TOR
(iv) Category	B1
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals
(vii) Name of Project	Proposed Rough Stone, Jelly and Gravel Quarry of

	Tvl. Sri Durgambika Blue Metals, Prop. S.Subash Chandra Bose
(viii) Name of Company/Organization	TVL.SRI DURGAMBIKA BLUE METALS
(ix) Location of Project (District, State)	TIRUNELVELI, TAMIL NADU
(x) Issuing Authority	SEIAA
(xii) Applicability of General Conditions	no
(xiii) Applicability of Specific Conditions	no

3. In view of the particulars given in the Para 1 above, the project proposal interalia including Form-1(Part A and B) were submitted to the SEIAA for an appraisal by the SEAC under the provision of EIA notification 2006 and its subsequent amendments.
4. The above-mentioned proposal has been considered by SEIAA in the meeting held on 12/06/2025. The minutes of the meeting and all the Application and documents submitted [(viz. Form-1 Part A, Part B,)] are available on PARIVESH portal which can be accessed by scanning the QR Code above.
5. The State Expert Appraisal Committee (SEAC), based on the information & clarifications provided by the project proponent and after detailed deliberations on all technical aspects recommended the proposal for grant of Terms of Reference with public hearing under the provision of EIA Notification, 2006 and as amended thereof subject to the stipulation of specific and general conditions as detailed in Annexure (2).
6. The SEIAA has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and after accepting the recommendations of the SEAC hereby decided to issue the following Terms of Reference with public hearing for instant proposal of Tvl. Sri Durgambika Blue Metals under the provisions of EIA Notification, 2006 and as amended thereof.
7. The Ministry/SEIAA-TN reserves the right to stipulate additional conditions, if found necessary.
8. The Terms of Reference with public hearing to the aforementioned project is under provisions of EIA Notification, 2006. It does not tantamount to approvals/consent/permissions etc. required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/ Regulations or Statutes, as applicable, to the project.
9. This issues with the approval of the Competent Authority.
10. The TORs with public hearing prescribed shall be **valid for a period of three years** from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.

Copy To

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Principal Secretary to Government, Environment and Forests Department, Tamil Nadu.
3. The Additional Chief Secretary to Government, Natural Resources Department, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building, 1st& 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai – 34.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
6. The Chair Person, TNPC Board,76, Mount Salai, Guindy, Chennai-32
7. The District Collector, Tirunelveli District,
8. The Commissioner of Geology and Mines, Guindy, Chennai-32
9. Assistant Director, Department of Geology & Mining, Tirunelveli District,
10. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
11. File Copy.

1. Seac Conditions - Site Specific

S. No	Terms of Reference
1.1	1. A Cluster Management Committee (CMC) shall be constituted including all the mines in the cluster as Committee Members for the effective management of the mining operation in the cluster through systematic & scientific approach with appointment of statutory personnel, appropriate environmental monitoring, good maintenance of haul roads and village/panchayat roads, authorized blasting operation etc. The PP shall submit the following details in the form of an Affidavit during the EIA appraisal: (i) Copy of the agreement forming CMC. (ii) The Organisation chart of the Committee with defining the role of the members (iii) The 'Standard Operating Procedures' (SoP) executing the planned activities. 2. The Boundary pillars to be erected as per the mine rules and the evidence should be submitted along with the EIA report. 3. The details of enumeration of structures including schools, colleges, primary health centres should be submitted along with the EIA report. 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. and spell out the mitigation measures to be proposed for the protection of the above structures, if any during the quarrying operations. 5. The proponent shall furnish photographs of adequate fencing, garland drainage built with siltation tank & green belt along the periphery including replantation of existing trees; maintaining the safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan. 6. The Proponent shall carry out Bio diversity study as a part of EIA study and the same shall be included in the Report. 7. 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. 8. The PP shall carry out the comprehensive studies on the cumulative environmental impacts of the existing & proposed quarries which included drilling & blasting, loading & hauling on the surrounding village and structures. 9. The PP shall install the CCTV camera for the continuous surveillance of mining activity & furnish the photographic/videographic evidence along with the EIA report.

2. Seac Standard Conditions

S. No	Terms of Reference
2.1	1. In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following: (i) Original pit dimension (ii) Quantity achieved Vs EC Approved Quantity (iii) Balance Quantity as per Mineable Reserve calculated. (iv) Mined out Depth as on date Vs EC Permitted depth (v) Details of illegal/illicit mining (vi) Violation in the quarry during the past working. (vii) Quantity of material mined out outside the mine lease area (viii) Condition of Safety zone/benches

S. No	Terms of Reference
	(ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m. 2. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site. 3. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc. 4. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry. 5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report. 6. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site. 7. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC. 8. However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level. 9. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent. 10. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site. 11. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences. 12. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines, 13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines? 14. Quantity of minerals mined out. · Highest production achieved in any one year · Detail of approved depth of mining. · Actual depth of the mining achieved earlier. · Name of the person already mined in that leases area. · If EC and CTO already obtained, the copy of the same shall be submitted. · Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches. 15. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and

S. No	Terms of Reference
	other ecological features of the study area (core and buffer zone). 16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc., 17. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan. 18. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same. 19. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment. 20. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. 21. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study. 22. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind. 23. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted. 24. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given. 25. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided. 26. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered. 27. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided. 28. Impact on local transport infrastructure due to the Project should be indicated. 29. A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity. 30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific. 31. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA

S. No	Terms of Reference
	coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible. 32. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner. 33. Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner 34. A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period. 35. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period. 36. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed. 37. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations. 38. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation. 39. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given. 40. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc. 41. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB. 42. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine. 43. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.

3. Seiaa Specific Conditions:

S. No	Terms of Reference
3.1	The authority noted that the subject was placed in the 569th SEAC-II meeting held on 16.05.2025. After detailed discussions, the Authority accepts the recommendation of SEAC-II and decided to grant Terms of Reference (ToR) along with Public Hearing for the quantity of 2,89,000m³ of Rough Stone and 15,136m³ of Gravel up to the depth of 42m BGL and the annual peak production is 58,050m³ of Rough Stone and 12,056m³ of gravel as per the approved mining plan, under cluster

S. No	Terms of Reference
	for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC-II & normal conditions & the conditions mentioned below.

4. Seiaa Standard Conditions:

S. No	Terms of Reference
4.1	Cluster Management Committee 1. Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry. 2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc., 3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines. 4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network. 5. The committee shall deliberate on risk & emergency management plan, fire safety & evacuation plan and sustainable development goals pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan. 6. The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the Environmental policy devised shall be given in detail in the EIA Report. 7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner. 8. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public in the vicinity. Agriculture & Agro-Biodiversity 9. Impact on surrounding agricultural fields around the proposed mining Area. 10. Impact on soil flora & vegetation around the project site. 11. Details of type of vegetation including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetation all along the boundary of the proposed mining area shall committed mentioned in EMP. 12. The Environmental Impact Assessment should study the agro-biodiversity, agro- forestry, horticultural plantations, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem. 13. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services. 14. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock. Forests 15. The project proponent shall detailed study on impact of mining on Reserve forests and free ranging wildlife. 16. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna. 17. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection. 18. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests,

S. No	Terms of Reference
	National Parks, Corridors and Wildlife pathways, near project site. Water Environment 19. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period. 20. Erosion Control measures. 21. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas. 22. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir. 23. The project proponent shall study and furnish the details on potential fragmentation impact on natural Environment, by the activities. 24. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts. 25. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components. 26. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites. 27. The EIA shall include the impact of mining activity on the following: - 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. Energy 28. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished. Climate Change 29. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities. 30. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock, soil health and physical, chemical & biological soil features. 31. Impact of mining on pollution leading to GHGs emissions and the impact of the same on the local livelihood. Mine Closure Plan 32. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued. EMP 33. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued and the scope for achieving SDGs. 34. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan. Risk Assessment 35. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining. Disaster Management Plan 36. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to

S. No	Terms of Reference
	avoid/reduce vulnerability to hazards & to cope with disaster/unfavorable accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued. Others 37. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc. 38. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan. 39. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the Environment. The ecological risks and impacts of plastic & microplastics on aquatic Environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.

Standard Terms of Reference for (Mining of minerals)

1.

S. No	Terms of Reference
1.1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994
1.2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given
1.3	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee
1.4	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone)
1.5	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics
1.6	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority
1.7	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical

S. No	Terms of Reference
	system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report
1.8	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided
1.9	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period
1.10	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given
1.11	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given
1.12	A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees
1.13	Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished
1.14	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated
1.15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given
1.16	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted
1.17	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished

S. No	Terms of Reference
1.18	A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled- I fauna found in the study area, the necessary plan alongwith budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost
1.19	Proximity to Areas declared as Critically Polluted or the Project areas likely to come under the Aravali Range, (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered
1.20	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority)
1.21	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report
1.22	One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given
1.23	Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map
1.24	The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated
1.25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided

S. No	Terms of Reference
1.26	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided
1.27	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided
1.28	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from State Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished
1.29	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out
1.30	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same
1.31	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution
1.32	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines
1.33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report
1.34	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report
1.35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed
1.36	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations

S. No	Terms of Reference
1.37	Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation
1.38	Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project
1.39	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project
1.40	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given
1.41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out
1.42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report
1.43	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc
1.44	Besides the above, the below mentioned general points are also to be followed:- a) All documents to be properly referenced with index and continuous page numbering. b) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated. c) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project. d) Where the documents provided are in a language other than English, an English translation should be provided. e) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted. f) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed. g) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation. h) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable. i) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area

A. STANDARD TERMS OF REFERENCE

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

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

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

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

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

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

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

and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.

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

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

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

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

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

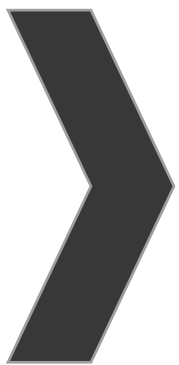
1. Project name and location (Village, District, State, Industrial Estate (if applicable)).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or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

12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of its acquisition, nearby (in 2-3 km.) water body, population, within 10km other industries, forest, eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population
21. Emergency preparedness plan in case of natural or in plant emergencies
22. Issues raised during public hearing (if applicable) and response given
23. CER plan with proposed expenditure.
24. Occupational Health Measures
25. Post project monitoring plan
26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.
27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.
29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
30. Reserve funds should be earmarked for proper closure plan.
31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC.2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment

(Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.

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

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



ANNEXURE-2

PRECISE AREA COMMUNICATION LETTER

Rc. No.M3/10059/2020

District Collector's Office,
Geology and Mining,
Tirunelveli.

dated. 11.09.2020

Notice

Sub: Mines and Quarries - Minor Minerals -
Roughstone, Jelly and Gravel - Tirunelveli District
- Palayamkottai Taluk - Tharuvai Village - SF.
Nos. 570(P) & 571(P) - over an extent of 1.95.5
hectares of patta lands - Quarry lease
application preferred by Tvl. Sri Durgambika
Blue Metals, Prop.S.Subash Chandra Bose -
Precise area communicated - Approved Mining
Plan and Environmental clearance - Called for -
Reg.

- Ref:**
- i. Quarry lease application preferred by Tvl. Sri Durgambika Blue Metals, Prop.S.Subash Chandra Bose, dated. 13.03.2020.
 - ii. The Sub - Collector, Tirunelveli Letter No. A5/1103/2019, dated. 10.08.2020.
 - iii. Inspection report of the Assistant Director of Geology and Mining, Tirunelveli dated.
 - iv. G.O (Ms) No. 169, Industries (MMC-1) Department dated. 04.08.2020.

Tvl. Sri Durgambika Blue Metals, Prop.S.Subash Chandra Bose, residing at 1A/115, Kandithankulam, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District has preferred on 13.03.2020 application for grant of quarry lease for quarrying Roughstone, Jelly, Gravel over an extent of 1.95.5 hectares of patta lands in SF. Nos. 570(P) & 571(P) of Tharuvai Village, Palayamkottai Taluk, Tirunelveli District for a period of 5



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

2. The Sub-Collector, Tirunelveli and the Assistant Director of Geology and Mining, Tirunelveli furnished their reports in the reference 2nd and 3rd cited respectively and recommended for grant of quarry lease in the applied area subject to certain conditions.

3. Based on the recommendations of the Sub-Collector, Tirunelveli and the Assistant Director of Geology and Mining, Tirunelveli, the quarry lease application preferred by the applicant Tvl. Sri Durgambika Blue Metals, Prop.S.Subash Chandra Bose for grant of quarry lease for quarrying and transportation of Roughstone, Jelly and Gravel in the subject area has been considered for grant for a period of 5 years and precise area is hereby communicated over an extent of 1.95.5 hectares of patta land in SF. Nos. 570(P) & 571(P) of Tharuvai Village, Palayamkottai Taluk, Tirunelveli District under amended Rule 41 (4) Tamil Nadu Minor Mineral Concession Rules, 1959 with a direction to the applicant to produce mining plan for approval of the Assistant Director of Geology and Mining subject to the following conditions.

- i. A safety distance of 7.5 meters should be provided to the adjoining patta lands.
- ii. No hindrance shall be caused to the adjoining pattadars' lands while carrying out quarrying operations.
- iii. No dimensional blocks with a size of 30c.m x 30c.m x 30cm suitable for polishing shall be produced.
- 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 the mining plan duly prepared by a Recognized Qualified Person in respect of the precise area communicated for approval of the Assistant Director 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, Jelly and Gravel in respect of the precise area communicated.

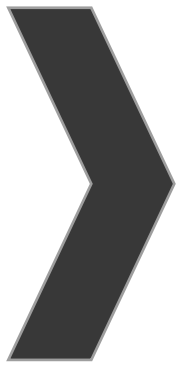
[Signature]
Assistant Director,
Geology and Mining,
Tirunelveli.

To

Tvl. Sri Durgambika Blue Metals,
Prop.S.Subash Chandra Bose,
1A/115, Kandithankulam,
Tharuvai village,
Palayamkottai Taluk,
Tirunelveli District.

[Signature]
11/9/2023

[Signature]



ANNEXURE-3

MINE PLAN APPROVAL LETTER

From

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

To

Tvl. Sri Durgambika Blue Metals,
Prop.S.Subash Chandra Bose,
1A/115, Kandithankulam,
Tharuvai Village,
Palayamkottai Taluk,
Tirunelveli District.

Rc. No. M3/10059/2020, dated. 30.10.2020

Sir,

Sub : Mines and Minerals - Minor Minerals -
Roughstone, Jelly and Gravel - Tirunelveli District -
Palayamkottai Taluk - Tharuvai Village - SF. Nos.
570(P) & 571(P) - over an extent of 1.95.5
hectares of patta lands - Quarry lease
application preferred by Tvl. Sri Durgambika Blue
Metals, Prop.S.Subash Chandra Bose - precise
area communicated - draft mining plan
submitted - Approval accorded - Reg.

- Ref :**
- 1) Quarry lease application preferred by Tvl. Sri Durgambika Blue Metals, Prop.S.Subash Chandra Bose, dated. 13.03.2020.
 - 2) Ministry of Environment and Forest, Government of India, Office Memorandum No. L-1011/47/20112 -IA-11(M), dated: 18.05.2012.
 - 3) Commissioner of Geology and Mining, Chennai letter Rc.No.3868/LC/2012, dated: 19.11.2012 & 07.11.2014.
 - 4) G.O. (Ms). No. 79, Industries (MMC1), Department, dated: 06.04.2015.
 - 5) This office Notice No. M3/10059/2020, dated. 11.09.2020.

- 6) Letter dated. 29.10.2020 received from the applicant.

Tvl. Sri Durgambika Blue Metals, Prop.S.Subash Chandra Bose, residing at 1A/115, Kandithankulam, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District has preferred on 13.03.2020 application for grant of quarry lease for quarrying Roughstone, Jelly, Gravel over an extent of 1.95.5 hectares of patta lands in SF. Nos. 570(P) & 571(P) of Tharuvai Village, Palayamkottai Taluk, Tirunelveli District for a period of 5 years under Rule 19 (1) of Tamil Nadu Minor Mineral Concession Rules, 1959 vide reference 1st cited.

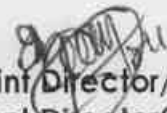
2. In the reference 5th cited, above precise area has been communicated based on the recommendations of Sub-Collector, Tirunelveli and the Assistant Director of Geology and Mining, Tirunelveli, the quarry lease application preferred by the applicant company Tvl. Sri Durgambika Blue Metals, Prop.S.Subash Chandra Bose for grant of quarry lease for quarrying roughstone, jelly, gravel in the subject area has been considered for grant for a period of 5 years and precise area is hereby communicated over an extent of 1.95.5 hectares of patta land in SF. Nos. 570(P) & 571(P) of Tharuvai Village, Palayamkottai Taluk, Tirunelveli District.

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 6th cited.

4. The contents of the draft Mining Plan submitted in respect of the precise area communicated have been verified with reference to field conditions. The co-ordinates of all the corners of the lease applied area were verified with the Global Positioning System (GPS) and the

3. proposed quarries				
1.	Tvl.Sri Durgambika Blue Metals, Prop.S.Subash Chandra Bose, 1A/115, Kandithankulam, Tharuvai (v), Palayamkottai Taluk, Tirunelveli District.	Tharuvai (v) & 570(P) & 571(P)	1.95.5	Proposed quarry
2.	S.Kasirajan, 760, Bazzar Street, Seevalaperi, Palayamkottai Taluk, Tirunelveli.	Tharuvai(v) & 530/3A, 531/1A, 532, 533/1, 568/5A(P) & 569/3A	4.97.0	Proposed quarry

6. In view of the above it is recommended that Environmental Clearance may be issued in favour of the applicant subject to the usual terms and conditions.


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


7/11/2020

same are found to be correct. All the conditions stipulated in the precise area communicated have been incorporated in the Mining Plan. The required safety distance of 7.5 metres for the adjacent patta lands 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:-

- 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 2,89,000 cubic meters of Roughstone, 14,620 cubic meters of Weathered rock and 15,136 cubic meters of Gravel for a period of 5 years as per the Approved Mining Plan.
- vi. A safety distance of 7.5 meters should be provided to the adjoining patta lands.

- vii. No hindrance shall be caused to the adjoining pattadars, lands and public while quarrying and transportation of mineral from the subject area.
- viii. No dimensional blocks with a size of 30c.m x 30c.m x 30cm suitable for polishing shall be produced.
- ix. Environmental Clearance should be obtained from the State Level Environment Impact Assessment Authority, Chennai.

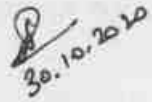
6. As directed by the Assistant Director(i/c) of Geology and Mining, Tirunelveli in the reference 6th cited, you are hereby requested to produce Environmental Clearance obtained from the State Level Environment Impact Assessment Authority (SEIAA), Chennai as applicable under Rule 42 of Tamil Nadu Minor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

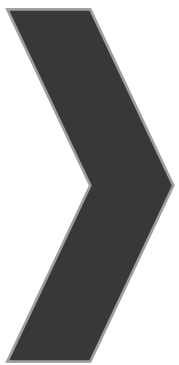
Encl: Approved Mining Plan.


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

Copy submitted to:

The Chairman
State Level Environmental
Impact Assessment Authority,
Chennai.


30.10.2010



APPROVAL MINING PLAN

MINING PLAN FOR THARUVAI ROUGH STONE, JELLY AND GRAVEL QUARRY



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

LOCATION OF THE QUARRY LEASE APPLIED AREA

STATE : TAMIL NADU
DISTRICT : TIRUNELVELI
TALUK : PALAYAMKOTTAI
VILLAGE : THARUVAI
S.F.NOS : 570(P) AND 571(P)
EXTENT : 1.95.5HA

For

APPLICANT

Tvl.Sri Durgambika Blue Metals,
Prop.Thiru.S.Subash Chandra Bose,
No.1A/115, Kandithankulam,
Tharuvai Village, Palayamkottai Taluk,
Tirunelveli District.

PREPARED BY

C.NATARAJAN, M.Sc.,M.Phil.,
RQP/MAS/004/87/A
, 93/36-E2, Subramaniam Kovil Street,
Omalur Taluk, Salem District,
Tamil Nadu, Pin-636 455.
Mobile:97502 23535 - 94446 54520.
Email: geoprabu@gmail.com,
info.globalmining@gmail.com.



Tvl.Sri Durgambika Blue Metals,
Prop.Thiru.S.Subash Chandra Bose,
No.1A/115, Kandithankulam,
Tharuvai Village, Palayamkottai Taluk,
Tirunelveli District.

CONSENT LETTER FROM THE APPLICANT

The Mining Plan in respect of **Rough Stone, Jelly and Gravel** quarry over an extent of 1.95.5Ha of (**Patta land**) in S.F.Nos.570(P) and 571(P) of Tharuvai Village, Palayamkottai Taluk, Tirunelveli District, Tamil Nadu State has been prepared by

C.Natarajan, M.Sc.,M.Phil.,
RQP/MAS/004/87/A

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

C.Natarajan,M.Sc.,M.Phil.,
RQP/MAS/004/87/A

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

I hereby undertake that all modifications so made in the Mining Plan by the Recognized 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

Tvl.Sri Durgambika Blue Metals,
Prop.Thiru.S.Subash Chandra Bose,

Place: Tirunelveli

Date: 13.09.2020.

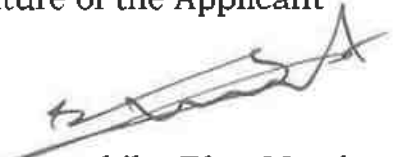


Tvl.Sri Durgambika Blue Metals,
Prop.Thiru.S.Subash Chandra Bose,
No.1A/115, Kandithankulam,
Tharuvai Village, Palayamkottai Taluk,
Tirunelveli District.

DECLARATION

The Mining Plan in respect of **Rough Stone, Jelly and Gravel** quarry over an extent of 1.95.5Ha of **(Patta land)** in S.F.Nos.570(P) and 571(P) of Tharuvai Village, Palayamkottai 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


Tvl.Sri Durgambika Blue Metals,
Prop.Thiru.S.Subash Chandra Bose,

Place: Tirunelveli

Date: 13.09.2020.





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

RQP/MAS/004/87/A

No.93/36E2, Subramaniyar Kovil Street,

Omalur Taluk, Salem District,

Tamil Nadu, Pin-636 455.

Mobile:9750223535 &94446 54520.

CERTIFICATE

This is to certify that, the provisions of Minor Minerals Conservation and Development Rules, 2010 (MMCDR) have been observed in the Mining Plan for the grant of **Rough Stone, Jelly and Gravel** quarry lease over an extent of 1.95.5Ha of (**Patta land**) in S.F.Nos.570(P) and 571(P) of Tharuvai Village, Palayamkottai Taluk, Tirunelveli District, Tamil Nadu State applied by Tvl.Sri Durgambika Blue Metals, Prop.Thiru.S.Subash Chandra Bose, 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 Recognized Qualified Person.


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

RQP/MAS/004/87/A

C. NATARAJAN, M.Sc.,M.Phil.,

RECOGNISED QUALIFIED PERSON.

RQP / MAS / 004 / 87 / A

Place: Salem

Date: 15.09.2020.



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

RQP/MAS/004/87/A

No.93/36E2, Subramaniyar Kovil Street,

Omalur Taluk, Salem District,

Tamil Nadu, Pin-636 455.

Mobile:9750223535&94446 54520.

CERTIFICATE

Certified that, in preparation of Mining Plan for **Rough Stone, Jelly and Gravel** quarry over an extent of 1.95.5Ha of **(Patta land)** in S.F.Nos.570(P) and 571(P) of Tharuvai Village, Palayamkottai Taluk, Tirunelveli District, Tamil Nadu State for Tvl.Sri Durgambika Blue Metals, Prop.Thiru.S.Subash Chandra Bose, 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 Recognized Qualified Person.


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

RQP/MAS/004/87/A

C. NATARAJAN, M.Sc.,M.Phil.,

RECOGNISED QUALIFIED PERSON,

RQP / MAS / 004 / 87 / A

Place: Salem

Date: 15.09.2020.



135

CONTENTS



S. No.	Description	Page No.
1.0	Introduction	1
2.0	General Information	4
3.0	Location	4
4.0	Geology and Mineral Reserves	5
5.0	Mining	8
6.0	Blasting	11
7.0	Mine Drainage	12
8.0	Other Permanent Structures	13
9.0	Employment Potentials & Welfare Measures	13
10.0	Environment Management Plan	15
11.0	Mine Closure Plan	18
12.0	Any Other Details Intend to furnish by the Applicant	19



Annexure

S.No.	Description	Annexure No.
1.0	Precise Area Communication letter issued by the District Collector	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 Document	VII
8.0	Copy of Identity Proof	VIII
9.0	Copy of RQP 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	Conceptual Plan & Section	IV

[Handwritten signature]



MINING PLAN FOR MINOR MINERALS

ROUGH STONE, JELLY AND GRAVEL

Over an extent of 1.95.5 hectares of Patta land in S.F.Nos.570(P) and 571(P) of Tharuvai Village, Palayamkottai 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 Tvl.Sri Durgambika Blue Metals, Prop.Thiru.S.Subash Chandra Bose, No.1A/115, Kandithankulam, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District.
2. The application was processed by the District Collector, Tirunelveli and passed an order vide Rc.No. M3/10059/2020, dated 11.09.2020 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, Jelly and Gravel** over an extent of 1.95.5 hectares of Patta lands in S.F.Nos.570(P) and 571(P) of Tharuvai Village, Palayamkottai Taluk, Tirunelveli District of Tamil Nadu State for a period of Five years only.
3. Accordingly, Mining Plan is prepared under the provisions of Rule 19(1), Rule 41 (1) and 41 (3) (i) of the Tamil Nadu Minor Mineral Concession Rules, 1959 by incorporating the conditions imposed in the precise area communication letter.
4. Geological Resources is estimated at 7,82,080m³ of Rough stone, 19,552m³ of Weathered Rock and 19,552m³ of gravel formation and Mineable Reserves is estimated at 2,89,000m³ of Rough Stone, 14,620m³ of Weathered Rock and 15,136m³ of gravel formation and after leaving necessary safety distance from the lease boundary as indicated in the precise area letter and relevant mining laws in force.
5. Production Schedule is proposed production of 2,89,000m³ of Rough Stone, 14,620m³ of Weathered Rock and 15,136m³ of gravel formation for the period of Five years.



