

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT OF ROUGH STONE AND GRAVEL QUARRY

(As per EIA Notification, 2006 dated 14.09.2006 and amendments)

CATEGORY - B1 - CLUSTER - MINOR MINERAL -
NON-FOREST LAND

Project Proponent

Thiru.V.GANGESAN

S/o K.S.Velusamy, No-5/10,

Mariyappa Devar Street,

Sulur Taluk, Coimbatore -641402

<i>Proposed Production</i>	<i>Project Site Details</i>
Geological Reserves : 259467m ³	Extent Area : 1.81.0 Ha
Mineable Reserves : 105830m ³	S.F. No : 103/3A1A, 3A2 & 3B1
Production : 105830m ³	Kodangipalayam Village
Proposed depth : 44m bgl	Palladam Taluk
	Tiruppur District

Terms of Reference

TOR Identification No. TO23B0108TN5824253N/10592 dated 03.04.2024.

Laboratory

ABM Environmental and Analytical Laboratory

NIPBASS PLAZA, 4/77-L, Narasothipatti, Salem-636004

Baseline Monitoring Period: December 2022 to February 2023

EIA Consultant



AADHI BOOMI MINING & ENVIRO TECH (P) LTD

(QCI/NABET Accredited EIA Organization)

3/216, K.S.V. Nagar, Narasothipatti, Alagapuram (PO),

Salem - 636004, Tamil Nadu

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MARCH-2024

Thiru.V.GANGESAN
S/o.K.S.Velusamy, No-5/10,
Mariyappa Devar Street,
Sulur Taluk,
Coimbatore District-641402
Mobile No: 9842408077

Date:

To

District Environmental Engineer
Tamil Nadu Pollution Control Board
12A, Pollachi By-Pass Road,
Palladam, Tiruppur - 641 664.

Sub: Submission of **Draft Environmental Impact Assessment (EIA) Report** as per EIA Notification, 2006 dated 14.09.2006 and amendments for the proposed Rough Stone and Gravel Quarry over an extent of 1.81.0 Hectare in S.F.No: 103/3A1A, 103/3A2 and 103/3B1, Kodangipalayam Village, Palladam Taluk and Tiruppur District, Tamil Nadu –reg.

Ref:


1. MoEF&CC OM vide F.No.IA3-22/11/2023-IA.III (E-208230)
2. Precise area letter vide No: Rc No. 48/Kanimam/2023, dated 15.09.2023
3. Approval of Mining Plan Vide. Rc No. 48/Mines/2023, dated 10.11.2023
4. Online proposal No. SIA/TN/MIN/454038/2023 Dated: 02.12.2023
6. ToR Identification No. TO23B0108TN5824253N/File No:10592 dated: 03/04/2024

Dear Sir,

With reference to the above-mentioned subject, we herewith submit the hard copy of **Draft Environmental Impact Assessment Report** as per the Terms of Reference vide ToR Identification No. TO23B0108TN5824253N/File No:10592 dated: 03/04/2024 with a Demand Draft of Rs. () in favour of DEE, TNPCB, Tiruppur (South) for your kind perusal. Hence, we kindly request you to process our application for Public Hearing as per EIA Notification, 2006 for obtaining Environment Clearance from SEIAA/SEAC, Tamil Nadu as early as possible.

Thanking You,

Yours faithfully,



(V. GANGESAN)
Project Proponent

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

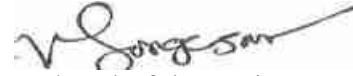
INDEX

S.NO	PARTICULARS	REFERENCE
1	Proponent Undertaking	I
2	Consultant Undertaking	II
3	Disclosure of Experts	III
4	Table of Contents	IV-XI
5	List of Figures	XII-XV
6	List of Tables	XVI-XIX
7	List of Annexure	XX
8	Abbreviations	XXI
9	ToR Compliance	XXII-LVIII

Thiru.V.GANGESAN
S/o.K.S.Velusamy, No-5/10,
Mariyappa Devar Street,
Sulur Taluk,
Coimbatore District-641402
Mobile No: 9842408077

Undertaking by Project Proponent

I, **V. GANGESAN**, as **Project Proponent**, hereby give this undertaking to the effect that the conditions laid down in Terms of Reference vide ToR Identification No. TO23B0108TN5824253N/File No:10592 dated: 03/04/2024 for our Rough Stone and Gravel Quarry, in SF. No. 103/3A1A, 103/3A2 and 103/3B1, over an extent of 1.81.0 Ha of Kodangipalayam Village, Palladam Taluk and Tiruppur District, Tamil Nadu, have been compiled with, and the data submitted and the information presented in this report are true to the best of my knowledge.



Signature and seal of the Project Proponent

Place : Salem

Date :

AADHI BOOMI MINING AND ENVIRO TECH (P) Ltd.

(NABET/QCI Accredited Organisation - 'A' Category)

ISO: 9001:2015 Certified Company

Call: 0427-2444297, +91 9842729655, +91 9443290855

Email: suriyakumarsemban@gmail.com, admin@abmenvirotec.com,Website: www.abmenvirotec.com**Declaration by the Head of the accredited consultant organization/authorized person**

I, **S.Suriyakumar**, Managing Director of Aadhi Boomi Mining & Enviro Tech (P) Ltd, hereby confirm that the Draft Environmental Impact Assessment Report has been prepared as per the conditions laid down in Terms of Reference vide ToR Identification No. TO23B0108TN5824253N/File No:10592 dated: 03/04/2024 for conducting Public Hearing and obtaining Environment Clearance from SEIAA/SEAC, Tamil Nadu for existing Rough Stone and Gravel Quarry of **Thiru V.GANGESAN** located in Kodangipalayam Village, Palladam Taluk and Tiruppur District, Tamil Nadu.

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

Name : **Mr.S.Suriyakumar**

Signature : 

Designation : **Managing Director**

Name of the EIA Consultant Organization: **Aadhi Boomi Mining & Enviro Tech Private Limited.**

QCI/NABET Accredited Consultant, Certificate No: **NABET/EIA/2124/RA 0228.**

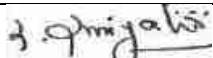
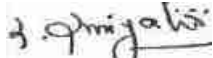
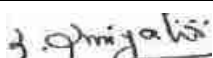
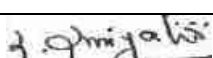
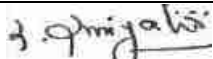

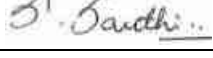




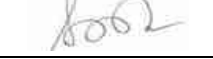
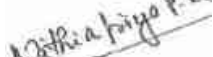
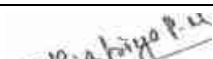
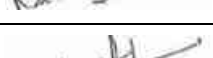
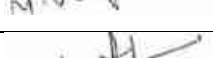
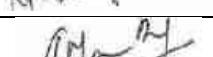
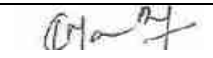
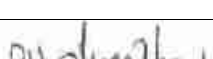
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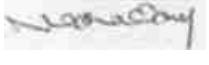






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DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT
 Proponent: *V. Gangesan, Rough Stone and Gravel Quarry, Tiruppur District*

DECLARATION OF EXPERTS - NABET

S. No	Name of the Expert	Category	Functional Areas	Signature
In-House Experts				
1.	Mr.S.Suriyakumar	A	EIA Co-ordinator	
		A	Solid and Hazardous Waste SHW*-HW* only	
		A	Risk Assessment and Hazard Management (RH)	
		A	Land Use (LU)	
		A	Soil Conservation (SC)	
2.	Mrs. S. Santhi	B	Land Use (LU)	
		B	Socio Economics (SE)	
3.	Mr.K.Thirumeni	B	EIA Co-ordinator - Building and Construction	
		B	EIA Co-ordinator - Highways	
		B	Land use (LU)	
4.	R.R Prakash Babu	B	Air Pollution, Monitoring, Prevention and Control (AP)	
		B	Noise and Vibration (NV)	
5.	Dr. Nithia Priya P.M	B	Air Pollution, Monitoring, Prevention and Control (AP)	
		B	Water Pollution Monitoring, Prevention and Control (WP)	
6.	Mr. M. Venkatesh Prabhu	B	Meteorology, Air Quality Modelling & Prediction (AQ)	
		B	Noise and Vibration (NV)	
7.	Mr. K. Manuraj	B	Geology (GEO)	
			Hydrogeology (HG)	
8.	V. Sudha	B	Ecology and Biodiversity	

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT*Proponent: V. Gangesan, Rough Stone and Gravel Quarry, Tiruppur District*