6. Environmental parameters,

- i) The area does not attract the Forest Conservation Act, 1980 as there is no forest around 10.0Kms radius.
- ii) There is no interstate boundary around 10Kms radius.
- iii) There is no wild life animal sanctuary within 10Kms radius from the project site area under the Wildlife (Protection) Act, 1972.

Therefore the project seeks clearance only from State Level Environmental Impact Assessment Authority (SEIAA) under B2 Category.

7. Environmental measures to be adopted shall be,

- i) Dust Control at source while drilling and blasting,
- ii) Dust suppression at loading point and transport haul roads,
- iii) Noise Control in blasting, control of fly rock missiles and vibration by doing peak particle velocity with in standard as prescribed by the DGMS and MOEF.
- iv) Unnecessary land degradation should be avoided or damaged land should be reclaimed or rehabilitated.
- v) Avoid uneven rat hole mining and follow scientific and systematic mining by safe bench system of open cast mining.
- vi) Mining near major fracture zones if any should be avoided to control ground water fluctuation in the adjacent agricultural lands.
- vii) Emission test of vehicles should be in tack to maintain minimum emission level of flue gases.
- viii) Noise level should not exceed 80db and the vehicles should use only permitted Air Horn while on road near residential areas.
- ix) Safety zones as prescribed by the Department of Geology and Mining from adjacent infrastructures should be strictly adhere to.
- x) And any other conditions as stipulated by the concerned authorities should be followed to protect the environment.



EXECUTIVE SUMMARY:

a.	Name of the Village Panchayat	:	Tharuvai
b.	Name of the Panchayat Union	:	Palayamkottai
c.	The proposed total Movable Reserves	:	2,89,000m ³ of Rough Stone, 14,620m ³ of Weathered Rock 15,136m ³ of Gravel
d.	The proposed quantity of reserves (level of production) for Five years to be mined is(Recoverable reserves)	:	2,89,000m ³ of Rough Stone, 14,620m ³ of Weathered Rock 15,136m ³ of Gravel
e.	Total extent of the area	:	1.95.5Ha
f.	Proposed Period of mining	:	Five Years
g.	Existing depth	:	It is fresh quarry lease applied area
h.	Proposed Depth of mining	:	42m below ground level
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. 10,82,000/- Rs. 61,50,000/- Rs. 4,95,000/- Total Project cost(A+B+C)= Rs. 77,27,000/-
l.	The area applied for lease is bounded by six corners and the coordinates are clearly marked in plate no II.		
	Corners	Co- ordinates	Distance between the corners
		Latitude	Longitude
	1	08°38'27.78"N	77°40'54.60"E
	2	08°38'33.41"N	77°40'56.99"E
	3	08°38'32.47"N	77°40'59.20"E
	4	08°38'32.12"N	77°41'00.13"E
	5	08°38'26.34"N	77°40'57.67"E
	6	08°38'26.86"N	77°40'56.82"E
			1-2 = 188.0m 2-3 = 73.8m 3-4 = 30.4m 4-5 = 192.8m 5-6 = 30.4m 6-1 = 73.8m



2.0 General Information:

2.1	a.	Name of the Applicant	:	Tvl.Sri Durgambika Blue Metals, Prop.Thiru.S.Subash Chandra Bose,
	b.	Address of the Applicant with phone No and e-mail id if any	:	No.1A/115, Kadithankulam, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District. Pin Code-627 356. Cell No.: 9843118272
	c.	Status of the Applicant	:	Proprietorship company
2.2	a.	Mineral Which the applicant intends to mine	:	Rough Stone, Jelly and Gravel.
	b.	Precise area communication letter No.	:	Precise area communication letter of the District Collector, Tirunelveli Rc.No. M3/10059/2020, dated 11.09.2020.
	c.	Period of permission / lease granted	:	The applicant has applied permission for Five years and the District Collector considered grant of lease for Five years .
	d.	Name and Address of the RQP preparing Mining Plan	:	C.Natarajan, M.Sc.,M.Phil., RQP/MAS/004/87/A No.93/36E2, Subramaniyar Kovil Street, Omalur Taluk, Salem District, Tamil Nadu, Pin-636 455. Mobile: 9750223535 & 94446 54520.
	e.	RQP Registration. No.	:	RQP/MAS/004/87/A Valid Til. 22.10.2021.

3.0 Location:

Details of the Area:

State	District	Taluk	Village	S.F.Nos.	Extent in hectares
Tamil Nadu	Tirunelveli	Palayamkottai	Tharuvai	570(P) and 571(P)	1.95.5



a.	Classification of the Area (Ryotwari / poramboke / others)	:	Patta land
b.	Ownership / Occupancy of the Applied area (Surface rights)	:	It is patta land jointly register in the name of the Thiru.Subash Chandra Bose and Thiru.Kasirajan and vide patta Nos.3509, the applicant has obtained consent from the pattdar Plcase refer Annexure No: IV & VII.
c.	Toposheet No. with Latitude and Longitude	:	Topo Sheet No: 58 H /10 Latitude :08°38'26.34"N to 08°38'33.41"N Longitude :77°40'54.60"E to 77°41'00.13"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 Kandithankulam - Adaimithipankulam village road on Western side of the area. The Nearest Railway line is Tirunelveli to Nagarkoil line which is about 120m on eastern side of the area.

PART - A

4.0 Geology and Mineral Reserves:

4.1	a.	Topography	:	1. The area applied for quarry lease exhibits almost plain topography covered by Gravel formation. The massive Charnockite formation is noticed below 1m (Avg) Gravel and 1m Weathered rock formation and sloping towards Southeastern side of the area, the altitude of the area is above 95m (maximum) from MSL. 2. No major river is found nearby the lease applied area. 3. Water table is found at a depth of 60m in summer and 57m in rainy seasons. 4. Temperature of the area is reported to be 18°C to a maximum of 42°C during summer. 5. Rainfall of this area is about 800mm to 900 mm during the both NE & SW monsoons.



	b.	General Geology of the Area	: The area is underlain by the whole 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. <table><tr><td></td><td>Age</td><td>Rock Formation</td></tr><tr><td>1.</td><td>Recent to Sub recent</td><td>Alluvium, Gravel</td></tr><tr><td>2.</td><td>Archaean</td><td>Charnockite</td></tr><tr><td>3.</td><td>Archaean</td><td>Peninsular Gneiss, and Calc Gneiss</td></tr></table>		Age	Rock Formation	1.	Recent to Sub recent	Alluvium, Gravel	2.	Archaean	Charnockite	3.	Archaean	Peninsular Gneiss, and Calc Gneiss
	Age	Rock Formation													
1.	Recent to Sub recent	Alluvium, Gravel													
2.	Archaean	Charnockite													
3.	Archaean	Peninsular Gneiss, and Calc Gneiss													
4.2		Details of Exploration already carried out if any	: No exploration was carried out, as the Rough stone formations are clearly visible from adjacent existing quarry pit.												
4.3	a.	Estimation of Reserves	: The Geological and Recoverable reserves are estimated by cross sectional method. Totally two sections have been drawn, one section drawn length wise as (X-Y) another one section drawn width wise as (A-B) to cover maximum area considered for lease. The Plans and Sections have been drawn with a scale of 1:1000 and 1:500 respectively. Please refer plate No.III.												



a. Geological Resources

The quarrying is restricted up to a depth of 42m 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 in m ³	Weathered Rock in m ³	Geological Resources of Rough stone in m ³
XY-AB	188	104	1	19552	19552		
	188	104	1	19552		19552	
	188	104	40	782080			782080
	Total				19552	19552	782080

Gravel Formation : 19,552m³

Weathered Rock Formation : 19,552m³

The Geological Resources of Rough stone : 7,82,080m³

b. Mineable Reserve

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

Table No-2

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Gravel in m ³	Weathered Rock in m ³	Mineable Reserve of Rough stone in m ³
XY-AB	I	172	88	1	15136	15136		
	II	170	86	1	14620		14620	
	III	169	85	5	71825			71825
	IV	159	75	5	59625			59625
	V	149	65	5	48425			48425
	VI	139	55	5	38225			38225
	VII	129	45	5	29025			29025
	VIII	119	35	5	20825			20825
	IX	109	25	5	13625			13625
	X	99	15	5	7425			7425
Total						15136	14620	289000

The mineable reserve is computed as 2,89,000m³ of Rough stone, 14,620m³ of Weathered rock formation and 15,136m³ of Gravel, upto a depth of 42m below ground level only.

The Gravel and weathered rock mass will be removed first. After the excavation, weathered rock mass will be preserved all along the boundary barrier. If market rise the same will be loaded into tipper for needy customer after paying the necessary Seigniorage Fees to Government.



5.0 Mining:	
5.1	Method of Mining : 1. Opencast method of semi mechanized mining with 5.0m vertical bench width of the bench is not less than bench height. 2. However, as far as the quarrying of Rough stone is concerned, observance of the provisions of Regulation 106(2) (b) as above is seldom[possible due to various inherent petrogenetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the above regulation from the Director of mines safety for which necessary provision is available with the regulation 106 (2) (b) of MMR-1961, under Mine Act-1952.
5.2	Mode of Working : The rough stone is proposed to quarry 5m bench height and width with conventional opencast semi-Mechanized method. The quarry operation involves shallow jack hammer drilling, slurry blasting, excavation, Loading and transportation of Rough stone to the needy buyers. The production of Rough stone in this quarry involves the following method which is typical for Rough Stone quarrying in contrast to other major mineral mining. Splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy buyers. Occasionally hydraulic excavators are attached with rock breakers for fragmentation to avoid secondary blasting. The primary boulders thus splitted are removed from the pits by excavators and further made to smaller sizes by rock breakers attached in excavators. It is a conventional opencast semi mechanized method of mining.



5.3	Proposed bench height & Width	:	Quarrying of Rough Stone is proposed bench height of 5m and bench width of 5m.
5.4	Details of Overburden / Mineral Production proposed for the first 5 years.	:	The overburden is in the form of Gravel and weathered rock mass. After the excavation weathered rock mass will be preserved all along the boundary barrier. If there is any rise in the market, the same will be loaded into tipper for needy customers on payment of necessary Seigniorage Fees to Government. The excavated rough stone and gravel will be directly loaded into tipper to the needy buyers for road projects and construction works and for filling and leveling of low lying areas.

The Yearwise Production and Development Table

Table No -3

Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Gravel in m ³	Weathered Rock in m ³	Mineable reserve of Rough stone in m ³
I	XY-AB	I	137	88	1	12056	12056		
		II	136	86	1	11696		11696	
		III	136	85	5	57800			57800
	Total						12056	11696	57800
II	XY-AB	I	35	88	1	3080	3080		
		II	34	86	1	2924		2924	
		III	33	85	5	14025			14025
		IV	116	75	5	43500			43500
	Total						3080	2924	57525
III	XY-AB	IV	43	75	5	16125			16125
		V	129	65	5	41925			41925
	Total								58050
IV	XY-AB	V	20	65	5	6500			6500
		VI	139	55	5	38225			38225
		VII	58	45	5	13050			13050
	Total								57775
V	XY-AB	VII	71	45	5	15975			15975
		VIII	119	35	5	20825			20825
		IX	109	25	5	13625			13625
		X	99	15	5	7425			7425
	Total								57850
Grand Total							15136	14620	289000

The applicant has proposed to carry out 2,89,000m³ of Rough stone, 14,620m³ of Weathered rock formation and 15,136m³ of Gravel formation at the rate of 100% recovery upto a depth of 42m below ground level for the period of five years only.



5.5	Machineries to be used													
a.	Mining	: It is proposed to use following machineries for quarrying rough stone 1) Tractor mounted compressor with jack hammer 2) Excavator of 0.90m ³ bucket capacity (with Rock breaker attachment).												
b.	Loading	: Excavator of 0.90m ³ bucket capacity (with Rock breaker attachment).												
c.	Transportation	: Tipper 3Nos 5/10Ts capacity.												
5.6	Disposal of Overburden	: The overburden in the form of Gravel and weathered rock mass after excavation weathered rock mass will be preserved all along the boundary barrier. If there is any rise in the market, the same will be loaded into tipper for needy customers on payment of necessary Seigniorage Fees to Government. The excavated gravel will be directly loaded into tipper to the needy buyers for road projects and construction works and for filling and leveling of low lying areas.												
5.7	Brief Note on Conceptual Mining Plan for the entire lease period	: Conceptual Mining Plan is prepared with an object of Five years of systematic development of bench lay outs, selection of ultimate pit limit, depth of quarrying, ultimate pit slope, selection of sites for construction of infrastructures etc. Ultimate pit size is designed based on certain practical factors such as the economical depth of mining, safety zones, permissible areas etc. Ultimate Pit dimension is given as under, <table border="1"><thead><tr><th colspan="4">Ultimate Pit dimension (M)</th></tr><tr><th>Pit No</th><th>Length (max) in m</th><th>Width (Avg) in m</th><th>Depth(max) in (m)</th></tr></thead><tbody><tr><td>I</td><td>172</td><td>88</td><td>42</td></tr></tbody></table> Afforestation has been proposed on all along the boundary barrier by planting trees. All the baseline information studies like Air Quality monitoring, Noise and Vibration monitoring, Water Analysis studies will be carried out every year as per the MOEF norms.	Ultimate Pit dimension (M)				Pit No	Length (max) in m	Width (Avg) in m	Depth(max) in (m)	I	172	88	42
Ultimate Pit dimension (M)														
Pit No	Length (max) in m	Width (Avg) in m	Depth(max) in (m)											
I	172	88	42											

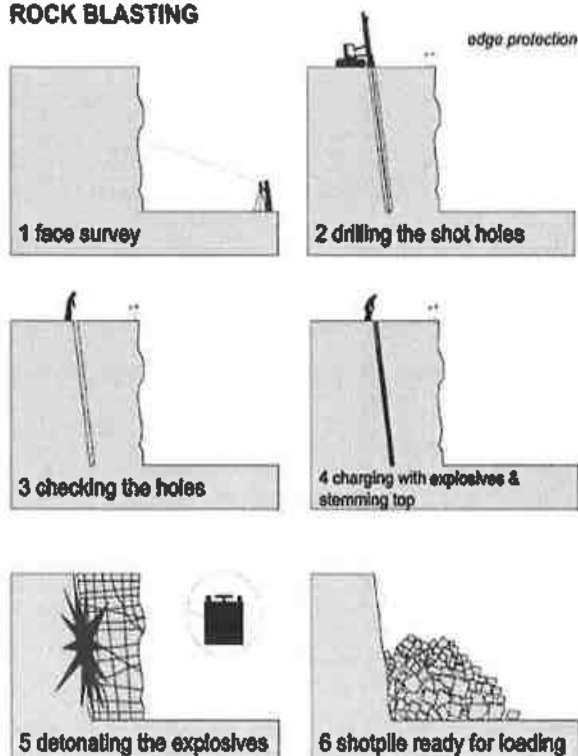
6.0 Blasting:

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	: 32-36 mm
Spacing	: 0.6m
Depth	: 1 to 1.5m
Burden for hole	: 0.6m
Pattern of hole	: ZigZag
Inclination of hole	: 70° from the horizontal.

ROCK BLASTING



6.2 Types of Explosives

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



6.3	Measures proposed to minimize ground vibration due to blasting	: Controlled blasting measures will be adopted for minimizing ground vibration and fly rock. Shallow depths jackhammer drilling and blasting is proposed to be carried out with minimum use of explosive mainly to give shattering effect in rough stone for easy excavation and to control fly rock.										
		<table><tr><td>Number of holes</td><td>: 186</td></tr><tr><td>Powder factor</td><td>: 6Ts/Kg of explosives</td></tr><tr><td>Total explosive required</td><td>: 83Kg 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	: 186	Powder factor	: 6Ts/Kg of explosives	Total explosive required	: 83Kg slurry explosives	Charge / hole	: 0.5Kg	Blasting time	: 12-2 Pm
Number of holes	: 186											
Powder factor	: 6Ts/Kg of explosives											
Total explosive required	: 83Kg slurry explosives											
Charge / hole	: 0.5Kg											
Blasting time	: 12-2 Pm											
6.4	Storage of Explosives and safety measures to be taken while blasting.	: The applicant will engage an authorized explosive agency to carry out the small amount of blasting and it will be supervised by competent and statutory foreman/ mines manager.										

7.0 Mine Drainage:

7.1	Depth of Water table	: The ground water table is reported as 60m below ground level. The quarry operation proposed upto a depth of 42m below ground level only. Hence the quarrying operation may not affect the ground water.
7.2	Arrangement and Places where the mine water is finally proposed to be discharged	: The ground water may not rise immediately in this type of mining. However, the rain water percolation and collection of water from the seepage shall be less than 300lpm and it shall be pumped about periodically by a stand by diesel powered Centrifugal pump motivated with 7.5H.P.Motor. The quality of water is potable and it is not contaminated with any hazardous things. Hence, water stored in the quarry pit will be pumped into the adjacent agricultural fields. Further the water stored in the old pit will also be used for plantation purposes



8.0 Other Permanent Structures:

8.1	Habitations / Village	:	There are no habitations within a radius of 300m.
8.2	Power lines (HT/LT)	:	There is no LT/HT power lines within a radius of 50m.
8.3	Water bodies (River, Pond, Lake, Odai, Channel etc)	:	There is one Tank on southeast side of the area and is 410m away from the area. There is no other Water bodies (River, Odai, Channel etc) within a radius of 500m.
8.4	Archeological / Historical Monuments	:	There are no Archeological / Historical Monuments within a radius of 50m.
8.5	Road (NH, SH, Village Road etc)	:	The National Highway (NH-7) Salem - Kanniyakumari about 2.0km on southeastern side of the area. The State Highway (SH-40) Tirunelveli - Tenkasi is about 3.5Km on Northern side of the area.
8.6	Places of Worship	:	There are no Places of Worship within a radius of 50m.
8.7	Reserved Forest / Forest / Social Forest / Wild Life Sanctuary etc.,	:	There are no Reserved Forest/Forest/Social Forest/Wild Life Sanctuary etc near the applied area.
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 10Km.
8.9	Any Other Structures	:	Nil

9.0 Employment Potential & Welfare Measures:

9.1	Employment Potential (Management & Supervisory personal)	:	1.	Skilled	Operator	8No.	
					Mechanic	1 No.	
					Mines manager /Mate	1 No.	
			2.	Semi-skilled	Driver	3 No.	
			3.	Unskilled	Musdoor / Labours	8Nos	
				Total =			21Nos
			Allowing 10% absentee, the no. of men of roll will be around 19.				



			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 Kandithankulam village which is about 600m on southern side of the area.
	b.	Sanitary facilities	: Semipermanent 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 8.0Km (NE) in Palayamkottai 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 applicants own cost.
	e.	Precautionary safety measures to the Labourers	Safety provisions like helmet, goggles, safety shoes, Dust mask, Ear muffs etc., have to be provided as per the circulars and amendments made for Mine labours under the guidance of DGMS being a mechanized operation. Necessary training will be conducted once in a year to all the employees with the help of qualified and experienced officers to train about the safe and systematic quarrying operation.



PART - B

10.0 Environmental Management Plan:

10.1	Existing Land Use Pattern	:	1. The area exhibits almost plain topography covered by Gravel formation. 2. Quarrying is proposed up to a depth of 42m below ground level. 3. Rough stone (Charnockite) is noticed below the 1m (Avg) Gravel and 1m (avg) Weathered rock formation. 4. Fluctuation of Water table in this area is in between 60m and 57m during a year. 5. This region receives the average annual rainfall of 800mm to 900mm. The surrounding area is practiced by the seasonal cultivation. The existing land use pattern is given as under. Table No-4 <table border="1"> <thead> <tr> <th>Sl. No.</th><th>Land Use</th><th>Present Area (Hect)</th><th>Area in use during the quarrying period (Hect)</th></tr> </thead> <tbody> <tr> <td>1.</td><td>Quarrying Pit</td><td>Nil</td><td>1.51.0</td></tr> <tr> <td>2.</td><td>Infrastructure</td><td>Nil</td><td>0.01.0</td></tr> <tr> <td>3.</td><td>Roads</td><td>Nil</td><td>0.01.0</td></tr> <tr> <td>4.</td><td>Green Belt</td><td>Nil</td><td>0.20.0</td></tr> <tr> <td>5.</td><td>Unutilized</td><td>1.95.5</td><td>0.22.5</td></tr> <tr> <td></td><td>Total =</td><td>1.95.5</td><td>1.95.5</td></tr> </tbody> </table>	Sl. No.	Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)	1.	Quarrying Pit	Nil	1.51.0	2.	Infrastructure	Nil	0.01.0	3.	Roads	Nil	0.01.0	4.	Green Belt	Nil	0.20.0	5.	Unutilized	1.95.5	0.22.5		Total =	1.95.5	1.95.5
Sl. No.	Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)																												
1.	Quarrying Pit	Nil	1.51.0																												
2.	Infrastructure	Nil	0.01.0																												
3.	Roads	Nil	0.01.0																												
4.	Green Belt	Nil	0.20.0																												
5.	Unutilized	1.95.5	0.22.5																												
	Total =	1.95.5	1.95.5																												
10.2	Water Regime	:	Water table in this area is noticed at a depth of 60m and presently, the quarrying of Rough Stone quarry is proposed up to a depth of 42m below ground level and hence, it will not affect the ground water depletion of this area.																												
10.3	Flora and Fauna	:	Except acacia bushes, no other valuable trees are noticed in the applied area. Further, neither flora of botanical interest nor fauna of zoological interest is noticed in this area.																												
10.4	Climatic conditions	:	Generally subtropical climatic condition prevails throughout the year and there is no sharp variation in climate. This District receives rain both in south west and north east monsoon. The average rainfall is about 800mm to 900mm and the temperature ranges from 18°C during winter and to a maximum of 42°C during the summer.																												



10.5	Human Settlement	: The nearest habitations with the population is given as under.	
Table No-5			
S. No	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population
1.	Adaimithipankulam	1.2km - NE	400
2.	Keelaomanallur	3.0km - NW	800
3.	Ponnakudi	2.0Km - SE	600
3.	Alankulam	1.0m-SW	300
10.6	Plan for Air, Dust Suppression	: Air or dust expected to be generated from drilling process, hauling roads, places of excavation etc., will be suppressed by periodical wetting of land by water spraying. Wet drilling and dust extractor arrangements will be provided to drilling units so as to control raise of dust from the site of drilling. Operators, those exposed directly to such conditions will be provide such protective equipment like mask, ear plug, helmet, gloze etc., as per the Mines Act.	
10.7	Plan for Noise Control	: Quarrying of Rough Stone will be carried out by drilling and blasting by using low power explosives, and hence, noise will be very minimum. However, periodical noise level monitoring will be carried out to check the noise level in and around the quarry site. Nowhere the noise level should exceed the permissible limit of 80db during the quarry working hours.	
10.8	Environmental Impact Assessment Statement Describing Impact on mining on the next Five years	: The mining plan proposed is for a small production of Rough stone without involving deep hole drilling and heavy blasting. Such limited mining activity is not likely to cause any impact adversely on environment as far as pollution of air, water and noise is concerned, anyhow environmental impact studies will be conducted as per EIA notification issued by MOEF. It is B2 Category mine.	



10.9	Proposal for Waste Management	:	There is no waste anticipated in this rough stone quarry operation.																																				
10.10	Proposal of Reclamation of Land affected during mining activities and at the end of mining.	:	In the proposed mining plan only a maximum depth of 42m below ground level 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 42m 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 safety distance along the lease boundary has been identified to be utilized for afforestation. Appropriate native species of Neem/Pungan trees will be planted in a phased manner as described below. Table No-6 <table> <tr> <th>Year</th><th>No. of trees proposed to be planted</th><th>Survival %</th><th>Area to be covered Sq.m</th><th>Name of the species</th><th>No of trees expected to be grown</th></tr> <tr> <td>I</td><td>40</td><td>80%</td><td>400</td><td>Neem/Pungan</td><td>32</td></tr> <tr> <td>II</td><td>40</td><td>80%</td><td>400</td><td>Neem/Pungan</td><td>32</td></tr> <tr> <td>III</td><td>40</td><td>80%</td><td>400</td><td>Neem/Pungan</td><td>32</td></tr> <tr> <td>IV</td><td>40</td><td>80%</td><td>400</td><td>Neem/Pungan</td><td>32</td></tr> <tr> <td>V</td><td>40</td><td>80%</td><td>400</td><td>Neem/Pungan</td><td>32</td></tr> </table> Nearly 2000Sq.m area is proposed to use under afforestation by planting 40nos. of Neem/Pungan trees during every year with an anticipated survival rate of 80%. The Quarry landuse, layout and afforestation plan is shown in Plate No.III.	Year	No. of trees proposed to be planted	Survival %	Area to be covered Sq.m	Name of the species	No of trees expected to be grown	I	40	80%	400	Neem/Pungan	32	II	40	80%	400	Neem/Pungan	32	III	40	80%	400	Neem/Pungan	32	IV	40	80%	400	Neem/Pungan	32	V	40	80%	400	Neem/Pungan	32
Year	No. of trees proposed to be planted	Survival %	Area to be covered Sq.m	Name of the species	No of trees expected to be grown																																		
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IV	40	80%	400	Neem/Pungan	32																																		
V	40	80%	400	Neem/Pungan	32																																		
10.12	Proposed Financial Estimate / Budget for (EMP) Environment Management																																						
	A.Fixed Asset Cost: 1. Land Cost (400000/1Ha)= 2. First aid room and accessories 3. Labour Shed 4. Sanitary Facility Total=	:	Rs. 7,82,000 Rs.1,00,000 Rs.1,00,000 Rs.1,00,000 Rs. 10,82,000/-																																				



B.Operational Cost:		
1. Machineries	:	Rs.60,00,000/-
2. Fencing cost	:	Rs.1,50,000
Total	:	Rs.61,50,000/-
C.EMP Cost:		Budget Provision for the entire quarrying period.
	:	Air Quality Sampling = Rs. 40,000/-
	:	Water Quality Sampling = Rs. 40,000/-
	:	Noise Monitoring = Rs. 20,000/-
	:	Ground vibration test = Rs. 20,000/-
Expenditure		
1. Drinking water facility	:	Rs.1,00,000/-
2. Sanitary Arrangments	:	Rs. 25,000/-
3. Safety kids	:	Rs. 50,000/-
4. Water sprinkling	:	Rs. 1,50,000/-
5. Afforestation	:	Rs. 50,000/-
Total=	:	Rs. 4,95,000/-
Total Project Cost (A+B+C)		Rs. 77,27,000/-
CSR Cost(2% of Total Project Cost)		Rs. 1,54,540/-

11.0 Mine Closure Plan:

11.1	Steps proposed for phased restoration, reclamation of already mined out area.	:	There is no proposal for back filling, reclamation and rehabilitation. The quarried pits after the end of the life of lease will be fenced to prevent inherent entry of public and cattles.
11.2	Measures to be under taken on mine closure as per Act & Rules	:	Measures will be taken as per the Acts and Rules. The quarried pit will be fenced by using Barbed wire fencing to prevent inherent entry of public and cattle.
11.3	Mitigation measures to be undertaken for safety and restoration/ reclamation of the already mined out area	:	Mitigation measures: Drilling will be carried out by wet drilling mode to control the dust propagation into the air. Blasting will be carried out on limited scale. Mist Water spraying on haul road is proposed to prevent the dust propagation into the air.



12.0 Any Other Details Intend to Furnish by the Applicant:

- (i) Permission will be obtained from the District Mines Office to extract the Rough Stone from the Boundary barriers and for slopes.
- (ii) Care and precautionary measures will be taken for the safety of workers as per Rules and Acts.
- (iii) The applicant will endeavor every attempt to quarry the Rough Stone economically without any wastage and to improve the environment and ecology.
- (iv) The Mining Plan is prepared by incorporating the conditions stipulated in the precise area communication issued and relevant mining laws in force.
- (v) Any violation pointed out by the inspecting authorities shall be rectified as per the guidelines of the Department.

Prepared by


C. Natarajan, M.Sc., M.Phil.,
RQP/MAS/004/87/A

Place : Salem
Date : 15.09.2020.

C. NATARAJAN, M.Sc., M.Phil.,
RECOGNIZED QUALIFIED PERSON,
RQP/MAS/004/87/A

This Mining Plan is approved Subject to the
Conditions / Stipulation Indicated in the Mining
Plan Approval

M3/10059/2020

Letter Rec. No. Dated 30.10.20


Assistant Director 1/c
Dept. of Geology & Mining
Tirunelveli.

Rc. No.M3/10059/2020

District Collector's Office,
Geology and Mining,
Tirunelveli.

dated. 11.09.2020



Notice

Sub: Mines and Quarries - Minor Minerals -
Roughstone, Jelly and Gravel - Tirunelveli District
- Palayamkottai Taluk - Tharuvai Village - SF.
Nos. 570(P) & 571(P) - over an extent of 1.95.5
hectares of patta lands - Quarry lease
application preferred by Tvl. Sri Durgambika
Blue Metals, Prop.S.Subash Chandra Bose -
Precise area communicated - Approved Mining
Plan and Environmental clearance - Called for -
Reg.

- Ref:**
- i. Quarry lease application preferred by Tvl. Sri Durgambika Blue Metals, Prop.S.Subash Chandra Bose, dated. 13.03.2020.
 - ii. The Sub - Collector, Tirunelveli Letter No. A5/1103/2019, dated. 10.08.2020.
 - iii. Inspection report of the Assistant Director of Geology and Mining, Tirunelveli dated.
 - iv. G.O (Ms) No. 169, Industries (MMC-1) Department dated. 04.08.2020.

Tvl. Sri Durgambika Blue Metals, Prop.S.Subash Chandra Bose, residing at 1A/115, Kandithankulam, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District has preferred on 13.03.2020 application for grant of quarry lease for quarrying Roughstone, Jelly, Gravel over an extent of 1.95.5 hectares of patta lands in SF. Nos. 570(P) & 571(P) of Tharuvai Village, Palayamkottai Taluk, Tirunelveli District for a period of 5



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

2. The Sub-Collector, Tirunelveli and the Assistant Director of Geology and Mining, Tirunelveli furnished their reports in the reference 2nd and 3rd cited respectively and recommended for grant of quarry lease in the applied area subject to certain conditions.

3. Based on the recommendations of the Sub-Collector, Tirunelveli and the Assistant Director of Geology and Mining, Tirunelveli, the quarry lease application preferred by the applicant Tvl. Sri Durgambika Blue Metals, Prop.S.Subash Chandra Bose for grant of quarry lease for quarrying and transportation of Roughstone, Jelly and Gravel in the subject area has been considered for grant for a period of 5 years and precise area is hereby communicated over an extent of 1.95.5 hectares of patta land in SF. Nos. 570(P) & 571(P) of Tharuvai Village, Palayamkottai Taluk, Tirunelveli District under amended Rule 41 (4) Tamil Nadu Minor Mineral Concession Rules, 1959 with a direction to the applicant to produce mining plan for approval of the Assistant Director of Geology and Mining subject to the following conditions.

- i. A safety distance of 7.5 meters should be provided to the adjoining patta lands.
- ii. No hindrance shall be caused to the adjoining pattadars' lands while carrying out quarrying operations.
- iii. No dimensional blocks with a size of 30c.m x 30c.m x 30cm suitable for polishing shall be produced.
- iv. Environmental Clearance should be obtained from the State Level Environment Impact Assessment Authority, Chennai.

158

4. In view of the above, you are hereby directed to submit the mining plan duly prepared by a Recognized Qualified Person in respect of the precise area communicated for approval of the Assistant Director 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, Jelly and Gravel in respect of the precise area communicated.

[Signature]
Assistant Director,
Geology and Mining,
Tirunelveli.

To

Tvl. Sri Durgambika Blue Metals,
Prop.S.Subash Chandra Bose,
1A/115, Kandithankulam,
Tharuvai village,
Palayamkottai Taluk,
Tirunelveli District.

[Signature]
11/9/2021

[Signature]

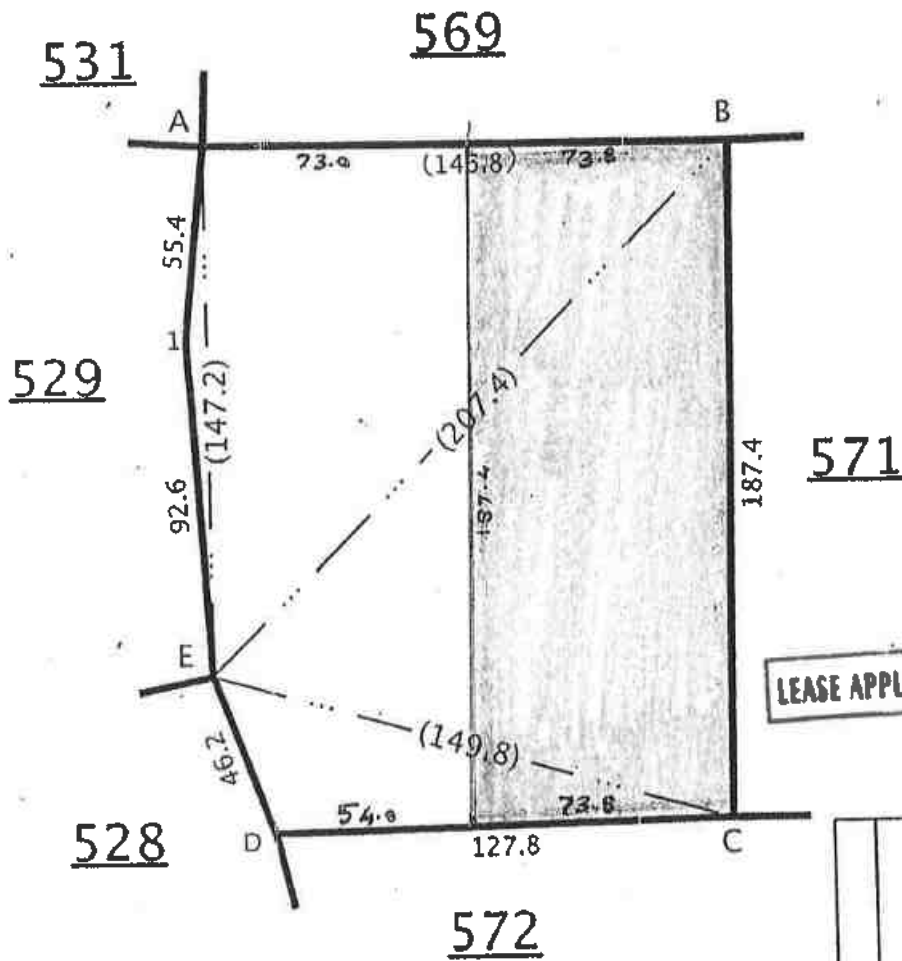
மாவட்டம் : திருநெல்வேலி

புல எண் : 570

வட்டம் : பாளையங்கோட்டை [2] பரப்பளவு : ஏக்கர் 77.00

கிராமம் : தருவை [47]

அளவு : 1 : 2000



கீழ்க்கண்ட விவரம் எடுத்த 2-மணி சீர்தரம் பகுதி

Ladder			
B	207.4		
E			
C	187.4		
B	146.8		
A			
C	149.8		
	27.6	37.2	D
E			
A	147.2		
	22.2		

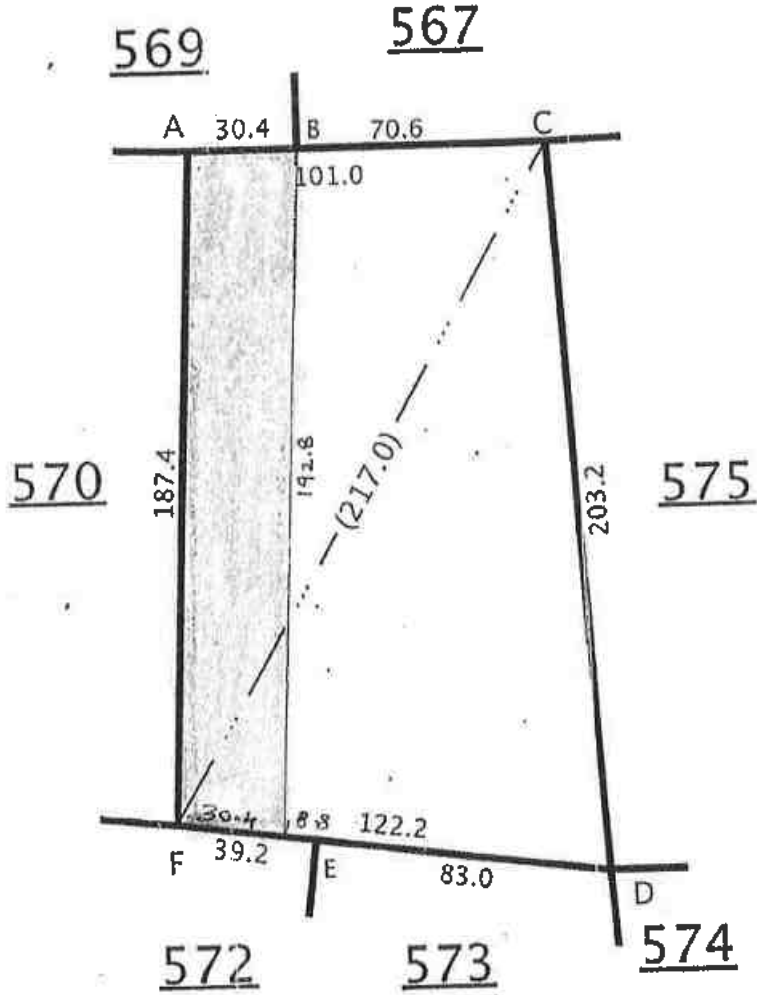
மாவட்டம் : திருநெல்வேலி

புல. எண் : 571

வட்டம் : பாளையங்கோட்டை [2] பரப்பளவு : எக். 02 ஏ. 17.00

கிராமம் : தருவை [47]

அளவு : 1 : 2000*



LEASE APPLIED AREA



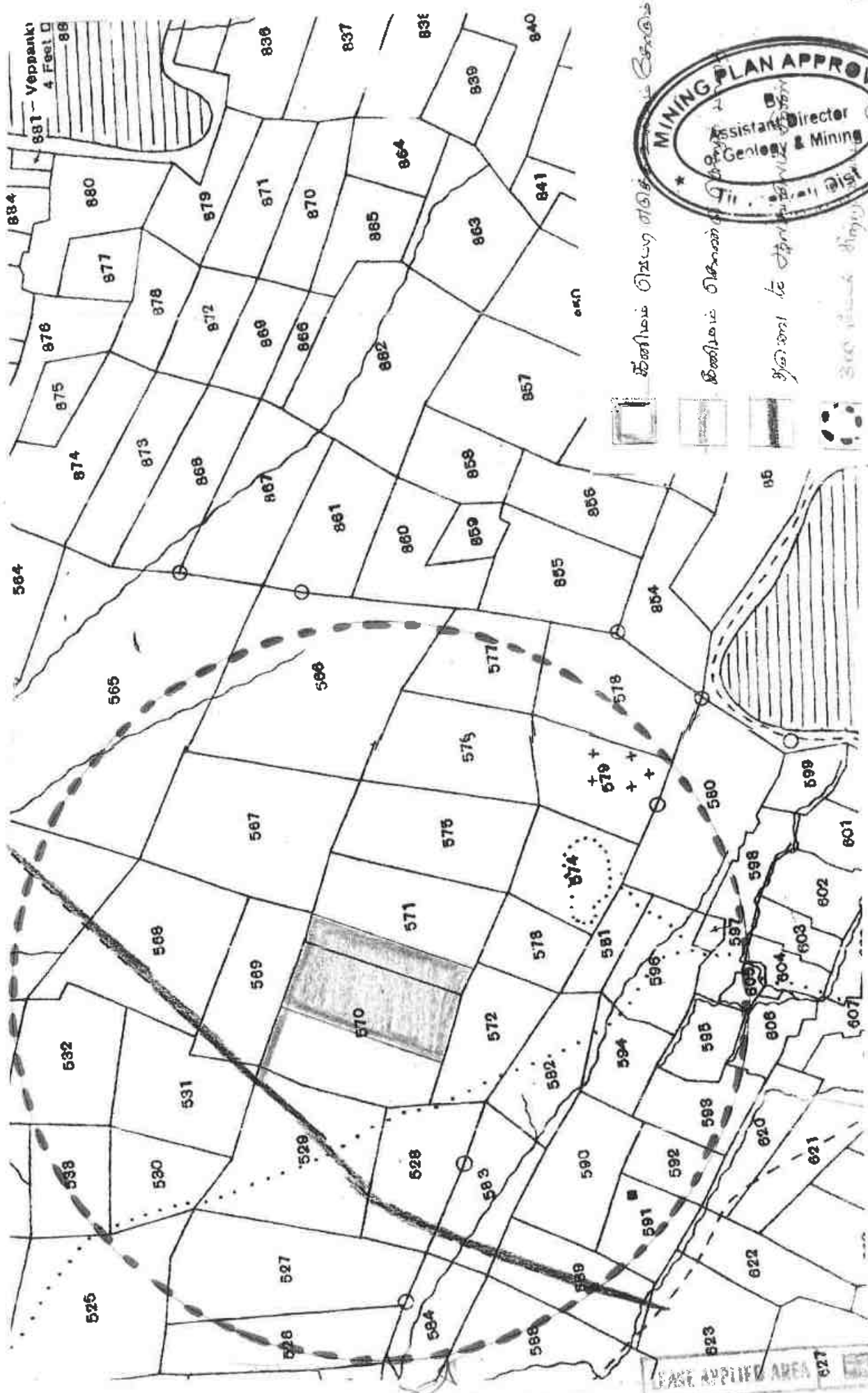
கனம் பொது அதிகாரிக்கு உரிமை கொடுக்கப்படுகிறது

Ladder

C		
217.0		
F		
A		
187.4		
F		
122.2		
83.0	0	E
D		
203.2		
C		
101.0		
30.4	0	B

கட்டிடம் : திருநெல்வேலி
 அலகம் : மீட்டர்கள்

கட்டிடம் : 47
 அலகம் : மீட்டர்கள்



ANNEXURE



தமிழக அரசு

வருவாய்த் துறை



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

மாவட்டம் : திருநெல்வேலி
பாளையங்கோட்டை

வட்டம் :

வருவாய் கிராமம் : தருவை

பட்டா எண் : 3509

உரிமையாளர்கள் பெயர்

1. சுப்பையா மகன் சுபாஷ் சந்திர போஸ்
2. சுப்பையா மகன் காகிராஜன்

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	
562	5B	0 - 98.50	0.90	--	--	--	--	2018/0103 /29/121673--- -- 23-07-2018
568	2A	0 - 1.50	0.06	--	--	--	--	2018/0103 /29/121673--- -- 23-07-2018
569	3A	0 - 4.00	0.06	--	--	--	--	2018/0103 /29/121673--- -- 23-07-2018
569	3B	0 - 1.50	0.06	--	--	--	--	2018/0103 /29/121673--- -- 23-07-2018
570		2 - 77.00	2.53	--	--	--	--	2019/0103 /29/170599--- -- 26-04-2019
571		2 - 7.00	1.96	--	--	--	--	2018/0103 /29/121673--- -- 23-07-2018
567	1A2	0 - 40.50	0.40	--	--	--	--	2018/0103 /29/121673---2016 /29/02/000017SD -- 23-07-2018
568	2B	0 - 37.50	0.35	--	--	--	--	2018/0103 /29/121673--- -- 23-07-2018
569	1A	0 - 2.00	0.06	--	--	--	--	2018/0103 /29/121673--- -- 23-07-2018
567	1B	0 - 86.50	0.79	--	--	--	--	2018/0103 /29/121673--- -- 23-07-2018

567	1C	0 - 20.00	0.18	--	--	--	--	By Assistant Director of Mining 23-07-2018 2018/0103 /29/121673---
568	1	1 - 35.50	1.24	--	--	--	--	23-07-2018 2018/0103 /29/121673---
562	2B	0 - 13.50	0.12	--	--	--	--	23-07-2018 2018/0103 /29/121673---
565	3A	0 - 90.00	0.83	--	--	--	--	23-07-2018 2018/0103 /29/121673---
569	1B	1 - 28.00	1.16	--	--	--	--	23-07-2018 2018/0103 /29/121673---
		11 - 53.00	10.72					23-07-2018

குறிப்பு :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 29/02/047/03509/40717 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 10-03-2020 அன்று 10:23:58 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

அ-பதிவேடு விவரங்கள்

மாவட்டம் : திருநெல்வேலி
வட்டம் : பாளையங்கோட்டை
கிராமம் : தருவை



1. புல எண்	570	9. மண் வயனமும் ரகமும்	8 - 5
2. உட்பிரிவு எண்	-	10. மண் தரம்	7
3. பழைய புல உட்பிரிவு எண்	570	11. தீர்வை (ரூ - ஹெ)	0.91
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	2 - 77.00
5. அளவு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	2.53
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	3509
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.சுபாஷ் சந்திர போஸ் 2.காசிராஜன்

குறிப்பு 1:



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60717 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.

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அ-பதிவேடு விவரங்கள்



மாவட்டம் : திருநெல்வேலி
வட்டம் : பாளையங்கோட்டை
கிராமம் : தருவை

1. புல எண்	571	9. மண் வயனமும் ரகமும்	8 - 5
2. உட்பிரிவு எண்	-	10. மண் தரம்	7
3. பழைய புல உட்பிரிவு எண்	571	11. தீர்வை (ரூ - ஹெ)	0.91
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	2 - 17.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - ரூப)	1.98
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	3509
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.சுபாஷ் சந்திர போஸ் 2.காசிராஜன்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டனவ. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60717 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

(Handwritten signature)



168



தமிழ்நாடு தமிழ்நாடு TAMIL NADU

சிவசுந்தரன்
சுமந்தரன்

Rs. 20/-

[12 MAR 2020]

71AB 419289

M. VELMURUGAN
STAMP VENDOR, L.No.2/2003
2, Thirupugal Street,
PALAYAMKOTTAI
TAMIL NADU

சம்மதப்பத்திரம்

S.காசிராஜன், த/பெ.சொ.சுப்பையா, 760, பஜார்தெரு, சீவலப்பேரி என்ற முகவரியில் வசிக்கும் நான், எனது சகோதரர் திரு.S.சுபாஷ்சந்திரபோஸ், 760, பஜார்தெரு, சீவலப்பேரி அவர்கள் பாளை தாலுகா, தருவை கிராமம், புலஎண் : 570(P) மற்றும் 571(P) ல், குவாரி செய்ய விண்ணப்பித்துள்ளார்கள்.

இதில் அனுமதி பெற்றபின் சாதாரண கற்கள் வெட்டி எடுக்க நான் முழுசம்மதம் தெரிவிக்கிறேன். மேலும் எனக்கு எந்த ஆட்சேபணையும் இல்லை என்பதை தெரிவித்துக்கொள்கிறேன்.

NOTARY
M.A.B.L.
Tirunelveli
G.O. No. 33/2019
India

V. ARIMUGAM, M.A., B.L.,
NOTARY PUBLIC / COMMISSIONER OF NOTARIES



APPROVED (VII)

169

இந்திய அரசாங்கம்
Government of India

சுபாஷ் சந்திர் போஸ்
Subash Chandra Bose

பிறந்த நாள் / DOB : 01/01/1908
ஆண் / Male

6962 3706 1103

எனது ஆதார், எனது அடையாளம்

இந்திய அரசாங்கம்
Government of India

தனித்துவ அடையாளம்
Unique Identification Authority of India

தலைநகரம்: **தாய் போஸ் கர்வாபுரம்**
தலைநகரம்: **S/O: Subash, 760, BAZAR STREET, Seeravaperi, Tirunelveli**

760, பஜார் தெரு, சீவரப்பேரி, திருநெல்வேலி, சீவரப்பேரி, Seeravaperi, Tamil Nadu, 627351

தமிழ் நாடு: 627351

6962 3706 1103

1017

www.uidai.gov.in

Signature



सक मनीषा
Renewed up to 21 OCT 1991

P. Hanumanth
Regional Controller of Mines
INDIAN BUREAU OF MINES
Ministry of Steel, Mines & Coal
MADRAS

CERTIFICATE OF RECOGNITION AS QUALIFIED PERSON TO PREPARE MINING PLANS

(Under Rule 22 (c) of Mineral Concession Rules 1960)

Shri C. NATARAJAN resident
of ALAMBADI (VILL) VEDASENDUR (TO) ANNA (DISTT) TAMILNADU , son
of SHRI K. CHINNA GOUNDER , having given satisfactory
evidence of his qualifications and experience is hereby granted recognition
under Rule 22 (c) of the Mineral Concession Rules, 1960 as a Qualified
Person to prepare Mining Plans.

His registration number is RQP / MAS / 004 / 87 / A

This recognition is valid for a period of two years
ending 25.10.1989

Place: MADRAS
Date: 26.10.1987

P. Hanumanth
Regional Controller of Mines
Indian Bureau of Mines
MADRAS

तक नवीकृत 23 OCT 1993
Renewed up to.....

Phanumun
Regional Controller of Mines
INDIAN BUREAU OF MINES



Suprabh...
REGIONAL CONTROLLER OF MINES
INDIAN BUREAU OF MINES
CHENNAI

तक नवीकृत
Renewed up to 23 OCT 1995

Phanumun
क्षेत्रीय खान नियंत्रक
Regional Controller of Mines
भारतीय खान ब्यूरो
INDIAN BUREAU OF MINES

तक नवीकृत 22-10-2021
Renewed up to.....

Ghm
REGIONAL CONTROLLER OF MINES
INDIAN BUREAU OF MINES
CHENNAI REGION

तक नवीकृत 22 OCT 1997
Renewed up to.....

bed
क्षेत्रीय खान नियंत्रक
Regional Controller of Mines
भारतीय खान ब्यूरो
INDIAN BUREAU OF MINES

तक नवीकृत 22-10-99
Renewed up to.....

M.K.A. Murugan
Regional Controller of Mines
INDIAN BUREAU OF MINES

तक नवीकृत 22-10-2001
Renewed up to.....