Empanelled Experts				
9.	Dr. Nallathambi Varadarajan	A	Geology (Geo)	
		A	Hydrology, ground water and water conservation (HG)	
10.	Bidisha Roy	B	Meteorology, Air Quality Modelling & Prediction (AQ)	Bidisha Roy
Team Member Involved in Report Preparation				
11.	Mrs. S. Sri Vidhya	Team Member	Water Pollution Monitoring, Prevention and Control (WP) under FAE - Dr. Nithia Priya P.M	
			Meteorology, Air Quality Modelling & Prediction (AQ) under FAE - Mr. M. Venkatesh Prabhu	
12.	Mr. S. Sagath Srikrishnan	Team Member	Water Pollution Monitoring, Prevention and Control (WP) under FAE - Dr. Nithia Priya P.M	
13.	Mrs. A. Nagadevi	Team Member	Water Pollution Monitoring, Prevention and Control (WP) under FAE - Dr. Nithia Priya P.M	
14.	Mr. A. Jagadeesh Kumar	Team Member	Noise and vibration under FAE - Mr. M. Venkatesh Prabhu	
			Meteorology, Air Quality Modelling & Prediction (AQ) under FAE - Mr. M. Venkatesh Prabhu	

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT
Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

LIST OF CONTENTS

CHAPTER NO	TITLE	PAGE NO
1	INTRODUCTION	1-10
	1.1. Purpose of the Report	1
	1.2. Identification of Project and Project Proponent	2
	1.2.1 Identification of Project	2
	1.2.2 Identification of Project Proponent	2
	1.3. Brief Description of the Project	3
	1.3.1 Nature and Size of the Project	3
	1.3.2 Location of the Project	3
	1.4 Scope of the Project	8
	1.5 Methodology of EIA Study	8
2	PROJECT DESCRIPTION	11-49
	2.1. Need for the Project	11
	2.2. Demand – Supply GAP	11
	2.3. Location	11
	2.4 Size or Magnitude of Operation	22
	2.5 Proposed Schedule for Approval and Implementation	23
	2.6 Technology and Process Description	23
	2.6.1 Regional Geology	23
	2.6.2 Geology of the Lease Area	25
	2.6.2.1 Exploration	26
	2.6.3 Method of Mining	28
	2.6.4 Extent of Mechanization	28
	2.7 Land Use Pattern of the Core Zone	31
	2.8 Estimation of Reserves	31
	2.9 Year Wise Production and Development	36
	2.10 Stacking of Mineral Rejects and Disposal of Waste	43
	2.11 Conceptual Mining Plan/ Final Mine Closure Plan	43
	2.11.1 Restoration, Reclamation of already mined out area	44
	2.12 Employment Potential	48
	2.13 Amenities	48
	2.13.1 Sanitary Facilities	48
	2.13.2 First Aid Facility	48
	2.13.3 Labour Health	48
	2.13.4 Precautionary safety measures to the Labourers	49

EIA Consultant: Aadhi Boomi Mining & Enviro Tech (P) Ltd, Salem, Tamil Nadu

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT*Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District*

	2.13.5 The Child Labour Employment	49
	2.14 Project Cost	49
	2.15 End Use	49
3	DESCRIPTION OF THE ENVIRONMENT	50-133
	3.1 General	50
	3.2 Study Area	50
	3.3 Study Period	51
	3.4 Baseline Environment	51
	3.4.1 Scope of Baseline Data Collection	51
	3.5 Meteorology	52
	3.5.1 Regional Meteorology	52
	3.5.2 Meteorological Data Recorded at IMD Station, Tiruppur district	52
	3.6 Air Environment	55
	3.6.1 Ambient Air Monitoring	55
	3.6.1.1 Selection of sampling location	55
	3.6.1.2 Parameters and Monitoring Methodology	55
	3.6.2 Monitoring Result	58
	3.6.3 Observation	64
	3.7 Noise Environment	64
	3.7.1. Method of Monitoring	65
	3.7.2 Interpretation	68
	3.8 Water Environment	69
	3.8.1. Interpretation	73
	3.9 Land Environment	74
	3.9.1 Soil Environment	74
	3.9.2 Methodology	74
	3.9.3 Observation	79
	3.10 Land Use/Land Cover Study	79
	3.10.1 Objectives	79
	3.10.2 Methodology for Baseline Data Generation	82
	3.10.2.1 Methodology Adopted for Thematic Data Extraction From the Satellite	82
	3.10.2.2 Topography	83
	3.10.3 Drainage Pattern of the Area	85
	3.10.4 Contour	88
	3.10.5 Slope	88
	3.10.6 Geological structure	88
	3.10.7 Soil	88

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DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT*Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District*

	3.10.9 Conclusion	93
	3.11 Hydrogeology of the District	93
	3.11.1 Location	93
	3.11.2 Scope of the Studies:	93
	3.11.3 Physiography and Drainage	93
	3.11.4 Geology of the Area	95
	3.11.5 Hydrogeology	95
	3.11.6 Geophysical Investigation by VES method	95
	3.11.7 Aquifer Performance Test	97
	3.11.11 Conclusion	101
	3.12 Ecology and Biological Environment	102
	3.12.1 Description of Tiruppur District Environment	102
	3.12.2 Agriculture activities in Tiruppur District	102
	3.12.3 Forest resources	103
	3.12.4 Water resources	103
	3.12.5 Study Area Ecology	103
	3.12.6 Methodology of Sampling	104
	3.12.7 Data Collection	104
	3.12.7.1. Rapid Survey and Secondary data collection	104
	3.12.7.2. Field Data Collection	104
	3.12.7.3 Flora	105
	3.12.7.3 Analytical Aspects	105
	3.12.7.5 Flora	106
	3.12.7.6 Flora in Core Zone	106
	3.12.7.7. Flora in Buffer Zone	107
	3.12.7.8 Crop Pattern in Buffer Zone	107
	3.12.8 Fauna	112
	3.12.8.1. Fauna in Core Zone	113
	3.12.8.2. Fauna in Buffer Zone	113
	3.13 Socio-Economic Environment	117
	3.13.1 Introduction	117
	3.13.2 Objectives of the Study	117
	3.13.3 Scope of Work	117
	3.13.4 Study Area – Kodangipalayam Villagge	118

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT*Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District*

	3.13.5 Population Characteristics – Kondangipalayam Village, Palladam Taluk, Tiruppur District (2001-2011)	118
	3.13.6 Occupational profile of Kodangipalayam Village	120
	3.13.7 Socio economic studies in buffer area	123
	3.13.8 Primary survey conducted by FAE- SE	132
	3.13.8.1 Primary survey methodology	132
	3.13.8.2 Data structures	132
	3.13.9 Summary and Conclusion	133
4	ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES	134-177
	4.1 Air Environment	134
	4.1.1 Anticipated Impact	134
	4.1.2 Emissions Details	134
	4.1.2.1 Drilling	135
	4.1.2.2 Loading of Rough stone	135
	4.1.2.3 Loading of Overburden (Gravel)	136
	4.1.2.4 Haul Road	136
	4.1.2.5 Blasting	137
	4.1.2.6 Summary of calculated Emission Rates	137
	4.1.3 Frame Work of Computation & Model Details	138
	4.1.3.1 Model Input data	138
	4.1.3.2 Model Results	139
	4.1.4 Combined Impact on Air Environment due to proposed quarry and adjacent within 500m radius	142
	4.1.5 Air Quality Index	143
	4.1.5.1 Interpretation of Air quality using IND-AQI	145
	4.1.6 Mitigation Measures	145
	4.2 Carbon Emission and Carbon Sinks Due to Proposed Mining Activity	146
	4.2.1 Carbon emissions	146
	4.2.1.1 Carbon emission due to natural activity in project site and carbon sinks	146
	4.2.1.2 Carbon emission due to human activity in project site and carbon sinks	147
	4.3 Soil Carbon Stock	148
	4.4 Noise Environment	148
	4.4.1 Anticipated Impacts due to Noise in Core Zone	149

EIA Consultant: Aadhi Boomi Mining & Enviro Tech (P) Ltd, Salem, Tamil Nadu

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: *V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District*

	4.4.2 Mitigation measures for Control of Noise	152
	4.5 Ground Vibrations	154
	4.5.1 Mitigation measures for Control of Vibration	155
	4.6 Water Environment	156
	4.6.1 Anticipated Impact on Surface water body due to proposed project	157
	4.6.1.1 Mitigation measures	157
	4.6.2 Anticipated Impact on Ground water body due to proposed project	157
	4.6.3 Management of rain water in the pit during monsoon season	158
	4.6.4 Water Quality Index	158
	4.6.5 Impact on Hydrogeology	160
	4.6.6 Rainwater Harvesting Potential in Core Zone at the end of project	161
	4.7 Soil Environment	162
	4.7.1 Impact on Soil Environment	162
	4.7.2 Mitigation measures for Soil Conservation	162
	4.8 Waste Dump Management	162
	4.8.1 Anticipated Impact	162
	4.8.2 Mitigation measures	162
	4.9 Municipal Solid Waste Management	163
	4.10 Ecology and Biodiversity	163
	4.10.1 Impact on Ecology and Biodiversity	163
	4.11 Socio Economic	171
	4.11.1 Anticipated Impact	171
	4.11.2 Mitigation Measures	172
	4.12 Land Environment	172
	4.12.1 Anticipated Impact on Land Use / Land Cover	172
	4.12.2 Mitigation measures	173
	4.13 Occupational Health Risks	173
	4.13.1 Anticipated Impact	173
	4.13.2 Anticipated occupational and safety hazards	174
	4.13.3 Anticipated health impacts on people in nearby villages	174
	4.13.4 Mitigation measures	174
	4.14 Agricultural Environment	175
	4.14.1 General	175