Suprabh...
Regional Controller of Mines
INDIAN BUREAU OF MINES

...

174
SPEED POST ✓

GOVERNMENT OF INDIA
MINISTRY OF MINES AND MINERALS
INDIAN BUREAU OF MINES
OFFICE OF THE REGIONAL CONTROLLER OF MINES

No. : 656(48)/2010-Mds

C 4 A Rajaji Bhavan
Besant Nagar
Chennai 600 090.

Dated : 21 / 9 / 2011

✓ To :
Sri C. Natarajan
S/o K. Chinna Gounder
No. 5/85 Muthugapatti - Post
Namakkal Taluk & District
Pincode - 637405

Sub. : Renewal of recognition as recognized qualified person under Rule 22C of MCR, 1960 reg.

Ref. : a) Your letter dated 5.08.2011.
b) Reg. No. RQP/MAS/004/87/A dated 26.10.87.

Sir,

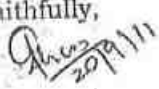
With reference to your request for renewal of recognition under Rule 22C of MCR, 1960, please find enclosed herewith the original certificate of recognition duly renewed for a further period of ten years.

02. You are advised to prepare standard mining plans/scheme of mining/Progressive Mine Closure Plan/Final Mine Closure Plan complete in all respects as per the outline/guidelines and taking into account all requirements as per CCOM's Circular to RQPs and instructions issued from time to time. Further, you are advised not to furnish any deliberate false information in the mining plan/scheme of mining/Progressive Mine Closure Plan/Final Mine Closure Plan, so as to mislead the authorities. It may please be noted that any such incidence on your part may lead to withdrawal of the recognition granted to you.

03. The recognition is valid up to 22.10.2021.

Yours faithfully,

✓ Encl. as above.


(Ivan Khess)
Regional Controller of Mines

Copy for kind information to :

The Controller of Mines (S), Indian Bureau of Mines, Bangalore without any enclosure.

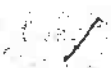

(Ivan Khess)
Regional Controller of Mines



PLATE NO: I

DATE OF SURVEY: 10.09.2020

APPLICANT:

TVL DURGAMBKA BLUE METAL
THIRU. SUBASH CHANDRA REDDY
No.1A/115, KANDITHANKULAM,
THARUVAI VILLAGE,
PALAYAMKOTTAI TALUK,
TIRUNELVELI DISTRICT.

QUARRY LEASE APPLIED AREA:

S.F.NOS : 570 (P) & 571 (P),
EXTENT : 1.95.5 Ha,
VILLAGE : THARUVAI,
TALUK : PALAYAMKOTTAI,
DISTRICT : TIRUNELVELI.

INDEX

Q. L. A. AREA :
TOPO SHEET NO : 58 H / 10

LATITUDE : 08°38'26.34"N to 08°38'33.41"N
LONGITUDE : 77°40'54.60"E to 77°41'00.13"E

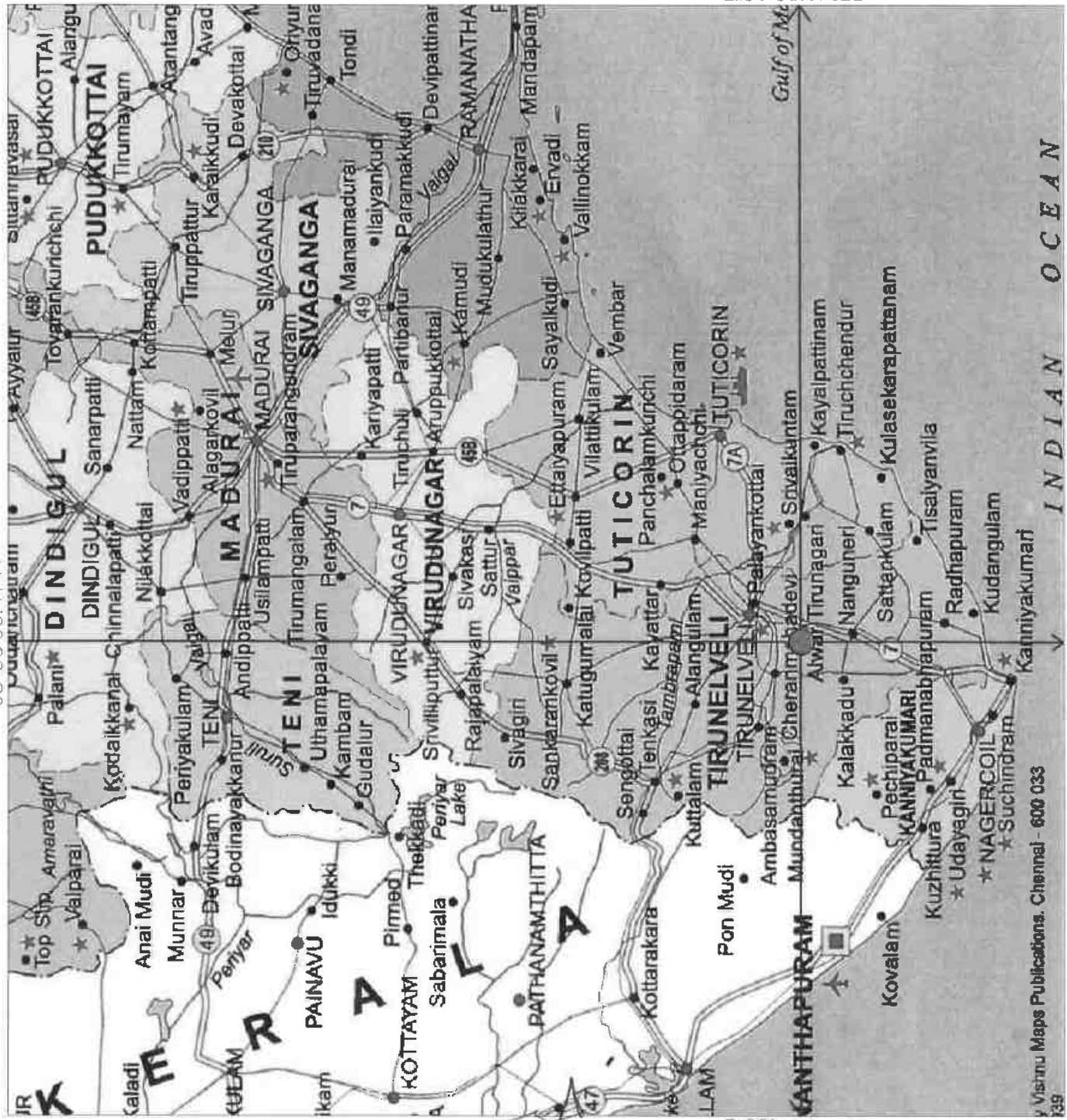
LOCATION PLAN

NOT TO SCALE

PREPARED BY:

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

C. NATARAJAN, M.Sc., M.Phil.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/004/87/A



08°38'33.41"N

08°38'26.34"N

77°40'54.60"E

77°41'00.13"E

Vishnu Maps Publications. Chennai - 600 033

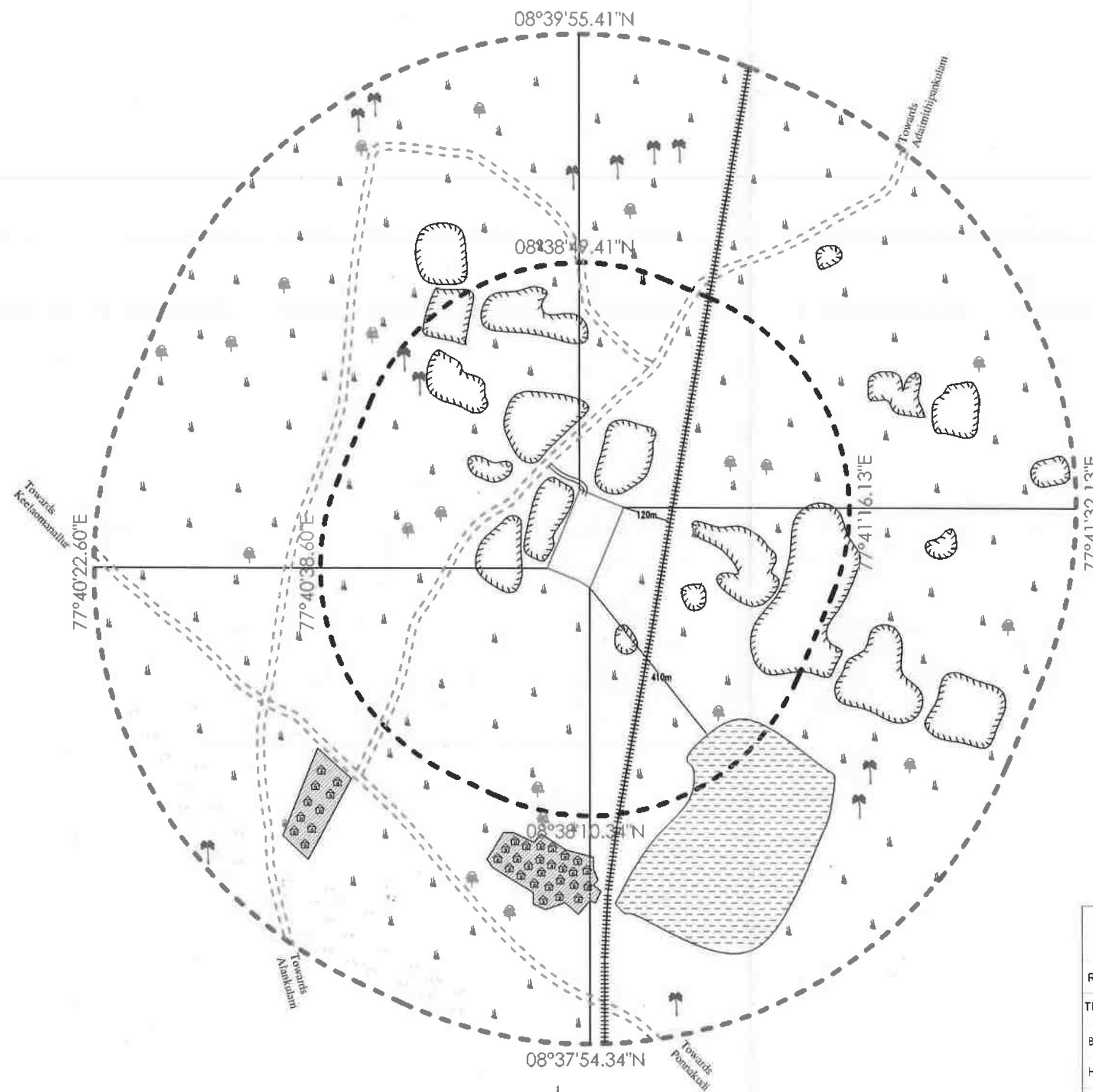


PLATE NO: IA

DATE OF SURVEY : 13.09.2020

APPLICANT:

TVL. DURGAMAKANBLUE MEDALS,
THIRU. S.SURASH CHANDRA BOSE PROPRIETOR,
No.1A/115, KANDITHANKULAM, MINING
THARUVAI VILLAGE,
PALAYAMKOTTAI TALUK,
TIRUNELVELI DISTRICT.

QUARRY LEASE APPLIED AREA:

S.F.NOS : 570 (P) & 571 (P),
EXTENT : 1.95.5 Ha,
VILLAGE : THARUVAI,
TALUK : PALAYAMKOTTAI,
DISTRICT : TIRUNELVELI.

INDEX

TOPO SHEET NO : 58 H / 10

LATITUDE : 08°38'26.34"N to 08°38'33.41"N

LONGITUDE : 77°40'54.60"E to 77°41'00.13"E

Q.L.APPLIED AREA	
500M RADIUS	
1KM RADIUS	
APPROACH ROAD	
PANCHAYAT ROAD	
BARREN LAND	
TREES	
AGRICULTURAL LAND	
QUARRY PIT	
HABITATION	
RAILWAY TRACK	
TANK	

LAND USE PATTERN

DESCRIPTION	AREA IN (%)
ROAD	07
TREES	12
BARREN LAND	64
HABITATION	06
AGRICULTURAL LAND	09
WATER BODIES	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

C. NATARAJAN, M.Sc.M.Phil.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/004/87/A



PLATE NO: IB

DATE OF SURVEY: 13.09.2020

APPLICANT:

TVL. DURGAMBIKA BLUE METALS,
THIRU. S.SUBASH CHANDRA BOSE (PROPRIETOR),
No.1A/115, KANDITHANKULAM,
THARUVAI VILLAGE,
PALAYAMKOTTAI TALUK,
TIRUNELVELI DISTRICT.

QUARRY LEASE APPLIED AREA:

S.F.NOS : 570 (P) & 571 (P),
EXTENT : 1.95.5 Ha,
VILLAGE : THARUVAI,
TALUK : PALAYAMKOTTAI,
DISTRICT : TIRUNELVELI.

INDEX

TOPO SHEET NO : 58 H / 10

LATITUDE : 08°38'26.34"N to 08°38'33.41"N

LONGITUDE : 77°40'54.60"E to 77°41'00.13"E

Q.L.APPLIED AREA	
500M RADIUS	
1KM RADIUS	
APPROACH ROAD	
PANCHAYAT ROAD	

SATELLITE IMAGERY MAP

SCALE 1 : 10,000

PREPARED BY:

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

C. NATARAJAN, M.Sc., M.Phil.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/004/87/A

08°43'48.61"N



08°33'10.14"N

77°46'30.04"E

TVL. DURGAMBIKA BLUE METALS,
THIRU. S.SUBASH CHANDRA BOSE (PROPRIETOR)
No.1A/115, KANDITHANKULAM,
THARUVAI VILLAGE,
PALAYAMKOTTAI TALUK,
TIRUNELVELI DISTRICT.

S.F.NOS : 570 (P) & 571 (P)
EXTENT : 1.95.5 Ha,
VILLAGE : THARUVAI,
TALUK : PALAYAMKOTTAI,
DISTRICT : TIRUNELVELI.

TOPO SHEET NO: 58 H / 10

LATITUDE :08°38'26.34"N to 08°38'33.41"N

LONGITUDE :77°40'54.60"E to 77°41'00.13"E

Q.L. APPLIED AREA



10KM RADIOUS

[illegible]

APPLIED AREA FOR

10Km RADIUS

SCALE- 1:100000

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

C. NATARAJAN, M.Sc., M.Phil.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/004/87/A

KEY PLAN

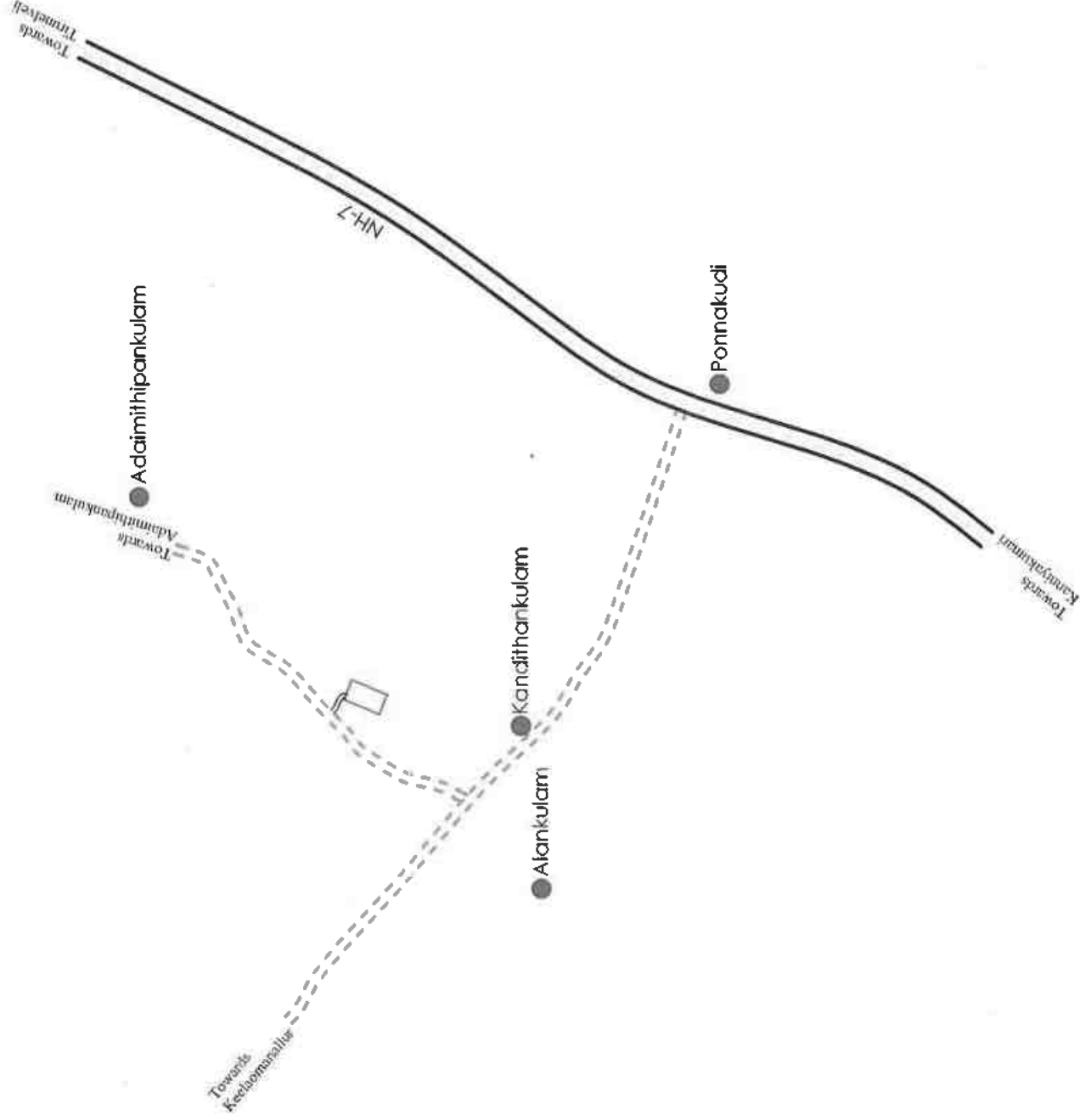


PLATE NO:I-D

DATE OF SURVEY : 13.09.2020

APPLICANT:

TVL DURGAMBIKA BLUE METALS,
THIRU. S.SUBASH CHANDRA BOSE (PROPRIETOR),
No.1A/115, KANDITHANKULAM,
THARUVAI VILLAGE,
PALAYAMKOTTAI TALUK,
TIRUNELVELI DISTRICT.

QUARRY LEASE APPLIED AREA:

S.F.NOS : 570 (P) & 571 (P).
EXTENT : 1.95.5 Ha,
VILLAGE : THARUVAI,
TALUK : PALAYAMKOTTAI,
DISTRICT : TIRUNELVELI.

INDEX

Q.L.APPLIED AREA

APPROACH ROAD

PANCHAYAT ROAD

NATIONAL HIGHWAY

HABITATIONS

KEY PLAN

Not To Scale

PREPARED BY:

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

C. NATARAJAN
C. NATARAJAN, M.Sc., M. Phil.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/004/87/A



PLATE NO-II

DATE OF SURVEY : 13.09.2020

APPLICANT:

TVL. DURGAMBIKA BLUE METALS,
THIRU. S.SUBASH CHANDRA BOSE (PROPRIETOR),
No.1A/115, KANDITHANKULAM,
THARUVAI VILLAGE,
PALAYAMKOTTAI TALUK,
TIRUNELVELI DISTRICT.

QUARRY LEASE APPLIED AREA:

S.F.NOS : 570 (P) & 571 (P),
EXTENT : 1.95.5 Ha,
VILLAGE : THARUVAI,
TALUK : PALAYAMKOTTAI,
DISTRICT : TIRUNELVELI.

INDEX

Q.L.APPLIED BOUNDARY	
7.5m SAFETY DISTANCE	
TEMPORARY BENCH MARK	
APPROACH ROAD	
CONTOUR	
SCRUB	

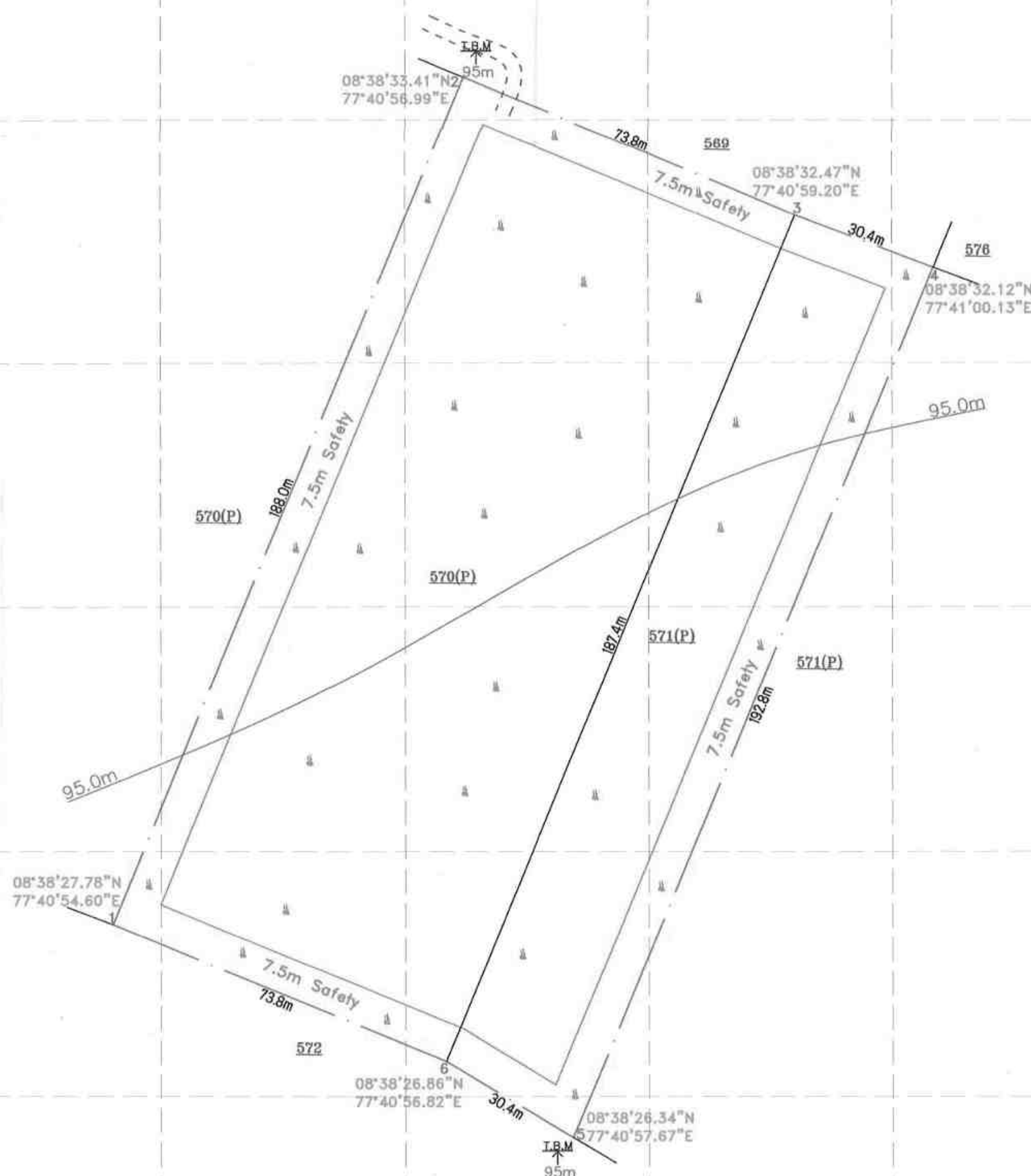
QUARRY LEASE & SURFACE PLAN

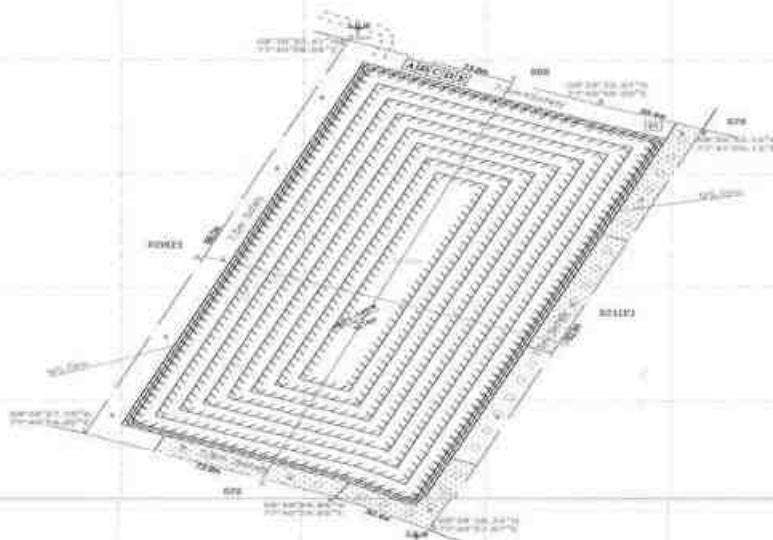
SCALE 1: 1000

PREPARED BY:

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

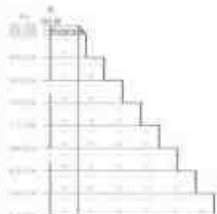
(Signature)



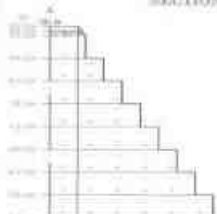


- 1st Year Proposed area is in Phase1
2nd Year Proposed area is in Phase1
3rd Year Proposed area is in Phase1
4th Year Proposed area is in Phase1
5th Year Proposed area is in Phase1

SECTION ALONG X-Y



30007779 点校(21) 卷一



1790 (1790) 1790 (1790) 1790 (1790)

	LOGS FILE
20	00 0125
21	000000 000000
22	000000 000000
23	000000 000000
24	000000 000000
25	000000 000000

1. 凡在本校就读的学生，均可参加。2. 凡在本校就读的学生，均可参加。

1. 本行在 2014 年 12 月 31 日及 2015 年 12 月 31 日，均无不良资产。

PLATE NO. IV

Date of receipt: 13.09.2005

APPENDIX

APPLICANT:
 T.V. PIRANGAMBIA NELLE MEELAL
 D/HRU. SUDHAKAR CHANDRAN SACHIN THEODOROS
 Mrs. SATY. KANTHILAKSHMI
 THIRUVALL VILLAGE,
 PULAYANGOTTAL TALUK,
 TUNDLAKU DISTRICT.

QUARRY LEASE APPLICABLE AREA:
S.7 (N2) & S.7 (P1)
EXTENT : 1.55.5 H/A
VILLAGE : THARUVAI
TALE : PALAYAMNAGAR
DISTRICT : TRUNELVELI

ENDUSE

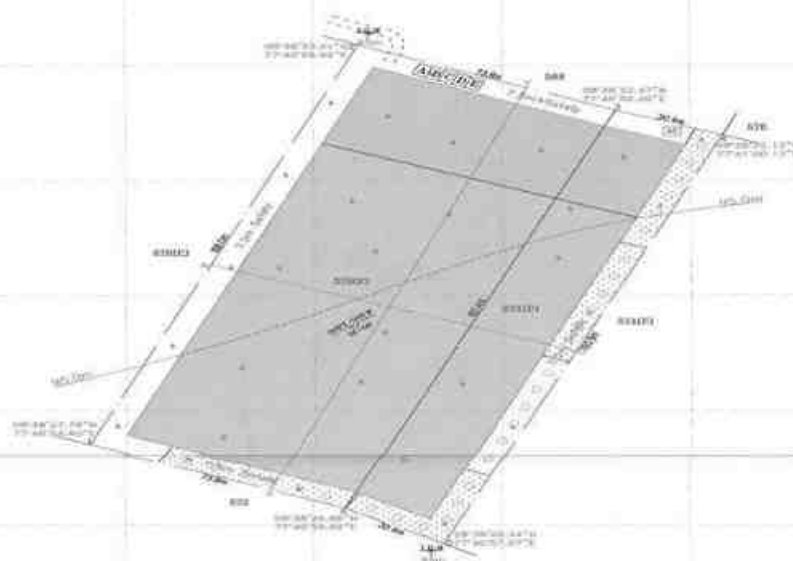
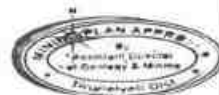
CLAPPED BOUNDARY
Fair SAFETY DISTANCE
TEMPORARY BENCHMARK
APPROACH ROAD
CONTIGUOUS
SCOUR
GRAVEL
WEATHERED ROCK
ROUGH STONE
STRIKE & DIP
PROPOSED QUARRY PIT

CONCEPTUAL PLAN & SECTIONS

SCALE 1:1000
SECTIONS FROM 1-1000, VIEW 1-1000

PREPARED BY:
THIS IS TO CERTIFY THAT THE INFORMATION IN
THIS CHECK IS TRUE AND CORRECT TO THE BEST
OF MY KNOWLEDGE BASED UPON THE LEAD SHEET
SUBMITTED BY STATE CONCERNANT

RECOGNIZING THE NEEDS OF VETERANS
AND MILITARY PERSONNEL



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

SECTION ALONG X-Y



SECTION ALONG A-B



PROPOSED ROAD SERVICES	
1	OFFICE
2	STONE PILING
3	STONE AND TRUCK
4	WATER PUMPING
5	STORAGE

PRESUMPT & POST LAND USE PATTERN

DESCRIPTION	PRESUMPT AREA (sqm)	AREA AT THE END OF THE QUARRYING PERIOD (sqm)
AREA UNDER QUARRYING	00	1.81.0
INFRASTRUCTURE	00	0.01.0
ROADS	00	0.01.0
GREEN BELT	00	0.00.0
UN-QUARRIED AREA	1.80.5	0.00.0
GRAND TOTAL	1.80.5	1.80.5

PLAT NO-III
DATE OF SURVEY: 13/05/2020

APPLICANT
M/s. DURGAMMA BLUE METALS
THIRU. K. S. RAMAN CHANDRAN ROSE (PROPOSED)
P.O. UNIT, KANDIVARUWAM,
THIRUPUR VILLAGE,
KALLAKURICHY TALUK,
TIRUNELVELI DISTRICT

QUARRY LEASE APPLIED AREA:
S.F. 1821 (P) & 971 (P)
CROPT: 1.85.5 HA
VILLAGE: THIRUPUR
TALUK: KALLAKURICHY
DISTRICT: TIRUNELVELI

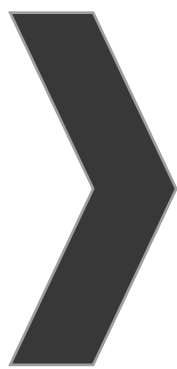
INDEX

Q.L. APPLIED BOUNDARY	
7.5m SAFETY DISTANCE	
TEMPORARY SIGN MARK	
APPROACH ROAD	
CONTOUR	
SCRUB	
GRAVEL	
WEATHERED ROCK	
ROUGH STONE	
STONE & CHIP	

TOPOGRAPHY, GEOLOGICAL,
YEARWISE DEVELOPMENT &
PRODUCTION PLAN & SECTIONS
SCALE: 1:1000
SECTIONS FROM 1:1000, VIEW 1:300

PREPARED BY:
THIS IS TO CERTIFY THAT THE INFORMATION ON
THIS PLAT IS TRUE AND CORRECT TO THE
BEST OF MY KNOWLEDGE BASED UPON THE
SURVEY INFORMATION BY STATE COMMISSION

Signature of the Surveyor
Surveyor General, Tirunelveli



ANNEXURE-4

From

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

To

The Chairperson,
SEIAA, Tamil Nadu,
3rd Floor, Panagal Maligai,
No. 1, Jeenis Road,
Saidapet, Chennai - 15.

Rc. No.M3/10059/2020, dated: 07.11.2020

Sir,

Sub: Mines and Minerals - Minor Minerals - Roughstone, Jelly and Gravel - Tirunelveli District - Palayamkottai Taluk - Tharuvai Village - SF. Nos. 570(P) & 571(P) - over an extent of 1.95.5 hectares of patta lands - Quarry lease application preferred by Tvl. Sri Durgambika Blue Metals, Prop.S.Subash Chandra Bose - Certain Particulars requested - for obtaining Environmental Clearance - furnished - reg.

- Ref:**
- 1 Quarry lease application preferred by Tvl. Sri Durgambika Blue Metals, Prop.S.Subash Chandra Bose, dated. 13.03.2020.
 - 2 Ministry of Environment and Forest, Government of India, Office Memorandum No. L-11011/47/20112 - 1A - 11(M), dated. 18.05.2012.
 - 3 This office Notice No. M3/10059/2020, dated. 11.09.2020.
 - 4 Mining Plan Approval letter No. M3/10059/2020, dated. 30.10.2020.
 - 5 Letter dated: 31.10.2020 received from Tvl. Sri Durgambika Blue Metals, Prop.S.Subash Chandra Bose
 - 6 G.O (Ms) No. 169, Industries (MMC-1) Department dated. 04.08.2020.



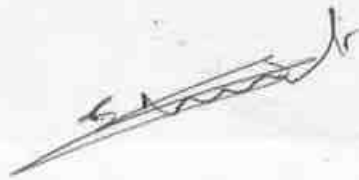
101

Tvl. Sri Durgambika Blue Metals, Prop.S.Subash Chandra Bose, residing at 1A/115, Kandithankulam, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District has preferred on 13.03.2020 application for grant of quarry lease for quarrying Roughstone, Jelly, Gravel over an extent of 1.95.5 hectares of patta lands in SF. Nos. 570(P) & 571(P) of Tharuvai Village, Palayamkottai Taluk, Tirunelveli District for a period of 5 years under Rule 19 (1) of Tamil Nadu Minor Mineral Concession Rules, 1959 vide reference 1st cited.

2. In the reference 3rd cited, above precise area has been communicated based on the recommendations of Sub-Collector, Tirunelveli and the Assistant Director of Geology and Mining, Tirunelveli, the quarry lease application preferred by the applicant company Tvl. Sri Durgambika Blue Metals, Prop.S.Subash Chandra Bose for grant of quarry lease for quarrying roughstone, jelly, gravel in the subject area has been considered for grant for a period of 5 years and precise area is hereby communicated over an extent of 1.95.5 hectares of patta land in SF. Nos. 570(P) & 571(P) of Tharuvai Village, Palayamkottai Taluk, Tirunelveli District.

3. The Mining Plan submitted by the lessee, Tvl. Sri Durgambika Blue Metals, Prop.S.Subash Chandra Bose for quarrying roughstone has been approved vide this office letter No.M3/10059/2020, dated. 30.10.2020 for obtaining Environmental Clearance as per the newly introduced Rule Number 41 and 42 of Mineral Concession Rules 1959.

4. In the reference 5th cited, Tvl. Sri Durgambika Blue Metals, Prop.S.Subash Chandra Bose 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.



5. The details of quarry leases granted for Roughstone 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 - Hectares	Lease status
1. Existing quarries				
1.	P.Marimuthu, S/o.Petchi Thevar, 1/3A, Kasba Mel Bagam , Ponnagudi, Palayamkottai, Tirunelveli.	Tharuvai(V) & 522/1, 522/2, 534, 535(P)	4.73.5	Proceeding No. M1/36802/2016, dt.22.03.2018 for a period 5 years from 19.04.2018 to 18.04.2023
2.	S.Sankar, S/o.R.Subramaniam, 131/1, APT Road, Erode District	Tharuvai(V) & 524(P)	1.60.0	Proceeding No. M1/43375/2015, dt.31.03.2018 for a period 5 years from 17.04.2018 to 16.04.2023
3.	Tvl. Sri Durgambika Blue Metals, 1A/115, Kandithankulam, Tharuvai, Tirunelveli	Tharuvai(V) & 570(P)	1.38.5	Proceeding No. M3/6065/2019, dt.02.03.2019 for a period 5 years from 24.07.2018 to 16.04.2023
2. Abandoned quarries				
1.	S.Subbaiah, S/o.Sorna Thevar,	Tharuvai (v) & 568/1 & 569/1B	2.63.5	Proceeding No. M1/41558/2011, dt.20.01.2012 for a period 5 years from 07.02.2012 to 06.02.2017.

107

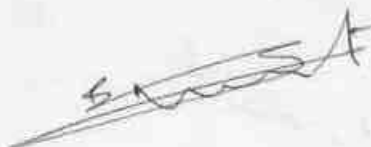
3. proposed quarries

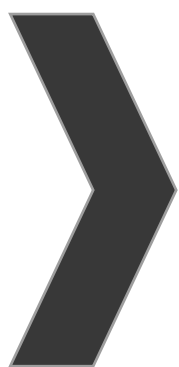
1.	Tvl.Sri Durgambika Blue Metals, Prop.S.Subash Chandra Bose, 1A/115, Kandithankulam, Tharuvai (v), Palayamkottai Taluk, Tirunelveli District.	Tharuvai (v) & 570(P) & 571(P)	1.95.5	Proposed quarry
2.	S.Kasirajan, 760, Bazaar Street, Seevalaperi, Palayamkottai Taluk, Tirunelveli.	Tharuvai(v) & 530/3A, 531/1A, 532, 533/1, 568/5A(P) & 569/3A	4.97.0	Proposed quarry

6. In view of the above it is recommended that Environmental Clearance may be issued in favour of the applicant subject to the usual terms and conditions.


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


7/11/2020





ANNEXURE-5



NAME OF VILLAGE : 47. THARUVAI.

TALUK : PALAYAM KOTTAI

DISTRICT : TIRUNELVELI

SURVER NUMBER : 570 CPD 571 CPD

EXTENSION : BOTH PT 1.95.5 Acres

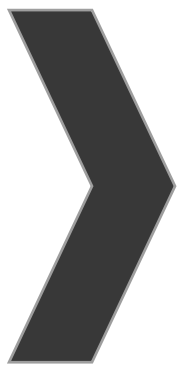
NAME OF THE APPLICANT : SRI DURGAMBIKA BLUE METALS.

PROP : SUBASH CHANRA BOSE

M. J. 04/11/2020.

கிராம நிர்வாக அலுவலர்
47. தருவை கிராமம்,
பாளையங்கோட்டை வட்டம்.

[Handwritten signature]



ANNEXURE-6

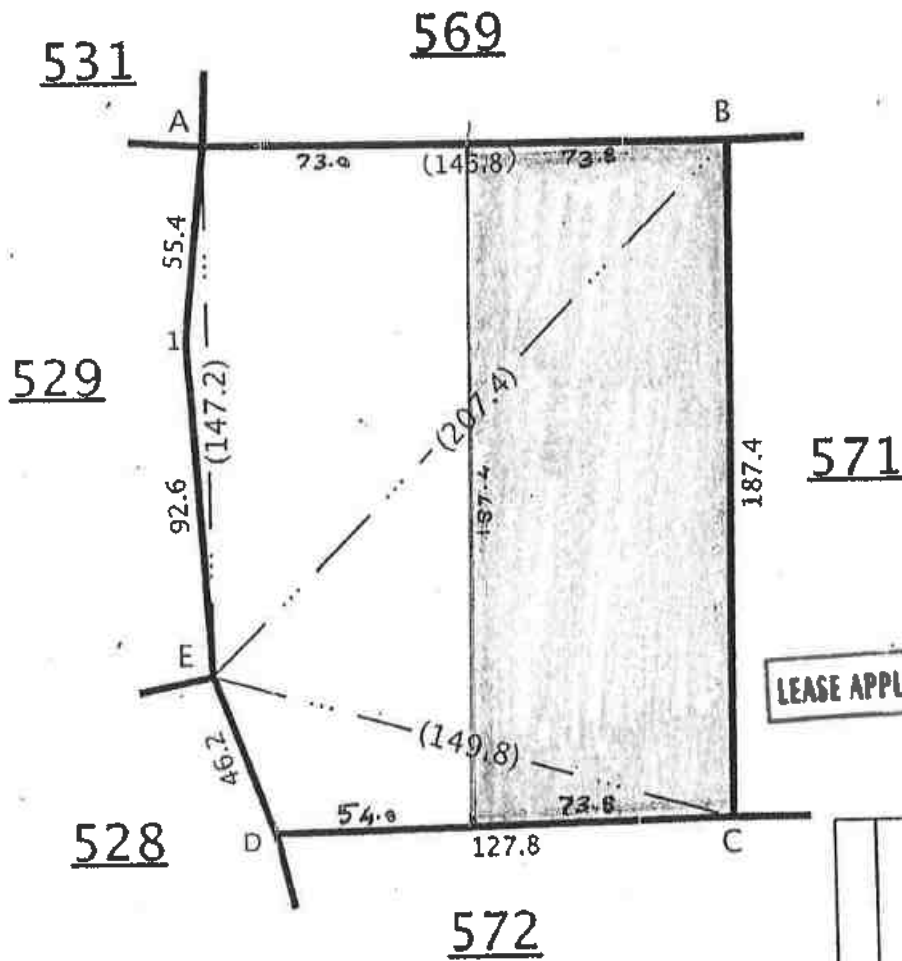
மாவட்டம் : திருநெல்வேலி

புல எண் : 570

வட்டம் : பாளையங்கோட்டை [2] பரப்பளவு : ஏக்கர் 77.00

கிராமம் : தருவை [47]

அளவு : 1 : 2000



LEASE APPLIED AREA

Ladder

B	207.4		
E			
C	187.4		
B	146.8		
A	149.8		
C	27.6	37.2	D
E			
A	147.2		
	22.2		



கீழ்க்கண்ட விவரம் எடுத்த 2-மணி சீர்தரம் பதிவு

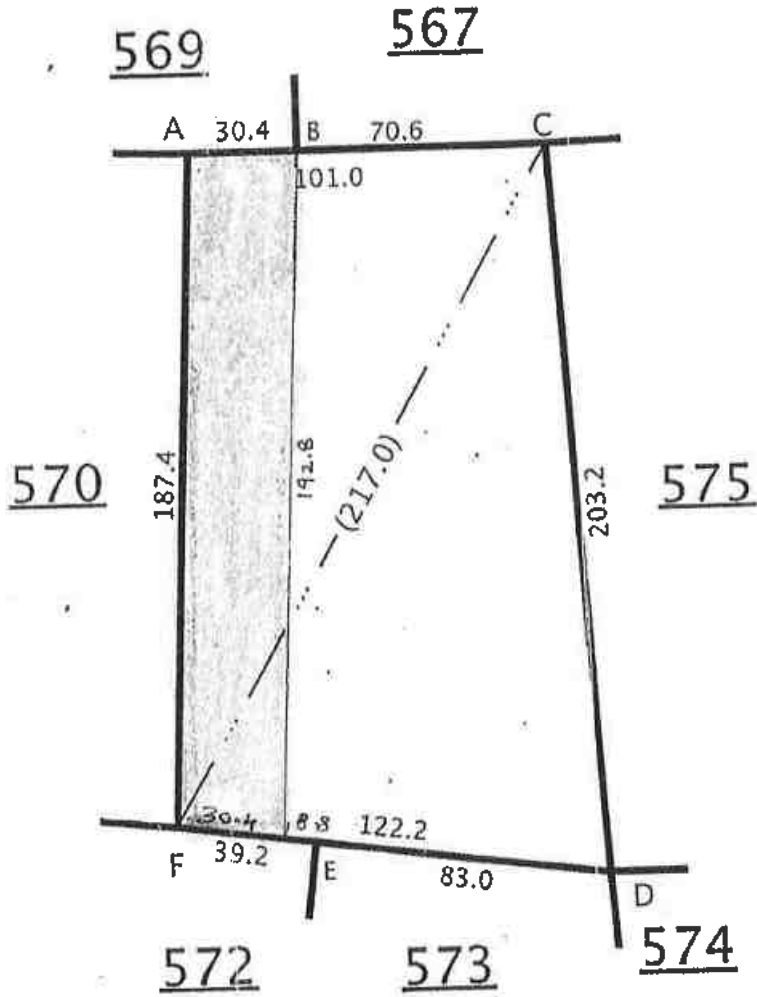
மாவட்டம் : திருநெல்வேலி

புல. எண் : 571

வட்டம் : பாளையங்கோட்டை [2] பரப்பளவு : எக். 02 ஏ. 17.00

கிராமம் : தருவை [47]

அளவு : 1 : 2000*



LEASE APPLIED AREA



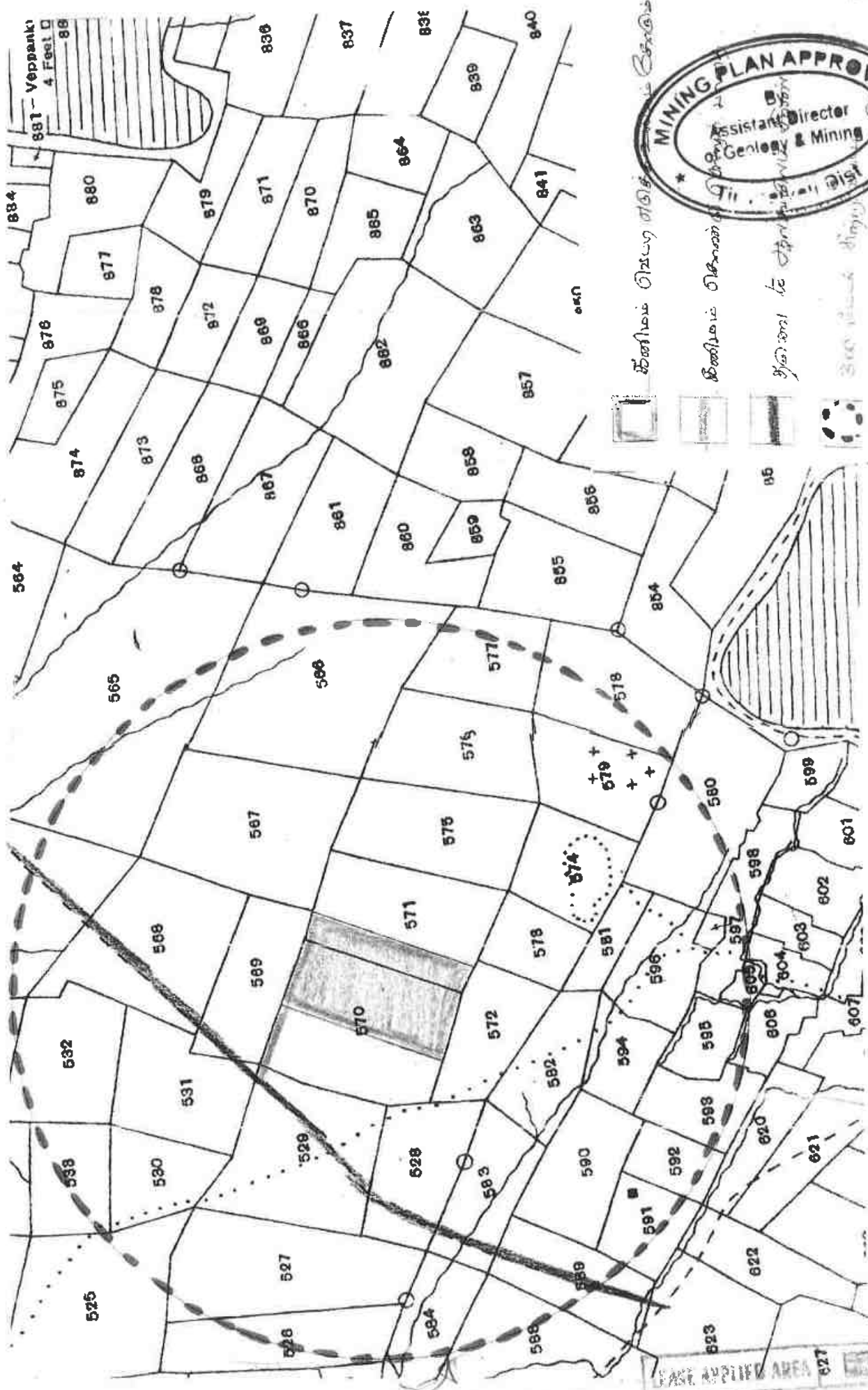
கனம் பொது அதிகாரிக்கு உரிமை கொடுக்கப்படுகிறது

Ladder

C		
217.0		
F		
A		
187.4		
F		
122.2		
83.0	0	E
D		
203.2		
C		
101.0		
30.4	0	B

கார்டு : திருநெல்வேலி
பகுதி : மதுரை

பகுதி : 47
பகுதி : திருநெல்வேலி



ANNEXURE



பகுதியின் மீதுள்ள பகுதி
பகுதியின் மீதுள்ள பகுதி
பகுதியின் மீதுள்ள பகுதி



தமிழக அரசு

வருவாய்த் துறை



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

மாவட்டம் : திருநெல்வேலி
பாளையங்கோட்டை

வட்டம் :

வருவாய் கிராமம் : தருவை

பட்டா எண் : 3509

உரிமையாளர்கள் பெயர்

1. சுப்பையா மகன் சுபாஷ் சந்திர போஸ்
2. சுப்பையா மகன் காகிராஜன்

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	
562	5B	0 - 98.50	0.90	--	--	--	--	2018/0103 /29/121673--- -- 23-07-2018
568	2A	0 - 1.50	0.06	--	--	--	--	2018/0103 /29/121673--- -- 23-07-2018
569	3A	0 - 4.00	0.06	--	--	--	--	2018/0103 /29/121673--- -- 23-07-2018
569	3B	0 - 1.50	0.06	--	--	--	--	2018/0103 /29/121673--- -- 23-07-2018
570		2 - 77.00	2.53	--	--	--	--	2019/0103 /29/170599--- -- 26-04-2019
571		2 - 7.00	1.96	--	--	--	--	2018/0103 /29/121673--- -- 23-07-2018
567	1A2	0 - 40.50	0.40	--	--	--	--	2018/0103 /29/121673---2016 /29/02/000017SD -- 23-07-2018
568	2B	0 - 37.50	0.35	--	--	--	--	2018/0103 /29/121673--- -- 23-07-2018
569	1A	0 - 2.00	0.06	--	--	--	--	2018/0103 /29/121673--- -- 23-07-2018
567	1B	0 - 86.50	0.79	--	--	--	--	2018/0103 /29/121673--- -- 23-07-2018

567	1C	0 - 20.00	0.18	--	--	--	--	By Assistant Director of Mining 23-07-2018 2018/0103 /29/121673---
568	1	1 - 35.50	1.24	--	--	--	--	23-07-2018 2018/0103 /29/121673---
562	2B	0 - 13.50	0.12	--	--	--	--	23-07-2018 2018/0103 /29/121673---
565	3A	0 - 90.00	0.83	--	--	--	--	23-07-2018 2018/0103 /29/121673---
569	1B	1 - 28.00	1.16	--	--	--	--	23-07-2018 2018/0103 /29/121673---
		11 - 53.00	10.72					23-07-2018

குறிப்பு :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 29/02/047/03509/40717 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 10-03-2020 அன்று 10:23:58 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

அ-பதிவேடு விவரங்கள்

மாவட்டம் : திருநெல்வேலி
வட்டம் : பாளையங்கோட்டை
கிராமம் : தருவை



1. புல எண்	570	9. மண் வயனமும் ரகமும்	8 - 5
2. உட்பிரிவு எண்	-	10. மண் தரம்	7
3. பழைய புல உட்பிரிவு எண்	570	11. தீர்வை (ரூ - ஹெ)	0.91
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	2 - 77.00
5. அளவு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	2.53
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	3509
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.சுபாஷ் சந்திர போஸ் 2.காசிராஜன்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60717 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.