EIA Consultant: Aadhi Boomi Mining & Enviro Tech (P) Ltd, Salem, Tamil Nadu

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT*Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District*

	4.14.2 Anticipated Impacts of Proposed project on Agriculture	175
	4.14.3 Mitigation measures	176
	4.15 Post Covid Health Management Plan	177
5	ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)	178-178
6	ENVIRONMENTAL MONITORING PROGRAMME	179-181
	6.1 Measurement Methodologies	179
	6.2 Monitoring Schedule and Frequency	179
	6.3 Data Analysis	180
	6.4 Emergency Procedures	181
	6.5 Detailed Budget	181
7	ADDITIONAL STUDIES	182-187
	7.1 Public Consultation	182
	7.2 Risk Assessment and Disaster Management Plan	182
	7.2.1 Care and Maintenance during temporary discontinuance	183
	7.2.2 Economic repercussions of closure of mine and manpower retrenchments	184
	7.2.2.1 Number of local residents employed in the mine, status of continuation of family occupation and scope of joining occupation back	184
	7.2.2.2 Compensation given or to be given to the employees connecting with sustenance of himself and their family members	184
	7.2.2.3 Satellite occupations connected to the mining industry – number of persons engaged therein continuance of such business after mine closes	184
	7.2.2.4 Continued engagement of employees in the rehabilitate status of mining lease area and any other remnant activities	184
	7.2.2.5 Envisaged repercussions on the expectation of the society around due to closure of mine	184
	7.2.3 Time Scheduling for abandonment	184
	7.3 Social Impact Assessment, R&R Action Plans	185
	7.4 Detail Study of Rainwater Harvesting After the Completion of Project	185
	7.5 Plastic/Microplastic Waste Management Plan	187
8	PROJECT BENEFITS	188-191
	8.1 Physical Infrastructure	188
	8.2 Social Infrastructure	188

EIA Consultant: Aadhi Boomi Mining & Enviro Tech (P) Ltd, Salem, Tamil Nadu

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT*Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District*

	8.3 Employment Potential	189
	8.4 Other Tangible Benefits	189
	8.4.1 Corporate Social Responsibility	189
	8.4.2 CSR activities	189
	8.4.2.1 CSR Cost Estimation	190
	8.4.3 Corporate Environment Responsibility (CER)	191
9	ENVIRONMENTAL COST BENEFIT ANALYSIS	192
	9.0 Project Cost	192
10	ENVIRONMENTAL MANAGEMENT PLAN	193-199
	10.1 Description of the Administrative Aspects of Ensuring that Mitigative Measures are Implemented and Their Effectiveness Monitored, After Approval of the EIA.	199
11	SUMMARY AND CONCLUSIONS	200-213
	11.1 Scope of the Project	200
	11.2 Project Description	201
	11.3 Description of the Environment	202
	11.3.1 Base line environmental study	202
	11.4 Anticipated Environmental Impacts and Mitigation Measures	204
	11.4.1 Air Environment	204
	11.4.2 Noise Environment	204
	11.4.3 Water Environment	205
	11.4.4 Soil Environment	205
	11.4.5 Waste Dump	205
	11.4.6 Biological Environment	205
	11.4.7 Land Environment	206
	11.4.8 Socio Economic Environment	206
	11.5 Analysis of Alternatives	212
	11.6 Environmental Monitoring Program	212
	11.7 Project Benefits	213
	11.8 Conclusion	213
12	DISCLOSURE OF CONSULTANTS ENGAGED	214-215
	12.1 Scope	214
	12.2 Infrastructure	215
	12.3 Disclosure of Consultant for EIA Study	215
	12.4 Declaration of Experts Involved in the EIA Report Preparation	215

EIA Consultant: Aadhi Boomi Mining & Enviro Tech (P) Ltd, Salem, Tamil Nadu

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT
Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

LIST OF FIGURES

FIGURE NO	TITLE	PAGE NO
1.1	Showing Location and route map of Proposed quarry lease area	5
1.2	Toposheet showing Location of the quarry	6
1.3	Google Earth Image showing 300m and 500m radius around lease area	7
2.1	Google image showing lease boundary and Coordinates of the Quarry	13
2.2	Lease Plan	14
2.3	Geological Plan	15
2.4	Photograph shows general view of lease area	16
2.5	Google Earth Image showing Transport Network of 10 km radius around Proposed Project Site	18
2.6	Earthquake Hazard Map	19
2.7	Flood Hazard Map	20
2.8	Winds and Cyclone Hazard Map	21
2.9	Material Balance	22
2.10	Close view of colour of Rock Formation	26
2.11	Regional Geology and Geomorphology Map	27
2.12	Geological Cross Section	33
2.13	Surface plan	34
2.14	Year Wise Development and Production Plan for the first year	37
2.15	Year Wise Development and Production Plan for the second year	38
2.16	Year Wise Development and Production Plan for the third year	39
2.17	Year Wise Development and Production Plan for the fourth year	40
2.18	Year Wise Development and Production Plan for the fifth year	41
2.19	Section of Production and Development Plan	42
2.20	Conceptual Plan	45
2.21	Sections Ultimate Pit limit	46
2.22	Progressive Mine closure plan and Afforestation	47
3.1	Wind Rose Pattern	53
3.2	Geo-Referenced Toposheet showing 10km radius of Environmental Monitoring Stations	54
3.3	Air Sampling at Core and Buffer Zone	56
3.4	Georeferenced Toposheet showing air sampling location	57
3.5	Variation in Concentration of air pollutants	63

EIA Consultant: Aadhi Boomi Mining & Enviro Tech (P) Ltd, Salem, Tamil Nadu

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT*Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District*

3.6	Noise Sampling at Core Zone and Buffer Zone	66
3.7	Georeferenced Toposheet showing Noise sampling locations	67
3.8	Ambient Baseline Noise Level	68
3.9	Water Sampling at Core and Buffer Zone	70
3.10	Geo referenced Toposheet showing water sampling location	71
3.11	Soil Sampling at Core and Buffer Zone	75
3.12	Georeferenced Toposheet showing soil sampling locations	76
3.13	Land use / Land cover statistics of project study area Land Use cover of 10km radius.	80
3.14	Toposheet showing Road Accessibility details of 10 Km Radius	81
3.15	Methodology use for land- use classification and mapping	82
3.16	Chart showing Land use/ Land cover Analysis	85
3.17	Project Site Located in the Topomap	86
3.18	Represents the River/Streams (Drainage) of the study area within 10 km radius from the project site	87
3.19	Image Showing Contour and Slope of the lease area around 10km radius	90
3.20	Geology and Geomorphology of 10km Radius	91
3.21	Image Representing the Soil Characteristics around 10km of the Lease area	92
3.22	Drainage and Water Level Contour Map	94
3.23	Schlumberger Array	95
3.24	VES Location Map	96
3.25	Photos Showing Geophysical Survey conducted at the lease area	96
3.26	Image showing Resistivity curve, depth data	97
3.27	Aquifer Performance Test - Time V/s Drawdown, & Residual Drawdown V/s t'	101
3.28	Photos of Flora in Core and Buffer Area	111
3.29	Floral diversity in Core and Buffer Zone	112
3.30	Photos of Fauna in Core Area	116
3.31	Faunal diversity in Core and buffer Zone	117
3.32	Population Characteristics of Kodangipalayam village Tiruppur District (2001-2011).	120
3.33	Occupational Characteristics – Kodangipalayam Village, Tiruppur District (2001-2011)	123
3.34	Socioeconomic Survey Location	131
3.35	Primary Survey Photographs of village wise, Tiruppur District	132

EIA Consultant: Aadhi Boomi Mining & Enviro Tech (P) Ltd, Salem, Tamil Nadu

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

4.1	Isopleths of PM10 is 19.06 $\mu\text{g}/\text{m}^3$ (Core) occurred at the project site during i) loading and unloading and ii) transportation of rough stone over the haul road	140
4.2	Isopleths of PM10 is 10.86 $\mu\text{g}/\text{m}^3$ occurred near the project site during blasting in the mining area	141
4.3	Noise dispersion in Buffer zone due to proposed mining activity	153
4.4	Water Balance Chart	156
4.5	Schematic representation of depth of mining and water level	158
4.6	Interpreted resistivity curve matching technique	161
4.7	Maintain social distance of 2m in work place	177
4.8	Sanitizing Hand Frequently	177
4.9	Wear Mask at the work place	177

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT
Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

LIST OF TABLES

TABLE NO	TITLE	PAGE NO
1.1	Identification of Project	2
1.2	Identification of Project Proponent	3
1.3	Land Particulars	3
1.4	Environment Attributes	9
2.1	Co-ordinates of Quarry lease Boundary Pillars	12
2.2	Environmental Settings	16
2.3	Mining Details	22
2.4	Details of drilling equipment	29
2.5	Details of loading equipment	29
2.6	Details of transporting vehicle	29
2.7	Explosives Details	30
2.8	Computation of existing and proposed land use pattern	31
2.9	Computation of Geological Resources and Reserves	32
2.10	Computation of Mineable/Recoverable Reserves	35
2.11	Computation of year wise production	36
2.12	Computation of rejects materials	43
2.13	Year-Wise Dump Dimension (m)	43
2.14	Computation of ultimate pit dimension	44
2.15	Employment Potential (Management & Supervisory personal)	48
2.16	Water Requirements (5.0 KLD)	48
3.1	Summary of the Meteorological data for the study period	53
3.2	Ambient Air Quality Monitoring Stations	55
3.3	Summary of Ambient Air Quality Results	58
3.4	Noise Monitoring Stations	65
3.5	Summary of Ambient Noise Level during study period	68
3.6	Water Sampling Locations	70
3.7	Summaries of Water Quality Results	72
3.8	Frequency and Methodology for Soil Sampling & Monitoring	74
3.9	Soil Sampling Locations	75
3.10	Result of Soil Sample Analysis for Core and Buffer Zone	77
3.11	LU/LC Classes And Their Coverage in Sq. Km of 10 Km Radius	84
3.12	Aquifer Performance Test	98

EIA Consultant: Aadhi Boomi Mining & Enviro Tech (P) Ltd, Salem, Tamil Nadu

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT*Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District*

3.13	Details of Important crops in Tiruppur District	103
3.14	Floral Diversity in Core and Buffer area (Thiru V. Gangesan, Rough Stone and Gravel Quarry, Tiruppur District)	108
3.15	Crops pattern in Thiru V. Gangesan, Rough Stone and Gravel Quarry, Tiruppur District	110
3.16	Methodology applied during survey of fauna	112
3.17	Faunal in Core and Buffer area (Thiru. V. Gangesan, Rough Stone and Gravel Quarry, Tiruppur District)	114
3.18	Kodangipalayam Village Census 2011 Data	118
3.19	Kodangipalayam Village Population Facts	119
3.20	Kodangipalayam village Working Population-Census 2011	122
3.21	List and Details of Revenue villages within 10km radius	124
3.22	Population Data of Study Area	125
3.23	Communication & Transport Facilities in the Study Area	126
3.24	Water & Drainage Facilities in the Study Area	127
3.25	Other Facilities in the Study Area	128
3.26	Educational Facilities in the Study Area	129
3.27	Medical Facilities in the Study Area	130
4.1	Source Parameters (Loading of Rough stone)	135
4.2	Source Parameters	136
4.3	Source Parameters (During Vehicle Movement on Haul Road)	136
4.4	Source Parameters (During Blasting)	137
4.5	Emissions Rates of PM ₁₀	137
4.6	Emissions Rates of SO _x	138
4.7	Emissions Rates of NO _x	138
4.8	Total predicted GLC of PM 10in core and buffer zone due to combined action of loading, unloading and Transportation of Rough stone by trucks on the haul road, of the mining lease area.	140
4.9	Total predicted GLC of PM ₁₀ in core and buffer zone due to blasting activity in the mining lease area	141
4.10	Impact of SO _x due to Operation of Excavator and Movement of Vehicle in the mining lease area	142
4.11	Impact of NO _x due to Operation of Excavator and Movement of Vehicle in the mining lease area	142
4.12	Incremental GLC of PM ₁₀ , PM _{2.5} , SO _x and NO _x due to the proposed mining activity	143
4.13	Total predicted GLC of PM ₁₀ , PM _{2.5} , SO _x and NO _x due to the combined activity in the cluster	143
4.14	AQI and its associated Health Impacts	144

EIA Consultant: Aadhi Boomi Mining & Enviro Tech (P) Ltd, Salem, Tamil Nadu

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT*Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District*

4.15	Proposed Breakpoints for AQI Scale 0-500	144
4.16	Computation of AQI with Baseline data	145
4.17	Emission of carbon monoxide from vehicle	147
4.18	Permissible Exposures in Cases of Continuous Noise (CPCB)	149
4.19	Noise Exposure Levels and Its Effects	149
4.20	Expected Noise Levels	150
4.21	Predicted Noise levels in Core Zone and buffer zone	151
4.22	Estimated Peak Particle velocities for different Explosive Charges	154
4.23	Permissible Peak Particle Velocities (mm/s)	155
4.24	Unit weight of the water quality parameters	159
4.25	Water quality index of water samples	159
4.26	Water quality scale	159
4.27	Resistivity Survey	161
4.28	Ecological Impact Assessments and Its Mitigations -Part 1	163
4.29	Ecological Impact Assessments – Part 2	166
4.30	Afforestation Plan of the Proposed Rough Stone & Gravel Quarry for the next five years	171
6.1	Instruments used for Monitoring	179
6.2	Monitoring Schedule	180
6.3	Environment monitoring budget	181
7.1	Risk Assessment and Disaster Management Plan	182
10.1	Environmental Management Plan	194
10.2	EMP Budget for Plan period	199
10.3	Budget Allocation for Mine Closure Plan as per ToR	199
11.1	Project Details	201
11.2	Baseline Data	203
11.3	Environmental Management Plan	207
11.4	Post Project Environmental Monitoring Program	212
12.1	Declaration of Experts	216

LIST OF ANNEXURES

ANNEXURE	PARTICULARS	PAGE NO
I	Copy of Terms of Reference	218
II	Copy of Precise Area Communication Letter	232
III	Copy of FMB	236
IV	Copy of Combined Sketch	237
V	Copy of Patta	238
VI	Copy of QP	243
VII	Copy of Affidavit	247
VIII	Copy of VAO Letter	251
IX	Copy of AD 500m Radius Cluster Letter	253
X	Copy of Approved Mining Plan Letter	255
XI	Copy of Land Consent Registration	257
XII	Copy of Previous Environmental Clearance	278
XIII	Copy of Lab Report	287
XIV	Block Development officer's Letter	306
XV	Tahsildar Letter	307
XVI	A1-Notice	313
XVII	Greenbelt Development Photos	318
XVIII	Fencing Photos	319
XIX	Water Sprinklers Photos	320

LIST OF ABBREVIATIONS AND ACRONYMS

AQI	-	Air Quality Index
AAQ	-	Ambient Air Quality
CPCB	-	Central Pollution Control Board
CAPEXIL	-	Chemical and Allied Export Promotion Council of India
CSR	-	Corporate Social Responsibility
DB	-	Decibel
DGM	-	Department of Geology and Mining
DGPS	-	Differential Global Positioning System
EC	-	Environment Clearance
EMP	-	Environment Management Plan
EIA	-	Environmental Impact Assessment
EMC	-	Environmental Management Cell
LEQ	-	Equivalent Noise Level
GOVT	-	Government of Tamil Nadu
GLC	-	Ground Level Concentration
HSE	-	Health, Safety and Environment
HA	-	Hectare
KLD	-	Kilo Liters Per -Day
KM	-	Kilo Meter
MOEF&CC	-	Ministry of Environment Forest and Climate Change
NH	-	National Highway
PH	-	Public Hearing
R&R	-	Rehabilitation & Resettlement
SEIS	-	Seismograph
SEIAA	-	State Environmental Impact Assessment Authority
SEAC	-	State Expert Appraisal Committee
SH	-	State Highway
SPM	-	Suspended Particulate Matter
TNPCB	-	Tamil Nadu Pollution Control Board
TOR	-	Terms of Reference
WQI	-	Water Quality Index

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

1. SEIAA Standard Conditions

S. No	Terms of Reference	Compliance
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.	Agreed. The Cluster Management Committee will be formed as per SEAC guidance.
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. After forming CMC, the all the members will implement environment management plan effectively. Effective plan has been given in chapter – 4.
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 before the commencing the quarry activity.
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	Certified Blaster will be engaged for blasting having adequate knowledge in Environmental safety aspects. Plan will be included in the EIA report. The usage of haul roads by the individual quarry is attached in EIA report. Refer fig 2.5 in page 18 of chapter 2.
5	The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.	Risk Management is elaborated in chapter 7 of the EIA report.
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.	Agreed. The CMC will form Environmental Policy to practice sustainable mining in a scientific and systematic manner. The same shall be displayed within the cluster area.
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.	The conceptual plan for the quarry area 1.81.0 Ha is attached in the EIA report. Refer fig 2.20 page 45 in chapter 2. After forming CMC, the restoration strategy of individual quarry will be submitted to AD Mines, Tiruppur.
8	The committee shall furnish the Emergency Management plan within the cluster.	Agreed. After forming CMC, the committee will furnish the Emergency Management plan to AD Mines, Tiruppur.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