[Handwritten signature]

அ-பதிவேடு விவரங்கள்



மாவட்டம் : திருநெல்வேலி
வட்டம் : பாளையங்கோட்டை
கிராமம் : தருவை

1. புல எண்	571	9. மண் வயனமும் ரகமும்	8 - 5
2. உட்பிரிவு எண்	-	10. மண் தரம்	7
3. பழைய புல உட்பிரிவு எண்	571	11. தீர்வை (ரூ - ஹெ)	0.91
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	2 - 17.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - ரூப)	1.98
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	3509
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.சுபாஷ் சந்திர போஸ் 2.காசிராஜன்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டனவ. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60717 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

(Handwritten signature)



168



தமிழ்நாடு தமில்நாடு TAMIL NADU

சிவலப் பேரி
புலன்

Rs. 20/-

[12 MAR 2020]

71AB 419289

M. VELMURUGAN
STAMP VENDOR, L.No.2/2003
2, Thirupugal Street,
PALAYAMKOTTAI
TAMIL NADU

சம்மதப்பத்திரம்

S.காசிராஜன், த/பெ.சொ.சுப்பையா, 760, பஜார்தெரு, சீவலப்பேரி என்ற முகவரியில் வசிக்கும் நான், எனது சகோதரர் திரு.S.சுபாஷ்சந்திரபோஸ், 760, பஜார்தெரு, சீவலப்பேரி அவர்கள் பாளை தாலுகா, தருவை கிராமம், புலன் : 570(P) மற்றும் 571(P) ல், குவாரி செய்ய விண்ணப்பித்துள்ளார்கள்.

இதில் அனுமதி பெற்றபின் சாதாரண கற்கள் வெட்டி எடுக்க நான் முழுசம்மதம் தெரிவிக்கிறேன். மேலும் எனக்கு எந்த ஆட்சேபணையும் இல்லை என்பதை தெரிவித்துக்கொள்கிறேன்.

NOTARY
M.A.B.L.
Tirunelveli Dist.
G.O. No. 331/2019

V. ARUMUGAM, M.A., B.L.,
NOTARY PUBLIC / COMMISSIONER OF NOTARIES



APPROVED (VII)

169

இந்திய அரசாங்கம்
Government of India

சுபாஷ் சந்திர் போஸ்
Subash Chandra Bose

பிறந்த நாள் / DOB : 01/01/1908
ஆண் / Male

6962 3706 1103

எனது ஆதார், எனது அடையாளம்

இந்திய அரசாங்கம்
Government of India

தனித்துவ அடையாளம்
Unique Identification Authority of India

தலைநகரம்: **தாய் போஸ் கம்ப்ளக்ஸ்**
700, பஜார் தெரு, சீவலாபேரி,
திருச்செல்வையேரி, சீவலாபேரி,
தமிழ் நாடு. 627351

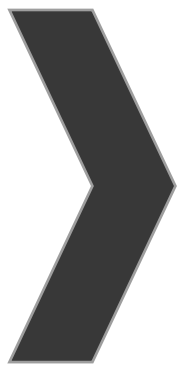
Address:
S/O: Subash, 700, BAZAR
STREET, Sevalaperi, Tirunelveli,
Sevalaperi, Tamil Nadu, 627351

6962 3706 1103

1017

www.uidai.gov.in

Signature



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/24/3507	Report Date.	16.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District,Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

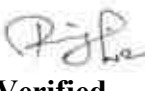
Sample Location	A1- Near MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3507	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	05.03.2024	Test Completed on	16.03.2024
Temperature	35°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	69.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	35.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	7.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

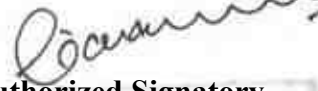
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd


Verified



END OF THE REPORT


Authorized Signatory

V. VIMALNATH
General Manager
Technical

Please Contact:

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

Terms and conditions:

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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/24/3508	Report Date.	16.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Adaimithipankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3508	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	05.03.2024	Test Completed on	16.03.2024
Temperature	35°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	57.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

Verified



END OF THE REPORT

Authorized Signatory
V. VIMALNATH
General Manager
Technical

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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www.shrientanalytical.com

TEST REPORT

Report No.	SARL/24/3509	Report Date.	16.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Near 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-3509	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	06.03.2024	Test Completed on	16.03.2024
Temperature	35°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	63.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	33.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

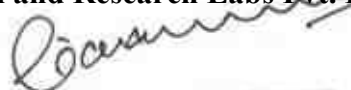
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd


Verified



END OF THE REPORT


Authorized Signatory
V. VIMALNATH
General Manager
Technical

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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www.shrientanalytical.com

TEST REPORT

Report No.	SARL/24/3510	Report Date.	16.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Adaimithipankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3510	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	06.03.2024	Test Completed on	16.03.2024
Temperature	35°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	59.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

Verified



END OF THE REPORT

Authorized Signatory
V. VIMALNATH
General Manager
Technical

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



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TEST REPORT

Report No.	SARL/24/3511	Report Date.	16.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Kandithankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3511	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	07.03.2024	Test Completed on	16.03.2024
Temperature	36°C	Relative Humidity	22%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	58.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

Verified



END OF THE REPORT

Authorized Signatory

V. VIMALNATH
General Manager
Technical

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/24/3512	Report Date.	16.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Samathuvapuram
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3512	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	07.03.2024	Test Completed on	16.03.2024
Temperature	36°C	Relative Humidity	22%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	53.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


Verified



Authorized Signatory

V. VIMALNATH
General Manager
Technical

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Please Contact:

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



Shrient Analytical and Research Labs Pvt. Ltd

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

TEST REPORT

Report No.	SARL/24/3513	Report Date.	16.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Kandithankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3513	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	08.03.2024	Test Completed on	16.03.2024
Temperature	36°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	66.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	31.8	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

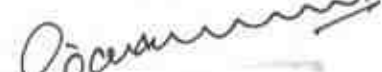
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd


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V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3514	Report Date.	16.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Samathuvapuram
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3514	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	08.03.2024	Test Completed on	16.03.2024
Temperature	36°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	57.2	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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



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416/15, Dhargas Road, West Tambaram, Chennai- 600045
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TEST REPORT

Report No.	SARL/24/3515	Report Date.	16.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Ponnakudi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3515	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	09.03.2024	Test Completed on	16.03.2024
Temperature	36°C	Relative Humidity	24%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	55.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.8	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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TEST REPORT

Report No.	SARL/24/3516	Report Date.	16.02.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Alankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3516	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	09.03.2024	Test Completed on	16.03.2024
Temperature	36°C	Relative Humidity	24%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	52.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.8	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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TEST REPORT

Report No.	SARL/24/3517	Report Date.	16.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Ponnakudi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3517	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	10.03.2024	Test Completed on	16.03.2024
Temperature	35°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	58.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.8	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3518	Report Date.	16.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Alankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3518	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	10.03.2024	Test Completed on	16.03.2024
Temperature	35°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	55.2	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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V. VIMALNATH
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Technical

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



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TEST REPORT

Report No.	SARL/24/3543	Report Date.	23.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Ponnakudi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3543	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	12.03.2024	Test Completed on	23.03.2024
Temperature	36°C	Relative Humidity	25%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	59.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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TEST REPORT

Report No.	SARL/24/3544	Report Date.	23.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Alankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3544	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	12.03.2024	Test Completed on	23.03.2024
Temperature	36°C	Relative Humidity	25%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	53.5	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

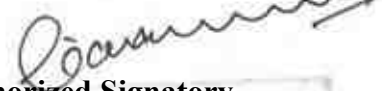
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/3545	Report Date.	23.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Ponnakudi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3545	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	13.03.2024	Test Completed on	23.03.2024
Temperature	36°C	Relative Humidity	27%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	60.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

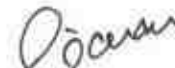
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd


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END OF THE REPORT


Authorized Signatory
V. VIMALNATH
General Manager
Technical

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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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/24/3546	Report Date.	23.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Alankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3546	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	13.03.2024	Test Completed on	23.03.2024
Temperature	36°C	Relative Humidity	27%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	51.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.8	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	6.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

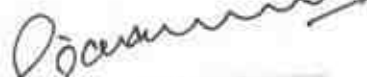
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory
V. VIMALNATH
General Manager
Technical

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

Report No.	SARL/24/3547	Report Date.	23.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Kandithankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3547	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	14.03.2024	Test Completed on	23.03.2024
Temperature	37°C	Relative Humidity	20%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	63.5	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	31.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd



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V. VIMALNATH
General Manager
Technical

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416/15, Dhargas Road, West Tambaram, Chennai- 600045

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

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TEST REPORT

Report No.	SARL/24/3548	Report Date.	23.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Samathuvapuram
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3548	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	14.03.2024	Test Completed on	23.03.2024
Temperature	37°C	Relative Humidity	20%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	52.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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Authorized Signatory

V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3549	Report Date.	23.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Kandithankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3549	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	15.03.2024	Test Completed on	23.03.2024
Temperature	37°C	Relative Humidity	19%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	60.2	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

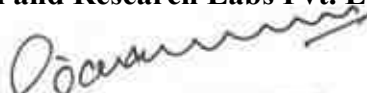
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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Authorized Signatory
V. VIMALNATH
General Manager
Technical

Please Contact:

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416/15, Dhargas Road, West Tambaram, Chennai- 600045
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TEST REPORT

Report No.	SARL/24/3550	Report Date.	23.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Samathuvapuram
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3550	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	15.03.2024	Test Completed on	23.03.2024
Temperature	37°C	Relative Humidity	19%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	56.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

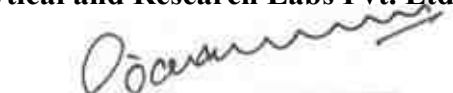
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory
V. VIMALNATH
General Manager
Technical

Please Contact:

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



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416/15, Dhargas Road, West Tambaram, Chennai- 600045
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TEST REPORT

Report No.	SARL/24/3551	Report Date.	23.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-WITHIN 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-3551	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	16.03.2024	Test Completed on	23.03.2024
Temperature	36°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	70.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	36.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	7.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	10.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

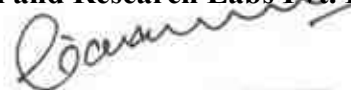
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3552	Report Date.	23.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Adaimithipankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3552	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	16.03.2024	Test Completed on	23.03.2024
Temperature	36°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	61.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

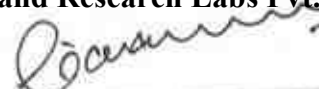
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd


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V. VIMALNATH
General Manager
Technical

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

Report No.	SARL/24/3553	Report Date.	23.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-WITHIN 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-3553	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	17.03.2024	Test Completed on	23.03.2024
Temperature	36°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	78.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	40.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	8.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	10.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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END OF THE REPORT

Authorized Signatory

V. VIMALNATH
General Manager
Technical

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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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/24/3554	Report Date.	23.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Adaimithipankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3554	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	17.03.2024	Test Completed on	23.03.2024
Temperature	36°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	67.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	33.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

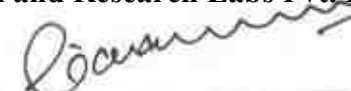
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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



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www.shrientanalytical.com

TEST REPORT

Report No.	SARL/24/3579	Report Date.	30.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-WITHIN 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-3579	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	19.03.2024	Test Completed on	30.03.2024
Temperature	35°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	69.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	35.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	7.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	10.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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



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TEST REPORT

Report No.	SARL/24/3580	Report Date.	30.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Adaimithipankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3580	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	19.03.2024	Test Completed on	30.03.2024
Temperature	35°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	54.5	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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V. VIMALNATH
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Technical

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



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TEST REPORT

Report No.	SARL/24/3581	Report Date.	30.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-WITHIN 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-3581	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	20.03.2024	Test Completed on	30.03.2024
Temperature	35°C	Relative Humidity	22%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	65.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	33.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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V. VIMALNATH
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TEST REPORT

Report No.	SARL/24/3582	Report Date.	30.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District,Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

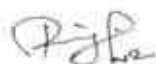
Sample Location	A2-Adaimithipankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3582	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	20.03.2024	Test Completed on	30.03.2024
Temperature	35°C	Relative Humidity	22%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	57.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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V. VIMALNATH
General Manager
Technical

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TEST REPORT

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



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Report No.	SARL/24/3583	Report Date.	30.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Kandithankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3583	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	21.03.2024	Test Completed on	30.03.2024
Temperature	32°C	Relative Humidity	44%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	60.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	30.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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



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www.shrientanalytical.com

TEST REPORT

Report No.	SARL/24/3584	Report Date.	30.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Samathuvapuram
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3584	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	21.03.2024	Test Completed on	30.03.2024
Temperature	32°C	Relative Humidity	44%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	61.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	30.0	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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TEST REPORT

Report No.	SARL/24/3585	Report Date.	30.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Kandithankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3585	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	22.03.2024	Test Completed on	30.03.2024
Temperature	35°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	64.2	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	30.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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

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



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TEST REPORT

Report No.	SARL/24/3586	Report Date.	30.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Samathuvapuram
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3586	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	22.03.2024	Test Completed on	30.03.2024
Temperature	35°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	61.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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END OF THE REPORT


Authorized Signatory

V. VIMALNATH
General Manager
Technical

Please Contact:

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

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



Shrient Analytical and Research Labs Pvt. Ltd

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

TEST REPORT

Report No.	SARL/24/3587	Report Date.	30.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Ponnakudi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3587	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	23.03.2024	Test Completed on	30.03.2024
Temperature	36°C	Relative Humidity	29%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	58.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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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/24/3588	Report Date.	30.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Alankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3588	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	23.03.2024	Test Completed on	30.03.2024
Temperature	36°C	Relative Humidity	29%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	57.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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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/24/3589	Report Date.	30.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Ponnakudi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3589	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	24.03.2024	Test Completed on	30.03.2024
Temperature	37°C	Relative Humidity	24%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	55.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

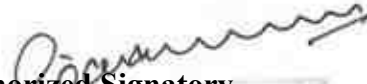
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd


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V. VIMALNATH
General Manager
Technical

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

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TEST REPORT

Report No.	SARL/24/3590	Report Date.	30.03.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Alankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3590	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	24.03.2024	Test Completed on	30.03.2024
Temperature	37°C	Relative Humidity	24%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	59.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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V. VIMALNATH
General Manager
Technical

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

Report No.	SARL/24/3615	Report Date.	06.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Ponnakudi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3615	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	26.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	22%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	53.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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Authorized Signatory

V. VIMALNATH
General Manager
Technical

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

TEST REPORT

Report No.	SARL/24/3616	Report Date.	06.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Alankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3616	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	26.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	22%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	57.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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



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TEST REPORT

Report No.	SARL/24/3617	Report Date.	06.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Ponnakudi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3617	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	27.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	22%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	52.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	24.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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

Report No.	SARL/24/3618	Report Date.	06.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District,Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

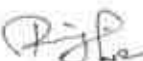
Sample Location	A6- Alankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3618	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	27.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	22%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	56.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

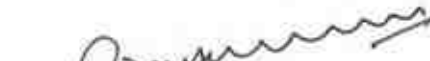
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd


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



Shrient Analytical and Research Labs Pvt. Ltd

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

TEST REPORT

Report No.	SARL/24/3619	Report Date.	06.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Kandithankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3619	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	28.03.2024	Test Completed on	06.04.2024
Temperature	38°C	Relative Humidity	22%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	55.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

Verified



Authorized Signatory

V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3620	Report Date.	06.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Samathuvapuram
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3620	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	28.03.2024	Test Completed on	06.04.2024
Temperature	38°C	Relative Humidity	22%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	58.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.2	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 – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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Authorized Signatory

V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3621	Report Date.	06.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Kandithankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3621	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	29.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	24%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	62.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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V. VIMALNATH
General Manager
Technical

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

Report No.	SARL/24/3622	Report Date.	06.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District,Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

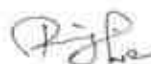
Sample Location	A4-Samathuvapuram
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3622	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	29.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	24%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	55.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

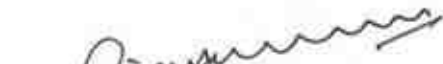
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3623	Report Date.	06.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-WITHIN 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-3623	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	30.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	24%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	62.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	32.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

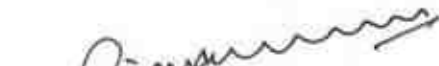
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd


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V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3624	Report Date.	06.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Adaimithipankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3624	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	30.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	24%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	60.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3625	Report Date.	06.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-WITHIN 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-3625	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	31.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	17%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	67.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	34.8	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.9	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 – 1.1)	-

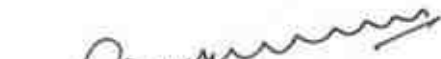
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory
V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3626	Report Date.	06.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Adaimithipankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3626	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	31.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	17%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	53.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory
V. VIMALNATH
General Manager
Technical

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



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TEST REPORT

Report No.	SARL/24/3651	Report Date.	13.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-WITHIN 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-3651	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	02.04.2024	Test Completed on	13.04.2024
Temperature	39°C	Relative Humidity	19%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	69.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	35.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	7.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	10.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


Verified



END OF THE REPORT

Authorized Signatory

V. VIMALNATH
General Manager
Technical

Please Contact:

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

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



Shrient Analytical and Research Labs Pvt. Ltd

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

TEST REPORT

Report No.	SARL/24/3652	Report Date.	13.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District,Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

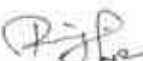
Sample Location	A2-Adaimithipankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3652	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	02.04.2024	Test Completed on	13.04.2024
Temperature	39°C	Relative Humidity	19%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	65.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	32.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

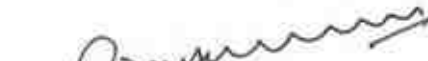
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory
V. VIMALNATH
General Manager
Technical

Please Contact:

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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/24/3653	Report Date.	13.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-WITHIN 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-3653	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	03.04.2024	Test Completed on	13.04.2024
Temperature	39°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	68.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	35.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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V. VIMALNATH
General Manager
Technical

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

Report No.	SARL/24/3654	Report Date.	13.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Adaimithipankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3654	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	03.04.2024	Test Completed on	13.04.2024
Temperature	39°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	62.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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V. VIMALNATH
General Manager
Technical

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416/15, Dhargas Road, West Tambaram, Chennai- 600045
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TEST REPORT

Report No.	SARL/24/3655	Report Date.	13.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District,Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

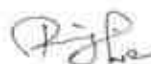
Sample Location	A3- Kandithankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3655	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	04.04.2024	Test Completed on	13.04.2024
Temperature	39°C	Relative Humidity	24%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	59.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory
V. VIMALNATH
General Manager
Technical

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

Report No.	SARL/24/3656	Report Date.	13.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Samathuvapuram
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3656	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	04.04.2024	Test Completed on	13.04.2024
Temperature	39°C	Relative Humidity	24%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	63.5	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	32.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

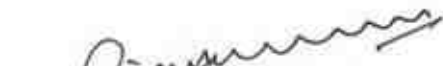
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory
V. VIMALNATH
General Manager
Technical

Please Contact:

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

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

Report No.	SARL/24/3657	Report Date.	13.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Kandithankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3657	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	05.04.2024	Test Completed on	13.04.2024
Temperature	40°C	Relative Humidity	17%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	65.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	32.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

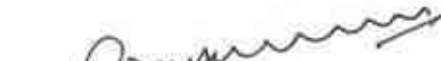
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory
V. VIMALNATH
General Manager
Technical

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



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

Report No.	SARL/24/3658	Report Date.	13.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Samathuvapuram
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3658	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	05.04.2024	Test Completed on	13.04.2024
Temperature	40°C	Relative Humidity	17%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	58.2	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.8	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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V. VIMALNATH
General Manager
Technical

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



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

Report No.	SARL/24/3659	Report Date.	13.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Ponnakudi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3659	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	06.04.2024	Test Completed on	13.04.2024
Temperature	40°C	Relative Humidity	17%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	57.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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END OF THE REPORT

Authorized Signatory


V. VIMALNATH
General Manager
Technical

Please Contact:

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

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



Shrient Analytical and Research Labs Pvt. Ltd

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

TEST REPORT

Report No.	SARL/24/3660	Report Date.	13.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Alankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3660	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	06.04.2024	Test Completed on	13.04.2024
Temperature	40°C	Relative Humidity	17%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	52.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.3	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	8.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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V. VIMALNATH
General Manager
Technical

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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/24/3661	Report Date.	13.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Ponnakudi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3661	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	07.04.2024	Test Completed on	13.04.2024
Temperature	39°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	59.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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V. VIMALNATH
General Manager
Technical

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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/24/3662	Report Date.	13.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Alankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3662	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	07.04.2024	Test Completed on	16.03.2024
Temperature	39°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	54.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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V. VIMALNATH
General Manager
Technical

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

Report No.	SARL/24/3687	Report Date.	20.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Ponnakudi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3687	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	09.04.2024	Test Completed on	20.04.2024
Temperature	37°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	60.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

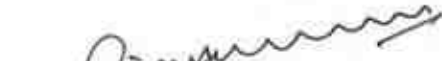
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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V. VIMALNATH
General Manager
Technical

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

TEST REPORT

Report No.	SARL/24/3688	Report Date.	20.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Alankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3688	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	09.04.2024	Test Completed on	20.04.2024
Temperature	37°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	50.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	24.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory
V. VIMALNATH
General Manager
Technical

Please Contact:

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

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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/24/3689	Report Date.	20.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Ponnakudi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3689	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	10.04.2024	Test Completed on	20.04.2024
Temperature	37°C	Relative Humidity	26%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	55.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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V. VIMALNATH
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Technical

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TEST REPORT

Report No.	SARL/24/3690	Report Date.	20.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Alankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3690	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	10.04.2024	Test Completed on	20.04.2024
Temperature	37°C	Relative Humidity	36%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	51.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

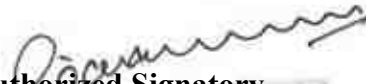
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd


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V. VIMALNATH
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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/3691	Report Date.	20.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Kandithankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3691	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	11.04.2024	Test Completed on	20.04.2024
Temperature	37°C	Relative Humidity	26%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	68.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	32.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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V. VIMALNATH
General Manager
Technical

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



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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/24/3692	Report Date.	20.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Samathuvapuram
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3692	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	11.04.2024	Test Completed on	20.04.2024
Temperature	37°C	Relative Humidity	26%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	56.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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Authorized Signatory

V. VIMALNATH
General Manager
Technical

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
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TEST REPORT

Report No.	SARL/24/3693	Report Date.	20.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Kandithankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3693	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	12.04.2024	Test Completed on	20.04.2024
Temperature	38°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	70.5	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	34.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	7.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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V. VIMALNATH
General Manager
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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/3694	Report Date.	20.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Samathuvapuram
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3694	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	12.04.2024	Test Completed on	20.04.2024
Temperature	38°C	Relative Humidity	30%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	53.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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



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TEST REPORT

Report No.	SARL/24/3695	Report Date.	20.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-WITHIN 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-3695	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	13.04.2024	Test Completed on	20.04.2024
Temperature	37°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	61.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	32.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.0	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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V. VIMALNATH
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Technical

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TEST REPORT

Report No.	SARL/24/3696	Report Date.	20.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Adaimithipankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3696	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	13.04.2024	Test Completed on	20.04.2024
Temperature	37°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	60.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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V. VIMALNATH
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Technical

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



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TEST REPORT

Report No.	SARL/24/3697	Report Date.	20.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-WITHIN 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-3697	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	14.04.2024	Test Completed on	20.04.2024
Temperature	37°C	Relative Humidity	29%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	63.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	32.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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V. VIMALNATH
General Manager
Technical

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



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TEST REPORT

Report No.	SARL/24/3698	Report Date.	20.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Adaimithipankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3698	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	14.04.2024	Test Completed on	20.04.2024
Temperature	37°C	Relative Humidity	29%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	59.2	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.8	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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V. VIMALNATH
General Manager
Technical

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



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www.shrientanalytical.com

TEST REPORT

Report No.	SARL/24/3723	Report Date.	27.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-WITHIN 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-3723	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	16.04.2024	Test Completed on	27.04.2024
Temperature	38°C	Relative Humidity	22%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	62.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	32.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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



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TEST REPORT

Report No.	SARL/24/3724	Report Date.	27.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Adaimithipankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3724	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	16.04.2024	Test Completed on	27.04.2024
Temperature	38°C	Relative Humidity	22%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	63.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	31.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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



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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/24/3725	Report Date.	27.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-WITHIN 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-3725	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	17.04.2024	Test Completed on	27.04.2024
Temperature	39°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	65.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	33.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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END OF THE REPORT


Authorized Signatory

V. VIMALNATH
General Manager
Technical

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



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TEST REPORT

Report No.	SARL/24/3726	Report Date.	27.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Adaimithipankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3726	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	17.04.2024	Test Completed on	27.04.2024
Temperature	39°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	58.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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V. VIMALNATH
General Manager
Technical

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



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TEST REPORT

Report No.	SARL/24/3727	Report Date.	27.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Kandithankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3727	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	18.04.2024	Test Completed on	27.04.2024
Temperature	40°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	59.2	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	32.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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TEST REPORT

Report No.	SARL/24/3728	Report Date.	27.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Samathuvapuram
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3728	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	18.04.2024	Test Completed on	27.04.2024
Temperature	40°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	54.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3729	Report Date.	27.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Kandithankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3729	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	19.04.2024	Test Completed on	27.04.2024
Temperature	40°C	Relative Humidity	26%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	67.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	32.8	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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Technical

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TEST REPORT

Report No.	SARL/24/3730	Report Date.	27.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Samathuvapuram
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3730	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	19.04.2024	Test Completed on	27.04.2024
Temperature	40°C	Relative Humidity	26%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	51.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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V. VIMALNATH
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Technical

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



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TEST REPORT

Report No.	SARL/24/3731	Report Date.	27.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Ponnakudi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3731	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	20.04.2024	Test Completed on	27.04.2024
Temperature	40°C	Relative Humidity	24%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	54.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3732	Report Date.	27.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Alankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3732	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	20.04.2024	Test Completed on	27.04.2024
Temperature	40°C	Relative Humidity	24%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	54.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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TEST REPORT

Report No.	SARL/24/3733	Report Date.	27.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Ponnakudi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3733	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	21.04.2024	Test Completed on	27.04.2024
Temperature	40°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	62.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	32.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


Verified



END OF THE REPORT

Authorized Signatory


V. VIMALNATH
General Manager
Technical

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



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/24/3734	Report Date.	27.04.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Alankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3734	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	21.04.2024	Test Completed on	27.04.2024
Temperature	40°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	59.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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V. VIMALNATH
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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/24/3759	Report Date.	04.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Ponnakudi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3759	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	23.04.2024	Test Completed on	04.05.2024
Temperature	39°C	Relative Humidity	19%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	59.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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V. VIMALNATH
General Manager
Technical

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416/15, Dhargas Road, West Tambaram, Chennai- 600045
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www.shrientanalytical.com

TEST REPORT

Report No.	SARL/24/3760	Report Date.	04.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Alankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3760	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	23.04.2024	Test Completed on	04.05.2024
Temperature	39°C	Relative Humidity	19%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	52.2	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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V. VIMALNATH
General Manager
Technical

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

Report No.	SARL/24/3761	Report Date.	04.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Ponnakudi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3761	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	24.04.2024	Test Completed on	04.05.2024
Temperature	39°C	Relative Humidity	20%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	55.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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Authorized Signatory

V. VIMALNATH
General Manager
Technical

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

Report No.	SARL/24/3762	Report Date.	04.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Alankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3762	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	24.04.2024	Test Completed on	04.05.2024
Temperature	39°C	Relative Humidity	20%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	56.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

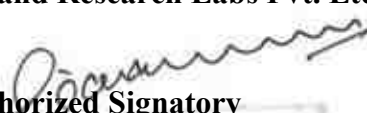
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory

V. VIMALNATH
General Manager
Technical

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

Report No.	SARL/24/3763	Report Date.	04.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Kandithankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3763	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	25.04.2024	Test Completed on	04.05.2024
Temperature	39°C	Relative Humidity	29%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	69.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	34.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.3	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 – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory


V. VIMALNATH
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Technical

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

Report No.	SARL/24/3764	Report Date.	04.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Samathuvapuram
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3764	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	25.04.2024	Test Completed on	04.05.2024
Temperature	39°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	51.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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Authorized Signatory

V. VIMALNATH
General Manager
Technical

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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/24/3765	Report Date.	04.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Kandithankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3765	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	26.04.2024	Test Completed on	04.05.2024
Temperature	39°C	Relative Humidity	20%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	61.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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



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TEST REPORT

Report No.	SARL/24/3766	Report Date.	04.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Samathuvapuram
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3766	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	26.04.2024	Test Completed on	04.05.2024
Temperature	39°C	Relative Humidity	20%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	55.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

Verified



Authorized Signatory

V. VIMALNATH
General Manager
Technical

Please Contact:

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

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



Shrient Analytical and Research Labs Pvt. Ltd

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

TEST REPORT

Report No.	SARL/24/3767	Report Date.	04.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-WITHIN 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-3767	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	27.04.2024	Test Completed on	04.05.2024
Temperature	40°C	Relative Humidity	19%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	72.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	37.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	7.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	10.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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Authorized Signatory

V. VIMALNATH
General Manager
Technical

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

Report No.	SARL/24/3768	Report Date.	04.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Adaimithipankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3768	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	27.04.2024	Test Completed on	04.05.2024
Temperature	40°C	Relative Humidity	19%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	55.2	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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V. VIMALNATH
General Manager
Technical

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

TEST REPORT

Report No.	SARL/24/3769	Report Date.	04.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-WITHIN 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-3769	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	28.04.2024	Test Completed on	04.05.2024
Temperature	40°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	68.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	35.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	7.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	10.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3770	Report Date.	04.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Adaimithipankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3770	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	28.04.2024	Test Completed on	04.05.2024
Temperature	40°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	56.5	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

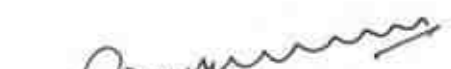
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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Authorized Signatory
V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3795	Report Date.	11.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-WITHIN 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-3795	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	30.04.2024	Test Completed on	11.05.2024
Temperature	40°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	63.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	32.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3796	Report Date.	11.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Adaimithipankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3796	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	30.04.2024	Test Completed on	11.05.2024
Temperature	40°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	61.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	30.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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Authorized Signatory
V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3797	Report Date.	11.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-WITHIN 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-3797	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	01.05.2024	Test Completed on	11.05.2024
Temperature	42°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	60.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	30.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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



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TEST REPORT

Report No.	SARL/24/3798	Report Date.	11.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Adaimithipankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3798	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	01.05.2024	Test Completed on	11.05.2024
Temperature	42°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	54.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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V. VIMALNATH
General Manager

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



Shrient Analytical and Research Labs Pvt. Ltd

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

TEST REPORT

Report No.	SARL/24/3799	Report Date.	11.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Kandithankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3799	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	02.05.2024	Test Completed on	11.05.2024
Temperature	42°C	Relative Humidity	22%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	66.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory

V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3800	Report Date.	11.05.2024
Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Samathuvapuram		
Positioned height of Sampler	1.5 M above Ground Level		
Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3800	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	02.05.2024	Test Completed on	11.05.2024
Temperature	42°C	Relative Humidity	22%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	60.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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TEST REPORT

Report No.	SARL/24/3801	Report Date.	11.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Kandithankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3801	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	03.05.2024	Test Completed on	11.05.2024
Temperature	42°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	62.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	31.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3802	Report Date.	11.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Samathuvapuram
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3802	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	03.05.2024	Test Completed on	11.05.2024
Temperature	42°C	Relative Humidity	21%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	53.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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TEST REPORT

Report No.	SARL/24/3803	Report Date.	11.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Ponnakudi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3803	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	04.05.2024	Test Completed on	11.05.2024
Temperature	40°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	52.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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Technical

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TEST REPORT

Report No.	SARL/24/3804	Report Date.	11.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Alankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3804	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	04.05.2024	Test Completed on	11.05.2024
Temperature	40°C	Relative Humidity	28%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	53.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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TEST REPORT

Report No.	SARL/24/3805	Report Date.	11.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Ponnakudi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3805	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	05.05.2024	Test Completed on	11.05.2024
Temperature	42°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	59.2	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3806	Report Date.	11.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Alankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3806	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	05.05.2024	Test Completed on	11.05.2024
Temperature	42°C	Relative Humidity	23%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	58.5	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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V. VIMALNATH
General Manager
Technical

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



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TEST REPORT

Report No.	SARL/24/3831	Report Date.	18.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Ponnakudi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3831	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	07.05.2024	Test Completed on	18.05.2024
Temperature	40°C	Relative Humidity	26%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	55.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

Verified



Authorized Signatory

V. VIMALNATH
General Manager
Technical

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



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/24/3832	Report Date.	18.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Alankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3832	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	07.05.2024	Test Completed on	18.05.2024
Temperature	40°C	Relative Humidity	26%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	61.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	31.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

Verified



Authorized Signatory

V. VIMALNATH
General Manager
Technical

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

Report No.	SARL/24/3833	Report Date.	18.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Ponnakudi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3833	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	08.05.2024	Test Completed on	18.05.2024
Temperature	24°C	Relative Humidity	87%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	60.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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Authorized Signatory

V. VIMALNATH
General Manager
Technical

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

Report No.	SARL/24/3834	Report Date.	18.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District,Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

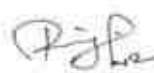
Sample Location	A6- Alankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3834	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	08.05.2024	Test Completed on	18.05.2024
Temperature	24°C	Relative Humidity	87%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	57.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory
V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3835	Report Date.	18.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District,Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

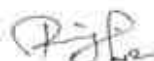
Sample Location	A3- Kandithankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3835	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	09.05.2024	Test Completed on	18.05.2024
Temperature	39°C	Relative Humidity	33%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	58.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	30.8	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


Verified



END OF THE REPORT

Authorized Signatory


V. VIMALNATH
General Manager
Technical

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

Report No.	SARL/24/3836	Report Date.	18.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Samathuvapuram
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3836	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	09.05.2024	Test Completed on	18.05.2024
Temperature	39°C	Relative Humidity	33%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	57.5	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.2	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

Verified



Authorized Signatory

V. VIMALNATH
General Manager
Technical

Please Contact:

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

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

Report No.	SARL/24/3837	Report Date.	18.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Kandithankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3837	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	10.05.2024	Test Completed on	18.05.2024
Temperature	38°C	Relative Humidity	31%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	67.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

Verified



Authorized Signatory

V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3838	Report Date.	18.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Samathuvapuram
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3838	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	10.05.2024	Test Completed on	18.05.2024
Temperature	38°C	Relative Humidity	31%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	59.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.8	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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V. VIMALNATH
General Manager
Technical

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



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TEST REPORT

Report No.	SARL/24/3839	Report Date.	18.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-WITHIN 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-3839	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	11.05.2024	Test Completed on	18.05.2024
Temperature	37°C	Relative Humidity	35%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	75.2	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	38.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	8.0	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	10.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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Authorized Signatory

V. VIMALNATH
General Manager
Technical

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



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TEST REPORT

Report No.	SARL/24/3840	Report Date.	18.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Adaimithipankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3840	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	11.05.2024	Test Completed on	18.05.2024
Temperature	37°C	Relative Humidity	35%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	60.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

Verified



Authorized Signatory

V. VIMALNATH
General Manager
Technical

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



Shrient Analytical and Research Labs Pvt. Ltd

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

TEST REPORT

Report No.	SARL/24/3841	Report Date.	18.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-WITHIN 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-3841	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	12.05.2024	Test Completed on	18.05.2024
Temperature	38°C	Relative Humidity	32%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	72.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	37.0	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	7.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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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/24/3842	Report Date.	18.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Adaimithipankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3842	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	12.05.2024	Test Completed on	18.05.2024
Temperature	38°C	Relative Humidity	32%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	58.5	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.8	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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V. VIMALNATH
General Manager
Technical

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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/24/3867	Report Date.	25.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-WITHIN 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-3867	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	14.05.2024	Test Completed on	25.05.2024
Temperature	37°C	Relative Humidity	32%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	64.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	33.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3868	Report Date.	25.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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	A2A2-Adaimithipankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3868	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	14.05.2024	Test Completed on	25.05.2024
Temperature	37°C	Relative Humidity	32%
Sample Condition	Fit for Analysis		

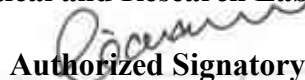
S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	63.2	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	31.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3869	Report Date.	25.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-WITHIN 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-3869	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	15.05.2024	Test Completed on	25.05.2024
Temperature	36°C	Relative Humidity	34%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	62.2	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	32.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3870	Report Date.	25.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Adaimithipankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3870	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	15.05.2024	Test Completed on	25.05.2024
Temperature	36°C	Relative Humidity	34%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	65.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	32.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3871	Report Date.	25.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Kandithankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3871	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	16.05.2024	Test Completed on	25.05.2024
Temperature	31°C	Relative Humidity	51%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	70.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	31.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	7.2	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 – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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General Manager
Technical

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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/24/3872	Report Date.	25.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Samathuvapuram
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3872	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	16.05.2024	Test Completed on	25.05.2024
Temperature	31°C	Relative Humidity	51%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	60.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	10.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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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/24/3873	Report Date.	25.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Kandithankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3873	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	17.05.2024	Test Completed on	25.05.2024
Temperature	33°C	Relative Humidity	48%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	65.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	32.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

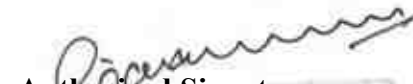
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory
V. VIMALNATH
General Manager
Technical

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



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TEST REPORT

Report No.	SARL/24/3874	Report Date.	25.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District,Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

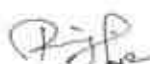
Sample Location	A4-Samathuvapuram
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3874	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	17.05.2024	Test Completed on	25.05.2024
Temperature	33°C	Relative Humidity	48%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	56.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.8	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

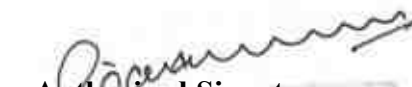
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3875	Report Date.	25.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Ponnakudi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3875	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	18.05.2024	Test Completed on	25.05.2024
Temperature	35°C	Relative Humidity	41%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	58.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3876	Report Date.	25.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Alankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3876	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	18.05.2024	Test Completed on	25.05.2024
Temperature	35°C	Relative Humidity	41%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	49.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	24.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

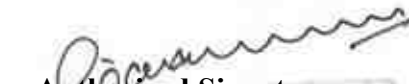
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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V. VIMALNATH
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TEST REPORT

Report No.	SARL/24/3877	Report Date.	25.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Ponnakudi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3877	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	19.05.2024	Test Completed on	25.05.2024
Temperature	36°C	Relative Humidity	41%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	57.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.0	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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Technical

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TEST REPORT

Report No.	SARL/24/3878	Report Date.	25.05.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Alankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3878	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	19.05.2024	Test Completed on	25.05.2024
Temperature	36°C	Relative Humidity	41%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	59.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

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V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3903	Report Date.	01.06.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Ponnakudi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3903	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	21.05.2024	Test Completed on	01.06.2024
Temperature	36°C	Relative Humidity	40%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	52.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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TEST REPORT

Report No.	SARL/24/3904	Report Date.	01.06.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Alankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3904	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	21.05.2024	Test Completed on	01.06.2024
Temperature	36°C	Relative Humidity	40%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	55.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd


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V. VIMALNATH
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Technical

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

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



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TEST REPORT

Report No.	SARL/24/3905	Report Date.	01.06.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Ponnakudi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3905	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	22.05.2024	Test Completed on	01.06.2024
Temperature	35°C	Relative Humidity	43%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	60.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

Verified



END OF THE REPORT

Authorized Signatory

V. VIMALNATH
General Manager
Technical

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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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/24/3906	Report Date.	01.06.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Alankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3906	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	22.05.2024	Test Completed on	01.06.2024
Temperature	35°C	Relative Humidity	43%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	60.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

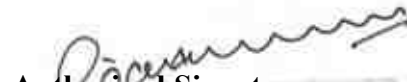
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory
V. VIMALNATH
General Manager
Technical

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
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TEST REPORT

Report No.	SARL/24/3907	Report Date.	01.06.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Kandithankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3907	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	23.05.2024	Test Completed on	01.06.2024
Temperature	34°C	Relative Humidity	50%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	59.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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Authorized Signatory

V. VIMALNATH
General Manager
Technical

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

TEST REPORT

Report No.	SARL/24/3908	Report Date.	01.06.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District,Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

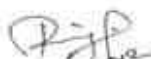
Sample Location	A4-Samathuvapuram
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3908	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	23.05.2024	Test Completed on	01.06.2024
Temperature	34°C	Relative Humidity	50%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	55.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

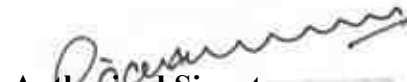
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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V. VIMALNATH
General Manager
Technical

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

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TEST REPORT

Report No.	SARL/24/3909	Report Date.	01.06.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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- Kandithankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3909	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	24.05.2024	Test Completed on	01.06.2024
Temperature	31°C	Relative Humidity	61%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	61.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	30.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

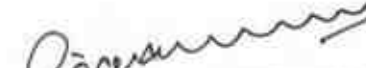
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory
V. VIMALNATH
General Manager
Technical

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

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TEST REPORT

Report No.	SARL/24/3910	Report Date.	01.06.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Samathuvapuram
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3910	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	24.05.2024	Test Completed on	01.06.2024
Temperature	31°C	Relative Humidity	61%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	53.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

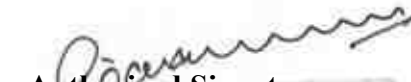
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory
V. VIMALNATH
General Manager
Technical

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/24/3911	Report Date.	01.06.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-WITHIN 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-3911	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	25.05.2024	Test Completed on	01.06.2024
Temperature	36°C	Relative Humidity	38%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	65.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	33.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

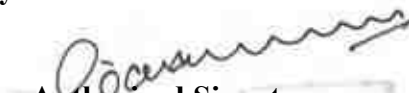
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd


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END OF THE REPORT


Authorized Signatory
V. VIMALNATH
General Manager
Technical

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



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TEST REPORT

Report No.	SARL/24/3912	Report Date.	01.06.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Adaimithipankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3912	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	25.05.2024	Test Completed on	01.06.2024
Temperature	36°C	Relative Humidity	38%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	61.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	30.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.4	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

Verified



END OF THE REPORT

Authorized Signatory

V. VIMALNATH
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Technical

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



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TEST REPORT

Report No.	SARL/24/3913	Report Date.	01.06.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District,Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

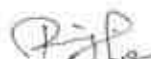
Sample Location	A1-WITHIN MINE LEASE AREA
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3913	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Temperature	35°C	Relative Humidity	39%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	64.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	33.0	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

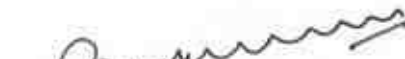
Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd


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END OF THE REPORT


Authorized Signatory
V. VIMALNATH
General Manager
Technical

Please Contact:

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Shrient Analytical and Research Labs Pvt. Ltd

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

Report No.	SARL/24/3914	Report Date.	01.06.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai 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-Adaimithipankulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3914	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Temperature	35°C	Relative Humidity	39%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	61.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

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

For Shrient Analytical and Research Labs Pvt. Ltd

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V. VIMALNATH
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Technical

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416/15, Dhargas Road, West Tambaram, Chennai- 600045
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TEST REPORT

Report No.	SARL/24/3929	Report Date.	01.06.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District,Tamil Nadu
Sample Description	NOISE LEVEL DATA

Customer Reference	As per work order	Sampling Method	SARL/IOP/023
Sample Reference No	SARL/N/CHE-3929	Date of Monitoring	25.05.2024/ 26.05.2024
Sample Collected by	LABORATORY		

Time in hrs	N1	N2	N3	N4	N5	N6
06.00	38.4	43.3	43.6	50.3	40.3	42.8
07.00	40.5	46.4	46.3	49.5	38.9	43.9
08.00	43.4	43.5	44.5	39.7	41.8	43.4
09.00	42.8	45.9	48.5	40.2	43.5	46.1
10.00	44.3	47.2	51.2	42.8	40.4	43.5
11.00	45.1	46.4	46.7	44.4	40.3	45.8
12.00	41.4	44.6	47.9	45.3	43.6	47.2
13.00	42.8	45.7	44.6	42.9	42.4	46.7
14.00	45.4	47.4	50.8	43.5	40.9	45.2
15.00	44.8	44.8	44.6	41.6	43.4	45.4
16.00	44.6	40.3	41.4	43.6	42.6	47.6
17.00	45.9	42.2	44.3	44.7	43.8	41.8
18.00	40.8	46.9	40.8	40.4	42.4	42.1
19.00	44.4	47.8	38.4	42.3	41.8	41.6
20.00	41.9	44.1	40.2	46.2	39.9	40.8
21.00	39.7	48.9	38.9	45.6	40.4	40.5
22.00	39.5	43.6	37.6	40.5	39.4	40.9
23.00	40.5	41.4	36.4	43.6	39.2	41.1
24.00	37.9	39.5	35.8	40.5	37.8	40.6
01.00	35.4	44.7	36.5	41.3	36.5	39.4
02.00	36.8	38.6	37.4	39.4	36.6	38.2
03.00	36.8	35.4	39.3	38.5	35.7	36.5
04.00	39.5	38.2	37.6	36.4	35.8	37.4
05.00	36.7	37.5	36.4	36.6	34.7	35.7



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TEST REPORT

Report No.	SARL/24/3929

Report Date.	01.06.2024

	N1	N2	N3	N4	N5	N6
DAY EQUIVALENT	43.4	45.8	46.2	45.0	41.9	44.6
NIGHT EQUIVALENT	38.2	40.9	37.3	40.2	37.3	39.1
DAY & NIGHT EQUIVALENT	42.2	44.7	44.7	43.9	40.8	43.4

Remarks:

LOCATIONS:

N1- Near Mine Lease Area

N2-Adaimithipankulam

N3- Kandithankulam

N4-Samathuvapuram

N5- Ponnakudi

N6- Alankulam

For Shrient Analytical and Research Labs Pvt. Ltd


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END OF THE REPORT


Authorized Signatory

V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3923	Report Date.	01.06.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District,Tamil Nadu
Sample Description	SOIL
Sample Mark	S1-WITHIN MINE LEASE AREA

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-3923	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	6.32
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	108.2
3	Dry matter content	IS 15106: 2002	%	96.65
4	Water Content	IS 15106: 2002	%	3.35
5	Organic Matter	IS 2720: Part 22: 1972	%	1.21
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	134
7	Soil Texture	Methods Manual - Soil testing in India - P. No-67: 2011	%	LOAM
8	<u>Grain Size Distribution</u>	Methods Manual - Soil testing in India - P. No-67: 2011	%	48.47
	i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	18.06
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	33.47
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	BDL (D.L.0.02)
9	Phosphorus as P	IS 10158: 1982	mg/kg	1.38
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	552
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	988
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	%	18.5
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	38

BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


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V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3924	Report Date.	01.06.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District,Tamil Nadu
Sample Description	SOIL
Sample Mark	S2-Adaimithipankulam

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-3924	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

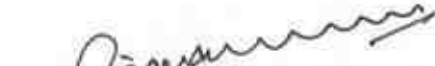
S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	7.38
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	134
3	Dry matter content	IS 15106: 2002	%	98.23
4	Water Content	IS 15106: 2002	%	1.77
5	Organic Matter	IS 2720: Part 22: 1972	%	1.44
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	178
7	Soil Texture	Methods Manual - Soil testing in India - P. No-67: 2011	%	LOAM
8	<u>Grain Size Distribution</u>	Methods Manual - Soil testing in India - P. No-67: 2011	%	34.72
	i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	49.94
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	15.34
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	BDL (D.L.0.02)
9	Phosphorus as P	IS 10158: 1982	mg/kg	1.94
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	439
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	1195
12	Total soluble sulphates	IS 2720: Part 27: 1977	%	BDL (D.L.0.02)
13	Porosity	SARL/SOP/SO/001 (Issue No:01, Issue Date – 01.03.2023): 2023	%	19.4
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	29

BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory
V. VIMALNATH
General Manager
Technical

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416/15, Dhargas Road, West Tambaram, Chennai- 600045
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TEST REPORT

Report No.	SARL/24/3925	Report Date.	01.06.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District,Tamil Nadu
Sample Description	SOIL
Sample Mark	S3- Kandithankulam

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-3925	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	7.67
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	92.43
3	Dry matter content	IS 15106: 2002	%	99.05
4	Water Content	IS 15106: 2002	%	0.95
5	Organic Matter	IS 2720: Part 22: 1972	%	0.86
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	116
7	Soil Texture	Methods Manual - Soil testing in India - P. No-67: 2011	%	CLAY LOAM
8	<u>Grain Size Distribution</u>	Methods Manual - Soil testing in India - P. No-67: 2011	%	
	i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	11.82
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	61.18
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	27.00
9	Phosphorus as P	IS 10158: 1982	mg/kg	1.71
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	394
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	704
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	%	18.2
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	34

BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory

V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/24/3926	Report Date.	01.06.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District,Tamil Nadu
Sample Description	SOIL
Sample Mark	S4-Samathuvapuram

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-3926	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	6.98
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	73.12
3	Dry matter content	IS 15106: 2002	%	95.89
4	Water Content	IS 15106: 2002	%	4.11
5	Organic Matter	IS 2720: Part 22: 1972	%	1.12
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	99.8
7	Soil Texture	Methods Manual - Soil testing in India - P. No-67: 2011	%	SILT LOAM
8	<u>Grain Size Distribution</u>	Methods Manual - Soil testing in India - P. No-67: 2011	%	
	i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	6.47
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	66.74
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	26.79
9	Phosphorus as P	IS 10158: 1982	mg/kg	1.26
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	362
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	791
12	Total soluble sulphates	IS 2720: Part 27: 1977	%	BDL (D.L.0.02)
13	Porosity	SARL/SOP/SO/001 (Issue No:01, Issue Date – 01.03.2023): 2023	%	21.4
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	32

BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd

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Authorized Signatory

V. VIMALNATH
General Manager
Technical

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



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

Report No.	SARL/24/3927	Report Date.	01.06.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District,Tamil Nadu
Sample Description	SOIL
Sample Mark	S5- Ponnakudi