9	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.	Occupational safety and Health care of the workers are included in Chapter 4 in the EIA report. Refer pages 173 to 174.
10	The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.	Agreed. After forming CMC, the committee will furnish the action plan to achieve sustainable development goals with reference to water, sanitation & safety to AD Mines, Tiruppur.
11	The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.	Agreed. After forming CMC, the committee will furnish fire safety and evacuation plan to AD Mines, Tiruppur.
Impact study of mining		
12	<p>Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following.</p> <ol style="list-style-type: none"> a) Soil health & soil biological, physical land chemical features. b) Climate change leading to Droughts, Floods etc. c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people. d) Possibilities of water contamination and impact on aquatic ecosystem health. e) Agriculture, Forestry & Traditional practices. f) Hydrothermal/Geothermal effect due to destruction in the Environment. g) Bio-geochemical processes and its foot prints including environmental stress. h) Sediment geochemistry in the surface streams. 	Impact on Soil Health, biodiversity, carbon emission and impact on water environment including aquatic ecosystem and on agricultural environment are discussed in detail in Chapter 4.
Agriculture & Agro-Biodiversity		
13	Impact on surrounding agricultural fields around the proposed mining Area.	The impact on surrounding agricultural fields is given in chapter 4.
14	Impact on soil flora & vegetation around the project site.	The impact on ecology and biodiversity including soil flora and vegetation around the project site is mentioned in chapter 4. Refer pages 163 to 170.
15	Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the	As it is existing rough stone quarry there is no trees or plants in quarry area. However, PP planted Neem trees along the boundary of mining lease area. There are only few numbers of Neem trees,

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

	boundary of the proposed mining area shall committed mentioned in EMP.	coconut trees, palm trees, <i>Prosopis juliflora</i> are found within 500m radius buffer zone. It will not be disturbed during quarrying activity.
16	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	The impact on ecology and biodiversity including the soil micro flora, fauna and soil seed banks around the project site is mentioned in chapter 4. Refer pages 163 to 170.
17	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	At the end of mining, the quarried-out pit will be used as water storage pond which improves the agricultural activity in the buffer zone. The afforestation plan for five years is given in chapter 4. Refer table 4.30 in page 171.
18	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.	Anticipated impact on Agriculture, Horticulture and livestock is given chapter 4. Refer clause 4.14 in page 175.
	Forests	
19	The project proponent shall detail study on impact of mining on Reserve forests free ranging wildlife.	There is No reserve forests located within 10km radius of the project site. There are no wildlife sanctuaries within 10km radius. Refer table 2.2 in page 16 of chapter 2.
20	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	There is no endangered species found within 10km radius study area.
21	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	As it is existing rough stone quarry, no trees and shrubs are present in the quarry area.
22	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	There are no protected areas, National Parks, Corridors and Wildlife pathways within 10km radius of the project site. There is no reserve forest located within 10km radius. The impact on reserve forest is given in Chapter 4.
	Water Environment	
23	Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard	The hydro geology study has been conducted within the study area of project site. Refer pages 95 to 101 in chapter 3. The details of water bodies in the study area are given chapter 2. Refer page 16 and 17. The depth of water table identified by Geo resistivity survey is 57m bgl whereas the proposed depth of mining is 44m bgl. Therefore, the mining activity will not intersect ground water table.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: *V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District*

	may be provided, covering the entire mine lease period.	
24	Erosion Control measures.	To control the erosion, the tree sapling will be planted along the mining lease boundary. Garland drainage will be developed around the dump to control the washout of dump due to hydrostatic pressure.
25	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.	The impact of mining on the nearby villages and water bodies are given detail in chapter 4.
26	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	The detailed study of impact on fish habitation and food WEB/ food chain in the water body and reservoir is given in chapter 4. Refer table 4.29 in pages 166 to 170.
27	The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.	The detailed impact studies are given in Chapter 4.
28	The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.	The study and the impact on aquatic plants and animals in water bodies are mentioned in Chapter 4. There are no caves, heritage site, and archaeological site found within 10km radius of project site.
29	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.	The impact study on soil health and erosion is given in clause 4.7 in chapter 4. Refer page 162. The soil physical, chemical components and microbial components are given in Chapter 3.
30	The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.	The impact study on surface water bodies and agricultural land is given in chapter 4.
	Energy Climate Change	
31	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.	The carbon emission due to proposed mining activity and its mitigation measures are given in Chapter 4. Refer in page 147.
32	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.	The carbon emission due to proposed mining activity and its mitigation measures are given in Chapter 4. Refer in page 147.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT*Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District*

	Mine Closure Plan EMP	
33	Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.	Detailed Environmental management plan is given in chapter 10. Refer page 194.
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.	The Environmental management plan is given chapter 10. The cost for green belt development is mentioned in table 10.2 in chapter 10. Refer page 199. Budget for mine closure plan is given in table 10.3 in page 199 of chapter 10. The disaster management plan is given in chapter 7. Refer page 182.
	Risk Assessment Disaster Management Plan Others	
35	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.,	The letter regarding approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake, pond, tank within 300m radius has been obtained from VAO. Refer Annexure - VIII
36	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.	The final EIA Report prepared part of the Environment Management Plan.
37	The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.	The study on pollution due to plastic and micro plastic and its ecological risk is mentioned in chapter 7. Refer clause 7.5 in page 187.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

2. Mining Conditions - Site Specific

S. No	Terms of Reference	Compliance
1	The project proponent shall furnish Certified Compliance Report (CCR) obtained from IRO (SZ), MoEF&CC and with mitigation measures along with the budgetary allocation for the noncompliance stated therein.	CCR Under Preparation. The Certified Compliance Report (CCR) hand over to SEAC Meeting.
2	Land document to be registered.	Consent registration to the land. Refer Annexure-XI
3	For the safety of the persons employed in the quarry, the PP shall carry out the scientific studies to assess the slope stability of the working benches and existing quarry wall during the EIA study, 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 for evaluating the slope stability measures and monitoring system in the proposed quarrying operation in accordance with the provisions of MMR 1961 & DGMS Circulars and the same shall be submitted along with EIA Report.	Slope stability study under preparation and incorporated in final EIA Report.
4	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., and the same shall be submitted along with EIA Report.	The details of nearest habitation are given in table 2.2 in chapter 2. Refer page 16.
5	The proponent shall furnish the details on the schools (both Govt. & Private schools), industries, factories and other sensitive structures including temples located within 1 km from the quarry site, and detail the impact of mining activities & mitigation measures for protecting these structures.	There is no any Govt. or Private schools, industries, factories and other sensitive structures including temples in and around 1km from the quarry.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

6	No. of Govt/Pvt. Schools (or) any other Educational Institutions located within 500m from the proposed area & no. of students (including Residential) studying in it.	There is no any Govt/ Private schools and other Educational Institutions in and around 500m from the quarry.
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3. SEAC Standard Conditions

S. No	Terms of Reference	Compliance
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.	It is under process. Once the PP obtained letter from AD/DD Geology and Mining Department, Tiruppur District it will be submitted to SEA/SEIAA.
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.	Yes, The Latest habitations detail VAO certificate enclose in Annexure-VIII
3	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 hydro geology study has been conducted within the study area of project site. Refer pages 95-101 in chapter 3. The details of water bodies in the study area are given chapter 2. Refer table 2.2 in page 16.
4	The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.	The baseline study on Ecology and Biodiversity are given detail in chapter 3. Refer clause 3.12 in page 102. The impact on Ecology and Biodiversity are given in chapter 4. Refer clause 4.10 in page 163.
5	The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries,	Not applicable. The mining area does not involve any forest land. Refer table 2.2 in page 16 and 17.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

	Tiger reserve etc., up to a radius of 25 km from the proposed site.	
6	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.	The action plan for realignment of bench signed by Asst. Director of Geology and Mining will be attached in the final EIA report.
7	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.	This is existing quarry.
8	The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.	Agreed. The affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961.
9	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.	As it is rough stone quarry, blasting will be carried out to remove blocks from the parent rock by forming crack. Adequate Blast shield or blast mats will be provided wherever necessary for fly rock protection during blasting, thus to prevent the accident on the nearest farms.
10	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.	The drone survey will be conducted for this project. The video and photographs handover to SEIAA Meeting.
11	If the proponent has already carried out the mining activity in the proposed mining lease area after	Under Process.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT*Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District*

	15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,	
12	What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	The mining activity was stopped before date. The period of earlier mining is 2018-2022.
13	Quantity of minerals mined out. <ul style="list-style-type: none"> ❖ 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. 	- Approved depth – 44m bgl Actual depth – 35m bgl Thiru.V.Gangesan (No proponent name changed) Yes, Refer Annexure-XII Yes, Mining activity has been carried out as per approved mining plan.
14	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).	The Toposheet showing location of the lease area is attached in Chapter 1. Refer 1.2 in Page No.5. The geology and geomorphology of the 10km radius of proposed area is given in chapter 2. Refer fig 2.1 in page 27. The land use/land cover image is given chapter 3. Refer page 80.
15	The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,	The drone video, fencing and green belt development along the periphery is under process. The photographs will be attached in final EIA Report.
16	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.	The fencing and green belt development along the periphery is under process. The photographs will be attached in final EIA Report.
17	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 details of reserves, production capacity and methodology are given in chapter – 2. Refer page 35. The impacts on surrounding environment due to mining activity are given in chapter 4.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: *V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District*

18	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.	The employment potential of proposed project is given in chapter 2. Refer page 48.
19	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.	<p>The hydro geology study has been conducted within the study area of project site. Refer in Chapter 3. The details of water bodies in the study area are given chapter 2. Refer page 16 and 17.</p> <p>The depth of water table identified by Geo resistivity survey is 57m bgl whereas the proposed depth of mining is 44m bgl. Therefore, the mining activity will not intersect ground water table.</p>
20	The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.	The baseline data for the environmental and ecological parameters were collected. Refer chapter 3. Refer pages 51 to 79.
21	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.	The anticipated cumulative impact on various environments such as air, water, soil and noise etc., due to proposed mining activity are given in chapter 4 with appropriate mitigation measures. The environmental management plan is given in chapter- 10.
22	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	The studies on rain water harvesting is given in chapter 7. Refer pages 185 to 186.
23	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	The land use/land covers of 10km radius of proposed mining lease area are given in chapter 3. Refer fig 3.16 in page 84.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT*Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District*

	preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	
24	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. All waste and rejects shall be dumped within the lease area of 1.81.0 Ha of Thiru.V.Gangesan.
25	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. There is no boundary of critically polluted area found within 10km radius proposed mining lease area.
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.	At the end of mining, the quarried-out pit will be used for storing rain water which will enhance agricultural activity around the lease area. The rain harvesting plan is given detail in chapter 7. Refer pages 185 to 186.
27	Impact on local transport infrastructure due to the Project should be indicated.	No. The existing roads are available to withstand the traffic generated due to proposed project. Refer fig 2.5 in page 18 of chapter 2.
28	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.	Only trees such as Neem trees, coconut trees, palm trees, Pungamin tree, Guava tree, Teak tree are found within 500m radius.
29	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	The mine closure plan for the proposed project is included in the EIA report. Refer fig 2.20 of chapter 2.
30	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.	Agreed. The EIA coordinator will educate the local students on the importance of preserving local flora and fauna.
31	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	Agreed. In consultation with the DFO, State Agriculture University, the green belt will be made around the boundary of lease area to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: *V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District*

	chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.	
32	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	Agreed. Taller/one year old Saplings will be planted as per the advice of local forest authorities/botanist/ Horticulturist with regard to site specific choices.
33	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.	The Disaster management Plan has been prepared and included in the EIA report of chapter 7. Refer page 182.
34	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 management Plan has been prepared and included in the EIA report. Refer clause 7.2 in page 182 of Chapter 7.
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.	An occupational Health impact of the Project has been anticipated and the appropriate mitigation measures are given in Chapter 4 of EIA report. Refer page 174.
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.	Yes, it is given in EIA report in chapter -4.
37	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.	The study on Socio-economic for the proposed project is mentioned in clause 3.13 of chapter 3. Refer pages 117 to 133 of EIA report.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

38	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	Not applicable.
39	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.	The benefits of the proposed project are given detail in chapter 8. Refer pages 188-191.
40	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.	Under Process.
41	The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	The EMP for the proposed project is mentioned in Chapter 10 along with EMP cost. The affidavit stating to abide the EMP for the entire life of mine will be attached in the EIA report.
42	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.

4. Standard Terms of Reference for (Mining of minerals)

S. No	Terms of Reference	COMPLIANCE
1	An EIA-EMP Report shall be prepared for peak capacity (.....MTPA)operation in an ML/project area of.....ha based on the generic structure specified in Appendix III of the EIA Notification, 2006.	Agreed. The EIA/EMP report have been prepared for peak capacity (0.129 MTPA) operation in mining plan under 1.81.0 ha.
2	An EIA-EMP Report would be prepared for peak capacity operation to cover the impacts and environment management plan for the project specific activities on the environment of the region, and the environmental quality encompassing air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts including prediction modeling for..... MTPA of mineral production based on approved project/Mining Plan for.....MTPA.	The EIA/EMP report have been prepared for peak capacity (0.129 MTPA) operation in mining plan under 1.81.0 ha. Monitoring data for a period of three months (December 2022– February 2023) on Air quality, Water quality, Noise level, Soil, Flora and Fauna in the core and buffer zones is collected and complied data wise in the EIA report in Chapter 3.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: *V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District*

	Baseline data collection can be for any season (three months) except monsoon.	
3	Proper KML file with pin drop and coordinate of mine at 500-1000 m interval be provided	The KML file with pin drop and coordinate of mine at 500 to 1000 m interval have been provided in page 7 in chapter 1.
4	A Study area map of the core zone (project area) and 10 km area of the buffer zone (1: 50,000 scale) clearly delineating the major topographical features such as the land use, surface drainage pattern including rivers/streams/nullahs/canals, locations of human habitations, major constructions including railways, roads, pipelines, major industries, mines, and other polluting sources. In case of ecologically sensitive areas such as Biosphere Reserves/National Parks/WL Sanctuaries/ Elephant Reserves, forests (Reserved/Protected), migratory corridors of fauna, and areas where endangered fauna and plants of medicinal and economic importance found in the 15 km study area should be given. The above details to be furnished in tabular form also	Survey of India Toposheet No. 58E/4 in 1:50,000 scale indicating physical features of geological map of the area, geomorphology of land forms of the area, existing minerals and quarrying history of the area, important water bodies, streams and rivers and soil characteristics is given in figs 1.1, 1.2, 3.18, 3.20, 3.21 and Refer pages 5, 6, 87, 91 and 92 respectively.
5	Map showing the core zone delineating the agricultural land (irrigated and un-irrigated, uncultivable land as defined in the revenue records, forest areas (as per records), along with other physical features such as water bodies, etc., should be furnished.	Land use of the study area, parks, migratory routes of fauna, water bodies, human settlements, other existing mines/ industrial activity and other ecological features are shown in delineating forest area, agricultural land, grazing land, wildlife sanctuary and national parks. Refer page 84 in chapter 3. Land use plan of the mine lease area is given in page 31 of table 2.8.
6	A contour map showing the area drainage of the core zone and 25 km of the study area (where the water courses of the core zone ultimately join the major rivers/streams outside the lease/project area) should also be clearly indicated in the separate map.	The details of contour map showing the area drainage of the core zone and 25 km are given in chapter 3, Refer page 90.
7	Catchment area with its drainage map of 25 km area within and outside the mine shall be provided with names, details of rivers/ river let system and its respective order. The map should clearly indicate drainage pattern of the catchment area with basin of major rivers. Diversion of drains/	The catchment area details mentioned in chapter 3. Refer page 87.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

	river need elaboration in form of long the, quantity and quality of water to be diverted.	
8	Details of mineral reserves, geological status of the study area and the seams to be worked, ultimate working depth and progressive stage-wise working scheme until the end of mine life should be provided on the basis of the approved rated capacity and calendar plans of production from the approved Mining Plan. Geological maps and sections should be included. The Progressive mine development and Conceptual Final Mine Closure Plan should also be shown in figures. Details of mine plan and mine closure plan approval of Competent Authority should be furnished for green field and expansion projects.	<p>The Details of mineral reserves, geological status of the study area and ultimate working depth and progressive stage-wise working scheme until the end of mine life have been provided on the basis of the approved rated capacity and calendar plans of production from the approved Mining Plan in chapter 2. Refer Pages 32 to 47.</p> <p>The Progressive mine development and Conceptual Final Mine Closure Plan have also been shown in figs 2.15 to 2.19 and 2.20 in chapter 2.</p>
9	Details of mining methods, technology, equipment to be used, etc., rationale for selection of specified technology and equipment proposed to be used vis-à-vis the potential impacts should be provided.	The details of mining methods, technology and equipment have been mentioned in chapter 2. Refer pages 28 to 30.
10	Impact of mining on hydrology, modification of natural drainage, diversion and channeling of the existing rivers/water courses flowing through the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.	There is no modification of natural drainage and existing rivers/water courses flowing through the Mining Lease area.
11	A detailed Site plan of the mine showing the proposed break-up of the land for mining operations such as the quarry area, OB dumps, green belt, safety zone, buildings, infrastructure, Stockyard, township/colony (within and adjacent to the ML), undisturbed area -if any, and landscape features such as existing roads, drains/natural water bodies to be left undisturbed along with any natural drainage adjoining the lease /project areas, and modification of thereof in terms of construction of embankments/bunds, proposed diversion/re-channeling of the water courses, etc., approach roads, major haul roads, etc., should be indicated.	The details of land use pattern given chapter 2. Refer page 31.
12	Original land use (agricultural land/forest land/grazing land/waste land/water bodies) of the area should be provided as per the tables given below. Impacts of project, if any on the land use, in particular, agricultural land/forest land/grazing	<p>Area under Surface Area Under Mining Rights(ha)</p> <ol style="list-style-type: none">1. Agricultural land - Nil2. Forest Land - Nil3. Grazing Land - Nil