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-3927	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	7.14
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	121.4
3	Dry matter content	IS 15106: 2002	%	96.93
4	Water Content	IS 15106: 2002	%	3.07
5	Organic Matter	IS 2720: Part 22: 1972	%	1.34
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	78.2
7	Soil Texture	Methods Manual - Soil testing in India - P. No-67: 2011	%	SANDY CLAY LOAM
8	<u>Grain Size Distribution</u>	Methods Manual - Soil testing in India - P. No-67: 2011	%	15.17
	i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	46.86
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	37.97
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	BDL (D.L.0.02)
9	Phosphorus as P	IS 10158: 1982	mg/kg	1.47
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	417
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	968
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	%	17.4
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	33

BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory

V. VIMALNATH
General Manager
Technical

Please Contact:

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

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Shrient Analytical and Research Labs Pvt. Ltd

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

TEST REPORT

Report No.	SARL/24/3928	Report Date.	01.06.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District,Tamil Nadu
Sample Description	SOIL
Sample Mark	S6- Alankulam

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-3928	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	6.57
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	48.36
3	Dry matter content	IS 15106: 2002	%	97.43
4	Water Content	IS 15106: 2002	%	2.57
5	Organic Matter	IS 2720: Part 22: 1972	%	1.14
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	103
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	%	9.95
	i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	47.26
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	42.79
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	BDL (D.L.0.02)
9	Phosphorus as P	IS 10158: 1982	mg/kg	1.85
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	494
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	1018
12	Total soluble sulphates	IS 2720: Part 27: 1977	%	BDL (D.L.0.02)
13	Porosity	SARL/SOP/SO/001 (Issue No:01, Issue Date – 01.03.2023): 2023	%	22.3
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	30

BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


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V. VIMALNATH
General Manager
Technical

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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/2024/3915	Report Date.	01.06.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District,Tamil Nadu
Sample Description	WATER
Sample Mark	W1-WITHIN MINE LEASE AREA

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-3915	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result	*Limits
					Permissible
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	-	7.41	6.50-8.50
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µS/cm)	739.4	-
B.	Chemical parameters				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	452	2000
6	Total hardness (as CaCO3)	APHA 24th Edition 2340 C: 2023	mg/L	224	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	54	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	26	100
9	Calcium Hardness (as CaCO3)	APHA 24th Edition 3500 Ca B: 2023	mg/L	131	-
10	Magnesium Hardness (as CaCO3)	APHA 24th Edition 3500 Mg B: 2023	mg/L	93.0	-
11	Total alkalinity (as CaCO3)	APHA 24th Edition 2320 B: 2023	mg/L	226	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	141	1000



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TEST REPORT

Report No.	SARL/2024/3915

Report Date.	01.06.2024

Sl. No.	Parameters	Protocol	Unit	Result	*Limits
					Permissible
13	Free Residual chlorine	APHA 24th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L - 0.2)	1.0
14	Sulphate as (SO ₄ ²⁻)	APHA 24th Edition 4500 SO ₄ ²⁻ E: 2023	mg/L	53.2	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.06	0.3
16	Nitrate (as NO ₃)	IS 3025 (Part 34): 1988	mg/L	BDL (D.L - 1.0)	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.45	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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END OF THE REPORT


Authorized Signatory
V. VIMALNATH
General Manager
Technical

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

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TEST REPORT

Report No.	SARL/2024/3916	Report Date.	01.06.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District,Tamil Nadu
Sample Description	WATER
Sample Mark	W2-Adaimithipankulam

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-3916	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result	*Limits
					Permissible
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	-	7.53	6.50-8.50
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µS/cm)	798.3	-
B.	Chemical parameters				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	468	2000
6	Total hardness (as CaCO3)	APHA 24th Edition 2340 C: 2023	mg/L	257	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	67.3	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	23.7	100
9	Calcium Hardness (as CaCO3)	APHA 24th Edition 3500 Ca B: 2023	mg/L	159	-
10	Magnesium Hardness (as CaCO3)	APHA 24th Edition 3500 Mg B: 2023	mg/L	98.0	-
11	Total alkalinity (as CaCO3)	APHA 24th Edition 2320 B: 2023	mg/L	219	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	132	1000



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TEST REPORT

Report No.	SARL/2024/3916

Report Date.	01.06.2024

Sl. No	Parameters	Protocol	Unit	Result	*Limits
					Permissible
13	Free Residual chlorine	APHA 24th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L - 0.2)	1.0
14	Sulphate as (SO ₄ ²⁻)	APHA 24th Edition 4500 SO ₄ ²⁻ E: 2023	mg/L	49.9	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.02	0.3
16	Nitrate (as NO ₃)	IS 3025 (Part 34): 1988	mg/L	BDL (D.L - 1.0)	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.48	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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END OF THE REPORT


Authorized Signatory
V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/2024/3917	Report Date.	01.06.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District,Tamil Nadu
Sample Description	WATER
Sample Mark	W3- Kandithankulam

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-3917	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result	*Limits
					Permissible
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	-	7.35	6.50-8.50
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µS/cm)	629.2	-
B.	Chemical parameters				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	389	2000
6	Total hardness (as CaCO3)	APHA 24th Edition 2340 C: 2023	mg/L	174	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	38.3	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	16.1	100
9	Calcium Hardness (as CaCO3)	APHA 24th Edition 3500 Ca B: 2023	mg/L	96.4	-
10	Magnesium Hardness (as CaCO3)	APHA 24th Edition 3500 Mg B: 2023	mg/L	77.6	-
11	Total alkalinity (as CaCO3)	APHA 24th Edition 2320 B: 2023	mg/L	172	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	144	1000



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TEST REPORT

Report No.	SARL/2024/3917

Report Date.	01.06.2024

Sl. No	Parameters	Protocol	Unit	Result	*Limits
					Permissible
13	Free Residual chlorine	APHA 24th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L - 0.2)	1.0
14	Sulphate as (SO ₄ ²⁻)	APHA 24th Edition 4500 SO ₄ ²⁻ E: 2023	mg/L	23.2	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.04	0.3
16	Nitrate (as NO ₃)	IS 3025 (Part 34): 1988	mg/L	1.49	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.29	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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END OF THE REPORT


Authorized Signatory
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TEST REPORT

Report No.	SARL/2024/3918	Report Date.	01.06.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District,Tamil Nadu
Sample Description	WATER
Sample Mark	W4-Samathuvapuram

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-3918	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result	*Limits
					Permissible
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	-	7.74	6.50-8.50
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µS/cm)	708.6	-
B.	Chemical parameters				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	433	2000
6	Total hardness (as CaCO3)	APHA 24th Edition 2340 C: 2023	mg/L	257	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	50.8	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	29.3	100
9	Calcium Hardness (as CaCO3)	APHA 24th Edition 3500 Ca B: 2023	mg/L	139	-
10	Magnesium Hardness (as CaCO3)	APHA 24th Edition 3500 Mg B: 2023	mg/L	118	-
11	Total alkalinity (as CaCO3)	APHA 24th Edition 2320 B: 2023	mg/L	179	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	134	1000

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TEST REPORT

Report No.	SARL/2024/3918

Report Date.	01.06.2024

Sl. No	Parameters	Protocol	Unit	Result	*Limits
					Permissible
13	Free Residual chlorine	APHA 24th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L - 0.2)	1.0
14	Sulphate as (SO ₄ ²⁻)	APHA 24th Edition 4500 SO ₄ ²⁻ E: 2023	mg/L	52.4	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.06	0.3
16	Nitrate (as NO ₃)	IS 3025 (Part 34): 1988	mg/L	1.84	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.41	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

V. VIMALNATH
General Manager
Technical

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TEST REPORT

Report No.	SARL/2024/3919	Report Date.	01.06.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District,Tamil Nadu
Sample Description	WATER
Sample Mark	W5- Ponnakudi

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-3919	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result	*Limits
					Permissible
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	-	7.13	6.50-8.50
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µS/cm)	872.1	-
B.	Chemical parameters				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	586	2000
6	Total hardness (as CaCO3)	APHA 24th Edition 2340 C: 2023	mg/L	451	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	89.7	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	59.8	100
9	Calcium Hardness (as CaCO3)	APHA 24th Edition 3500 Ca B: 2023	mg/L	219	-
10	Magnesium Hardness (as CaCO3)	APHA 24th Edition 3500 Mg B: 2023	mg/L	232	-
11	Total alkalinity (as CaCO3)	APHA 24th Edition 2320 B: 2023	mg/L	332	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	92.4	1000



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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/2024/3919

Report Date.	01.06.2024

Sl. No	Parameters	Protocol	Unit	Result	*Limits
					Permissible
13	Free Residual chlorine	APHA 24th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L - 0.2)	1.0
14	Sulphate as (SO ₄ ²⁻)	APHA 24th Edition 4500 SO ₄ ²⁻ E: 2023	mg/L	191	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.17	0.3
16	Nitrate (as NO ₃)	IS 3025 (Part 34): 1988	mg/L	BDL (D.L - 1.0)	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.72	1.5
18	Manganese (as Mn)	APHA 24th Edition 3500 Mn B: 2023	mg/L	BDL (D.L - 0.05)	0.3

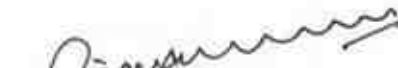
Remarks: *Drinking Water Specifications as per IS - 10500:2012. BDL - Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


Verified



END OF THE REPORT


Authorized Signatory
V. VIMALNATH
General Manager
Technical

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.

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

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



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TEST REPORT

Report No.	SARL/2024/3920	Report Date.	01.06.2024

Customer Name & Address	Rough Stone Jelly & Gravel Quarry Of M/s.Sri Durgambika Blue Metals, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District,Tamil Nadu
Sample Description	WATER
Sample Mark	W6- Alankulam

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-3920	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result	*Limits
					Permissible
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	-	7.38	6.50-8.50
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µS/cm)	1167	-
B.	Chemical parameters				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	704	2000
6	Total hardness (as CaCO3)	APHA 24th Edition 2340 C: 2023	mg/L	469	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	98.5	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	51.2	100
9	Calcium Hardness (as CaCO3)	APHA 24th Edition 3500 Ca B: 2023	mg/L	237	-
10	Magnesium Hardness (as CaCO3)	APHA 24th Edition 3500 Mg B: 2023	mg/L	232	-
11	Total alkalinity (as CaCO3)	APHA 24th Edition 2320 B: 2023	mg/L	258	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	193	1000



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TEST REPORT

Report No.	SARL/2024/3920

Report Date.	01.06.2024

Sl. No	Parameters	Protocol	Unit	Result	*Limits
					Permissible
13	Free Residual chlorine	APHA 24th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L - 0.2)	1.0
14	Sulphate as (SO ₄ ²⁻)	APHA 24th Edition 4500 SO ₄ ²⁻ E: 2023	mg/L	102	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.06	0.3
16	Nitrate (as NO ₃)	IS 3025 (Part 34): 1988	mg/L	1.89	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.48	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

V. VIMALNATH
General Manager
Technical

Please Contact:

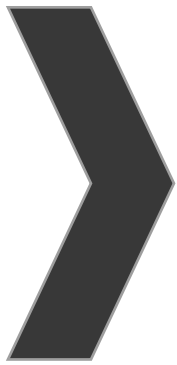
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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

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



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.

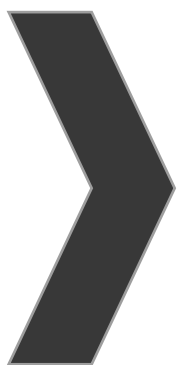
(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Name of Legal Entity: SHRIENT ANALYTICAL AND RESEARCH LABS PRIVATE LIMITED

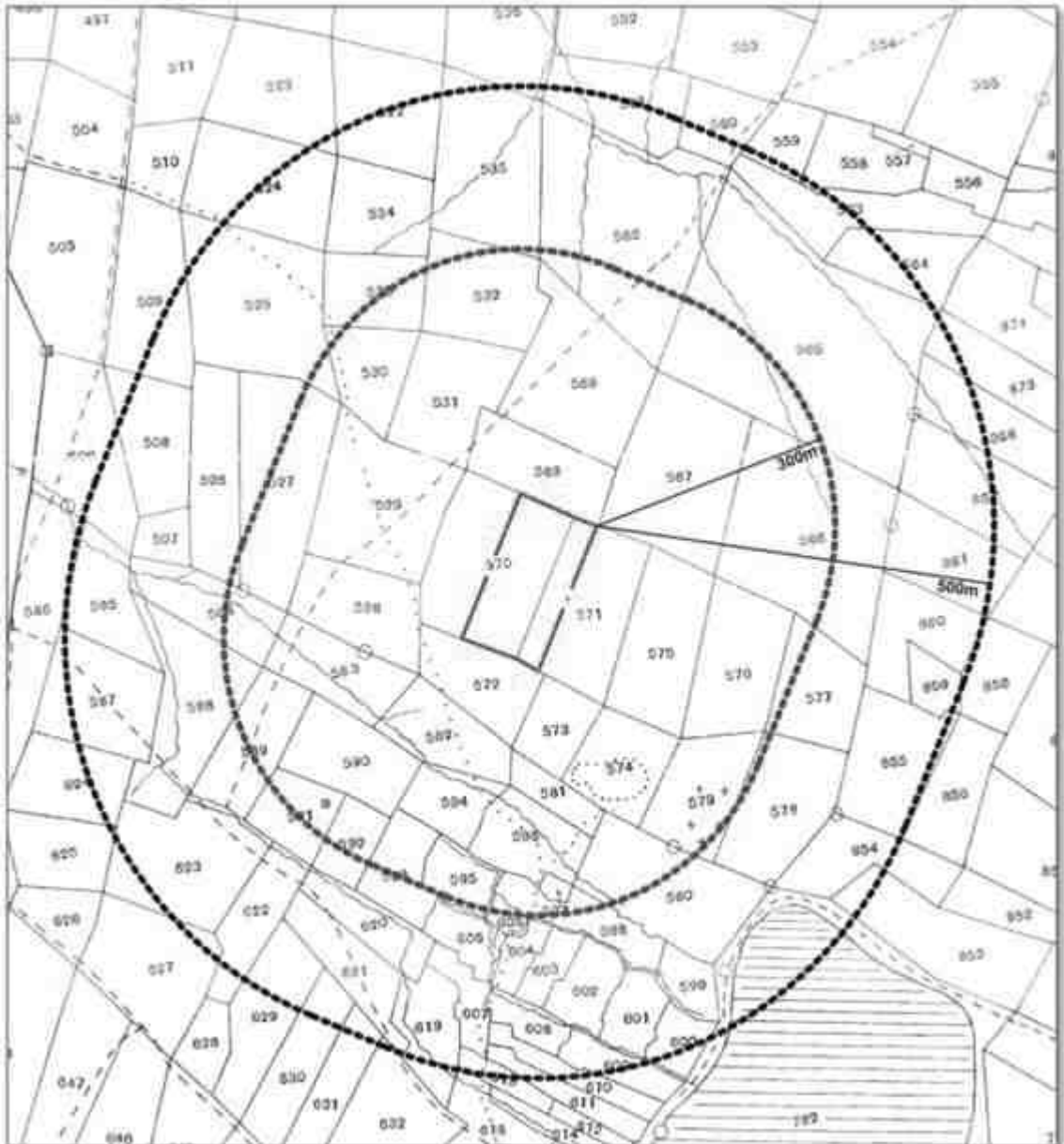
Signed for and on behalf of NABL

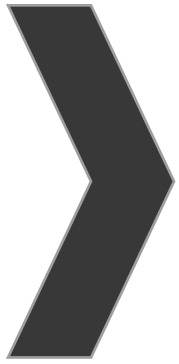


N. Venkateswaran
Chief Executive Officer

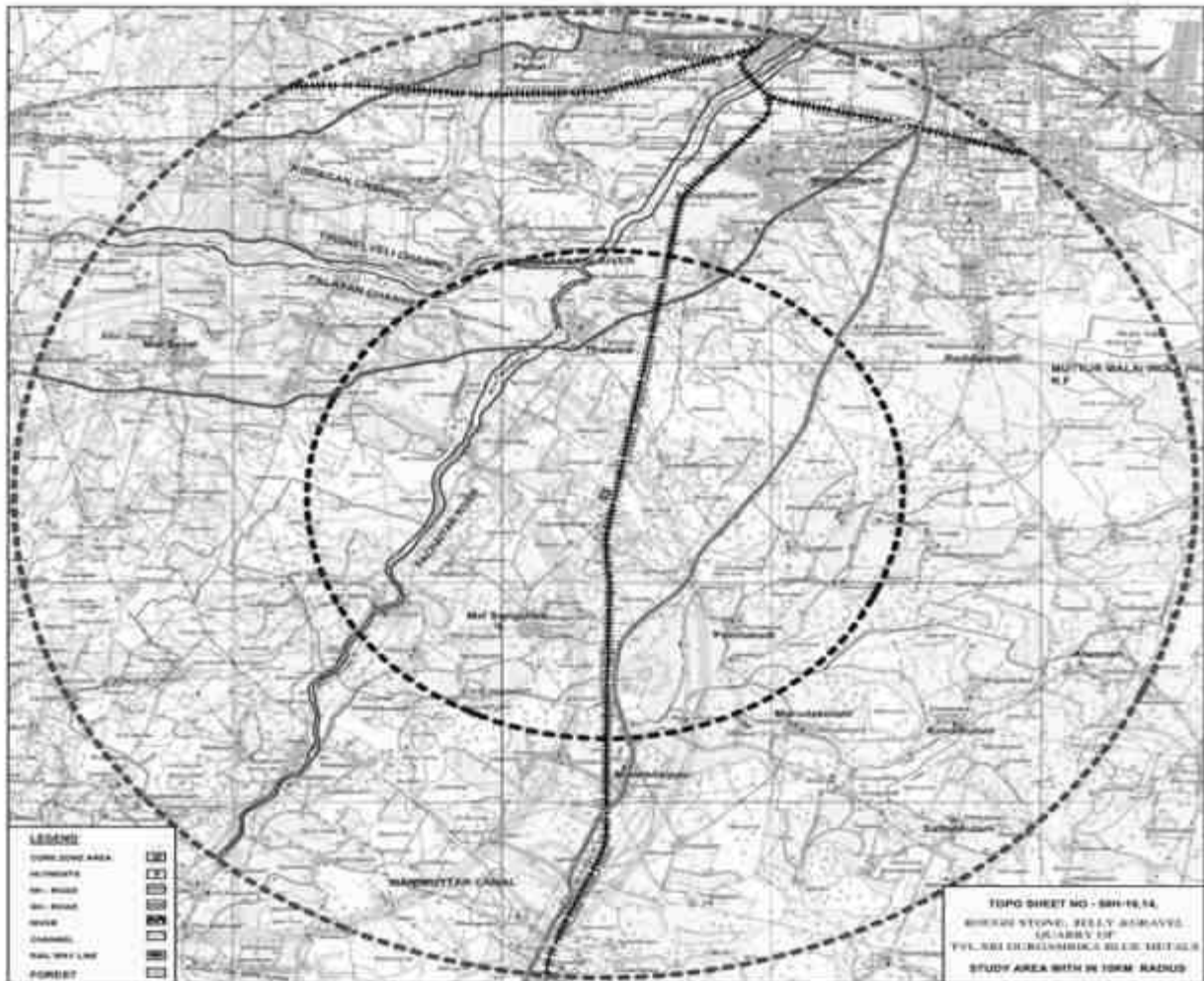


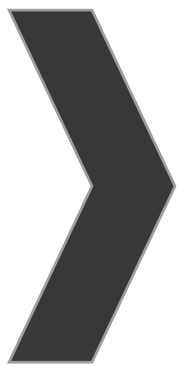
ANNEXURE-9





ANNEXURE-10





ANNEXURE-11



தமிழ்நாடு தமில்நாடு TAMILNADU

17 DEC 2020

CC 545523

Sri Durgambika Blue Metals
palyankottai
627356

M. KAILASH CHANDRAN
STAMP VENDOR-L.No.11727/C/9
SAIDAPET, CHENNAI-15. P:98401730

AFFIDAVIT TO SEIAA, TAMIL NADU

I Tvl.Sri Durgambika Blue Metals, Prop.Thiru.S.Subash Chandra Bose, No.1A/115, Kadithankulam, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District. Pin Code-627 356. Do hereby solemnly declare and sincerely affirm that, I have applied for getting environment clearance to SEIAA, Tamil Nadu for quarry lease for Rough Stone, Jelly and Gravel quarry over an extent of 1.95 Hectares of Patta land in S.F.Nos.570 (P) and 571 (P) of Tharuvai Village, Palayamkottai Taluk, Tirunelveli District, Tamil Nadu State,

1. I swear to state and confirm that within 10km area of the quarry site, we have applied for environmental clearance, none of the following is situated
 - a. Protected areas notified under the wild life (Protection) Act, 1972 (NBWL).
Wild Life Sanctuary: Kalakad Mundanthurai Tiger Reserve is 12.2km – (NW),
 Koonthankulam Bird Sanctuary is 17.5km - (SE),
 Western Ghats ESA boundary as per MoEF & CC draft notification dated 3rd October 2018 is located 16.2km from the lease area on the Southwestern side.



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- b. Critically polluted areas as notified by the central pollution control board constituted under water (Prevention and control of Pollution) Act 1974.
- c. Interstate boundaries and international boundaries within 10km radius from the boundary of the proposed site.
2. I will complete the following Corporate Environment Responsibility (CER) activities before commencement of the quarrying activities.

CER Activity	Project cost (Rs)	CER cost 2.0% of Project cost (Rs)
Carrying out various developmental works in the nearby region based on the need of the locals.	Rs.77,27,000/-	Rs.1,55,000/-
Total cost Allocation	Rs.77,27,000/-	Rs.1,55,000/-

3. Details of quarry within 500m radius from the applied area:

S.No	Name and address of the lessee	Quarry location	Extent in Hectare	Lease Period
a. Existing Quarries				
1	P.Marimuthu, S/o.Petchi Thevar, 1/3A, Kasba Melbagam, Ponnagudi, Palayamkottai, Tirunelveli.	S.F.No.522/1, 2, 534 & 535 (P), Tharuvai village	4.73.5ha	Proceedings Rc.No.M1/36802/2016 dated 22.03.2018 for a period 5 years from 19.04.2018 to 18.04.2023
2	S.Sankar, S/o.R.Subramaniam, 131/1, APT Road, Erode.	S.F.No.524 (P), Tharuvai village	1.60.0ha	Proceedings Rc.No.M1/43375/2015 dated 31.03.2018 for a period 5 years from 17.04.2018 to



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Loe

				16.04.2023

3	Tvl.Sri Durgambika Blue Metals, 1A/115, Kandithankulam, Tirunelveli.	S.F.No.570 (P), Tharuvai village	1.38.5ha	Proceedings Rc.No.M3/6065/2019 dated 02.03.2019 for a period 5 years from 24.07.2018 to 16.04.2023

b. Abandoned Quarries

1	S.Subbaiah, S/o.Sorna Thevar	S.F.No.568/1 & 569/1B, Tharuvai village	2.63.5ha	Proceedings Rc.No.M1/41558/2011 dated 20.01.2012 for a period 5 years from 07.02.2012 to 06.02.2017

c. Proposed Quarries

1	Tvl.Sri Durgambika Blue Metals, Prop.Thiru.S.Subash Chandra Bose, No.1A/115, Kadithankulam, Tharuvai Village, Palayamkottai Taluk, Tirunelveli District.	S.F.No.570 (P) & 571 (P), Tharuvai village	1.95.5ha	Proposed Quarry
2	S.Kasirajan, 760, Bazzar Street, Seevalaperi, Palayamkottai Taluk, Tirunelveli District.	S.F.No.530/3A, 531/1A, 532, 533/1, 568/5A (P) & 569/3A, Tharuvai village	4.97.0ha	Proposed Quarry

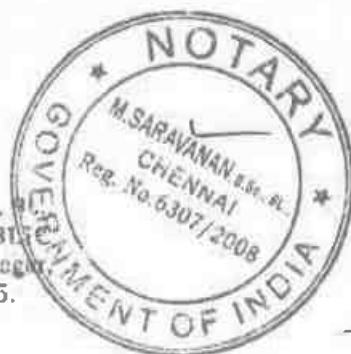


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4. There will not be hindrance or disturbance to the people living no enrooted/ nearby our quarry site while transporting the mineral and due to quarrying activities.
5. There is no approved habitation within 300m radius from the periphery of our quarry.
6. I swear that afforestation will be carried out during the course of quarrying operation and maintained.
7. The required insurance will be taken in the name of the laborers working in our quarry site.
8. The existing road from the main road to quarry is in good condition and the same will be maintained and utilized for Transportation of Rough Stone, weathered rock and Gravel.
9. I will not engage any child labor in our quarry site and I aware that engaging child labor is punishable under the law.
10. All types of safety / protective equipment will be provided to all the laborers working in our quarry.
11. No permanent structures, temple etc., are located within 500m radius from the periphery of our quarry.

I ensure to do the social and Environment commitment as mentioned in the Mining plan to the best of our knowledge.


Notary Sign & Seal
M. SARAVANAN, B.Sc.,
 ADVOCATE & NOTARY PUBLIC
 No.29, 2nd Cross Street, Sankar Nagar,
 Pammal, Chennai - 600 075.
 Cell : 9841081607



Quarry owner sign & Seal



Tvl. Sri Durgambika Blue Metals
 (Prop. Thiru. S. Subash Chandra Bose)