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

	<p>land/water bodies falling within the lease/project and acquired for mining operations should be analyzed. Extent of area under surface rights and under mining rights should be specified. Area under Surface Rights.</p> <p>Area under Surface Area Under Mining Rights(ha)</p> <p>S.N ML/Project Land use Rights(ha) (ha)</p> <p>Area under Both (ha)</p> <ol style="list-style-type: none"> 1. Agricultural land 2. Forest Land 3. Grazing Land 4. Settlements 5. Others (specify) <p>S.N. Details Area (ha)</p> <ol style="list-style-type: none"> 1 Buildings 2 Infrastructure 3 Roads 4 Others (specify) <p>Total</p>	<ol style="list-style-type: none"> 4. Settlements - Nil 5. Others (specify) – 1.81.0 ha (Non-Agricultural land) <p>S.N. Details Area (ha)</p> <ol style="list-style-type: none"> 1 Buildings - 0.00.80 ha 2 Infrastructure - Nil 3 Roads - 0.01.50 ha 4 Others (specify) - 0.44.55 ha
13	<p>Study on the existing flora and fauna in the study area (10km) should be carried out by an institution of relevant discipline. The list of flora and fauna duly authenticated separately for the core and study area and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna should be given. If the study area has endangered flora and fauna, or if the area is occasionally visited or used as a habitat by Schedule-I species, or if the project falls within 15 km of an ecologically sensitive area, or used as a migratory corridor then a Comprehensive Conservation Plan along with the appropriate budgetary provision should be prepared and submitted with EIA-EMP Report; and comments/observation from the CWLW of the State Govt. should also be obtained and furnished.</p>	<p>Details of Flora and Fauna found in the study area are given in chapter 3 in the EIA Report. Refer page 103-117. No scheduled list of fauna is found in this study area.</p>
14	<p>One-season (other than monsoon) primary baseline data on environmental quality - air (PM₁₀, PM_{2.5}, SO_x, NO_x and heavy metals such as Hg, Pb, Cr, As, etc), noise, water (surface and groundwater), soil - along with one-season met data coinciding</p>	<p>Monitoring data for a period of three months (December 2022– February 2023) on Air quality, Water quality, Noise level, Soil, Flora and Fauna in the core and buffer zones is collected and compiled data wise in the EIA report in Chapter 3.</p>

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

	with the same season for AAQ collection period should be provided. The detail of NABL/MoEF&CC certification of the respective laboratory and NABET accreditation of the consultant to be provided.	
15	Map (1: 50, 000 scale) of the study area (core and buffer zone) showing the location of various sampling stations superimposed with location of habitats, other industries/mines, polluting sources, should be provided. The number and location of the sampling stations in both core and buffer zones should be selected on the basis of size of lease/project area, the proposed impacts in the downwind (air)/downstream (surface water)/groundwater regime (based on flow). One station should be in the upwind/upstream/non-impact/non-polluting area as a control station. The monitoring should be as per CPCB guidelines and parameters for water testing for both ground water and surface water as per ISI standards and CPCB classification wherever applicable. Observed values should be provided along with the specified standards.	The baseline study area (core and buffer zone) such as Air, Water, Noise and Soil samples were collected and tested as per CPCB guidelines mentation in chapter 3. Refer page 55 to 79.
16	For proper baseline air quality assessment, Wind rose pattern in the area should be reviewed and accordingly, location of AAMSQ shall be planned by the collection of air quality data by adequate monitoring stations in the downwind areas. Monitoring location for collecting baseline data should cover overall the 10 km buffer zone i.e. dispersed in 10 km buffer area. In case of expansion, the displayed data of CAAQMS and its comparison with the monitoring data to be provided	Air quality modeling carried out for prediction of impact of the project on the air quality of the area, which is included in chapter 4. Refer clause 4.1 of pages 134-147. Wind Rose Pattern is shown in fig. 3.1, refer page 53 of Chapter 3.
17	A detailed traffic study along with presence of habitation in 100 mts distance from both side of road, the impact on the air quality with its proper measures and plan of action with timeline for widening of road. The project will increase the no. of vehicle along the road which will indirectly contribute to carbon emission so what will be the compensatory action plan should be clearly spell out in EIA/ EMP report.	The details of traffic study there is no any habitation with in 100m distance from the both side of road in the quarry area mentioned in chapter -2. Refer page 18. The proper mitigation measures will take the project proponent refer chapter 4.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

18	The socio-economic study to be conducted with actual survey report and a comparative assessment to be provided from the census data should be provided in EIA/ EMP report also occupational status & economic status of the study area and what economically project will contribute should be clearly mentioned. The study should also include the status of infrastructural facilities and amenities present in the study area and a comparative assessment with census data to be provided and to link it with the initialization and quantification of need based survey for CSR activities to be followed.	The study on Socio-economic for the proposed project is mentioned in clause 3.13 of chapter 3. Refer page 117 of EIA report.
19	The Ecology and biodiversity study should also indicate the likely impact of change in forest area for surface infrastructural development or mining activity in relation to the climate change of that area and what will be the compensatory measure to be adopted by PP to minimize the impact of forest diversion.	The impact on ecology and biodiversity including soil flora & vegetation around the project site is mentioned in chapter 4. Refer page 163 to 170.
20	Baseline data on the health of the population in the impact zone and measures for occupational health and safety of the personnel and manpower for the mine should be submitted.	Yes, it is given in EIA report. Refer clause 4.13 in page 173 of EIA report.
21	Impact of proposed project/activity on hydrological regime of the area shall be assessed and report be submitted. Hydrological studies as per GEC 2015 guidelines to be prepared and submitted	The hydro geology study has been conducted within the study area of project site. Refer page 95-101 in Chapter 3. The details of water bodies in the study area are given chapter 2. Refer table 2.2 in page 16 and 17.
22	Impact of mining and water abstraction from the mine on the hydrogeology and groundwater regime within the core zone and 10 km buffer zone including long-term monitoring measures should be provided. Details of rainwater harvesting and measures for recharge of groundwater should be reflected in case there is a declining trend of groundwater availability and/or if the area falls within dark/grey zone.	The hydro geology study has been conducted within the study area of project site. Refer page 95-101 in Chapter 3. The studies on rain water harvesting is given in chapter 7. Refer page 185 to 186.
23	Study on land subsidence including modelling for prediction, mitigation/prevention of subsidence, continuous monitoring measures, and safety issues should be carried out.	Quarry Safety pertaining to the failure of pit slope in open cast quarrying is described in table 7.1, page 182. Safety for blasting is given under table 10.1 in page 194.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: *V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District*

		General safeguard measures are given in Chapter 4.
24	Detailed water balance should be provided. The breakup of water requirement as per different activities in the mining operations, including use of water for sand stowing should be given separately. Source of water for use in mine, sanction of the Competent Authority in the State Govt. and impacts vis-à-vis the competing users should be provided.	The water requirement for the project is 5.0 KLD; the details are given in chapter 2 in page 48. A detailed water balance is shown in fig 4.4 of chapter 4. Refer page 156.
25	PP shall submit design details of all Air Pollution control equipment (APCEs) to be implemented as part of Environment Management Plan vis-à-vis reduction in concentration of emission for each APCEs.	The project proponent will be submitting design details of all Air Pollution control equipment (APCEs) to be implemented as part of Environment Management Plan.
26	PP shall propose to use LNG/CNG based mining machineries and trucks for mining operation and transportation of mineral. The measures adopted to conserve energy or use of renewable sources shall be explored.	Agreed. The project proponent will be proposed LNG/CNG based mining machineries and trucks for mining operation and transportation of mineral.
27	PP to evaluate the greenhouse emission gases from the mine operation and corresponding carbon absorption plan.	Agreed. the project proponent evaluates greenhouse gas emissions as a consequence of mining operations mentation in chapter 4 and its mitigation measures are given in chapter 4. Refer clause 4.2 in page 146 to 147.
28	Site specific Impact assessment with its mitigation measures, Risk Assessment and Disaster Preparedness and Management Plan should be provided.	A detailed Risk and Disaster Management Plan has been prepared and detailed in chapter 7. Refer pages 182 to 183.
29	Impact of choice of mining method, technology, selected use of machinery and impact on air quality, mineral transportation, handling & storage/stockyard, etc, Impact of blasting, noise and vibrations should be provided.	The detailed impact studies are given in Chapter 4.
30	Impacts of mineral transportation within the mining area and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions should be provided. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop etc., management plan for maintenance of HEMM and other machinery/equipment should be given. Details of	The detailed of impact of mineral transportation handling, transfer of mineral and waste on air quality will be mentation chapter 4. Refer pages 133 to 147.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

	various facilities such as rest areas and canteen for workers and effluents/pollution load emanating from these activities should also be provided.	
31	Details of various facilities to be provided to the workers in terms of parking, rest areas and canteen, and effluents/pollution load resulting from these activities should also be given.	Thesis is rough stone quarry could not construct any permanent structures like canteen, rest areas and effluents plant, we can provide temporary construction for parking, rest area and toilet facility.
32	The number and efficiency of mobile/static water jet, Fog cannon sprinkling system along the main mineral transportation road inside the mine, approach roads to the mine/stockyard/siding, and also the frequency of their use in impacting air quality should be provided.	The project proponent own tractor mounted water sprinkler is available.
33	Conceptual Final Mine Closure Plan and post mining land use and restoration of land/habitat to the pre- mining status should be provided. A Plan for the ecological restoration of the mined-out area and post mining land use should be prepared with detailed cost provisions. Impact and management of wastes and issues of re-handling (wherever applicable) and backfilling and progressive mine closure and reclamation should be furnished.	Conceptual mining plan is given in chapter 2. Refer fig 2.20 in page 45.
34	Adequate greenbelt nearby areas, mineral stock yard and transportation area of mineral shall be provided with details of species selected and survival rate Greenbelt development should be undertaken particularly around the transport route.	Phase-wise plan of plantation and Compensatory Afforestation and the plant species selected for green belt. The proposed afforestation plan is given in table 4.30 of chapter 4. Refer page 171.
35	Cost of EMP (capital and recurring) should be included in the project cost and for progressive and final mine closure plan.	The details of Environmental Management Plan including project cost and progressive mine closure plan mentation in chapter 2. Refer page 49.
36	Details of R&R. Detailed project specific R&R Plan with data on the existing socio- economic status of the population (including tribals, SC/ST, BPL families) found in the study area and broad plan for resettlement of the displaced population, site for the resettlement colony, alternate livelihood concerns/employment for the displaced people, civic and housing amenities being offered, etc and costs along with the schedule of the implementation of the R&R Plan should be given.	The existing rough stone quarry project does not involve any kind of displacement of the population since the mining will be concentrated only in the quarry area. Hence, Rehabilitation of settlement is not anticipated under this project as it is not required in chapter 7. Refer clause 7.3 of page 185. The Socio-Economic study detailed in included in clause 3.13 of chapter 3. Refer page 117-133.
37	CSR Plan along with details of villages and specific budgetary provisions (capital and recurring) for	CSR activities 2.5% of the project's profits was allocated to the improvement of the Kodangipalayam village grama panchayat,

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT*Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District*

	specific activities over the life of the project should be given.	including the construction of a road, solar lights, water purifiers, and street lights.
38	Corporate Environment Responsibility:	
39	a) The Company must have a well laid down Environment Policy approved by the Board of Directors.	Agreed.
40	b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.	Agreed.
41	c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.	Agreed.
42	d) To have proper checks and balances, the company should have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.	Agreed.
43	e) Environment Management Cell and its responsibilities to be clearly spell out in EIA/ EMP report.	The Environmental Management Cell have mentation in the EIA/EMP report.
44	f) In built mechanism of self-monitoring of compliance of environmental regulations should be indicated.	Yes, self-monitoring of Environmental compliance regulations will be indicated.
45	Status of any litigations/ court cases filed/pending on the project should be provided.	There are no any litigations/ court cases filed/pending in this project.
46	PP shall submit clarification from DFO that mine does not fall under corridors of any National Park and Wildlife Sanctuary with certified map showing distance of nearest sanctuary.	Under Process.
47	Copy of clearances/approvals such as Forestry clearances, Mining Plan Approval, mine closer plan approval. NOC from Flood and Irrigation Dept. (if req.), etc. wherever applicable.	The copy of the approved mining plan enclosed in Annexure - X
48	Details on the Forest Clearance should be given as per the format given: Total ML Total Project Area Forest (ha) land (ha) Date of FC	Not applicable. The mining area does not involve any forest land. Refer table 2.2 in page 16 and 17.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT*Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District*

	<p>Extent of Forest Land Balance area for which FC is yet to be obtained Status of appl For diversion of forest land If more than one provide details of each FC</p>	
49	<p>In case of expansion of the proposal, the status of the work done as per mining plan and approved mine closure plan shall be detailed in EIA/ EMP report.</p>	<p>This is existing quarry; the details of mining plan and approved mine closure plan have been mentation in EIA/EMP report. Refer page 47 in chapter 2.</p>
50	<p>Details on Public Hearing should cover the information relating to notices issued in the newspaper, proceedings/minutes of Public Hearing, the points raised by the general public and commitments made by the proponent and the time bound action proposed with budgets in suitable time frame. These details should be presented in a tabular form. If the Public Hearing is in the regional language, an authenticated English Translation of the same should be provided.</p>	<p>The details of Public Hearing information such as newspaper, proceedings/minutes of Public Hearing and photos will be placed in final EIA report.</p>
51	<p>PP shall carry out survey through drone highlighting the ground reality for at least 10 minutes</p>	<p>The project proponent will carry out drone survey in final EIA report.</p>
52	<p>Detailed Chronology of the project starting from the first lease deed allotted/Block allotment/ Land acquired to its No. of renewals, CTO /CTE with details of no. renewals, previous EC(s) granted details and its compliance details, NOC details from various Govt bodies like Forest NOC(s), CGWA permissions, Power permissions, etc as per the requisites respectively to be furnished in tabular form.</p>	<p>The project proponent earlier obtained EC from DEIAA, Tiruppur. Lr. No: DEIAA-TPR/F.No: 601/3(v)/2017 dated: 08.03.2018. Refer Annexure- XII</p>
53	<p>The first page of the EIA/ EMP report must mention the peak capacity production, area, detail of PP, Consultant (NABET accreditation) and Laboratory (NABL / MoEF&CC certification)</p>	<p>Agreed. The production capacity, area and detail of project proponent mentation in first page of EIA/EMP report. The Baseline Monitoring Report with all analytical reports done by a MoEF&CC/NABL accredited laboratory is enclosed with the EIA Report.</p>
54	<p>The compliances of ToR must be properly cited with respective chapter section and page no in tabular form and also mention sequence of the respective ToR complied within the EIA-EMP report in all the chapter, s section.</p>	<p>Yes, all documents are properly referenced with index and continuous page numbering.</p>

CHAPTER – 1: INTRODUCTION

1.1 PURPOSE OF THE REPORT

The Applicant, Thiru.V.Gangesan S/o Thiru. K.S.Velusamy is residing at No-5/10, Mariyappa Devar Street, Sulur Taluk, Coimbatore District, and Tamil Nadu-641402. The State Government has granted mining lease over an extent of 1.81.0 Hectares in S.F.No: 103/3A1A, 103/3A2 and 103/3B1 Patta land of Kodangipalayam Village, Palladam Taluk, Tiruppur District, Tamil Nadu for quarrying Rough stone and gravel. The validity of lease period is 5 years (From the date of execution)

The proponent excavated 32m bgl during the duration of the mine's life in this quarry (2018 to 2023), which had been approved by the District level Impact Assessment Authority (DEIAA) at a depth of 44m bgl. In continuation, the Assistant Director, Department of Geology and Mining, Tiruppur has directed the applicant Thiru.V.Gangesan S/o Thiru. K.S.Velusamy, vide his precise area communication letter Roc. No. 48/Kanimam/2023 dated 15.09.2023 obtain Environmental clearance from the State Environment Impact Assessment Authority (SEIAA) as per the EIA Notification, 2006 and its amendments for grant of quarrying lease to rough stone and gravel quarry in Kodangipalayam Village, Palladam Taluk, Tiruppur District, Tamil Nadu for the period of 5 years (From the date of execution).

The mining plan is prepared as per the Assistant Director's Precise area communication letter, 48/Kanimam/2023 dated 15.09.2023 under Rule 41& 42 of Tamil Nadu Minor Minerals Concession Rules, 1959 for quarrying rough stone and gravel it is approved by Assistant Director, Department of Geology and Mining, Tiruppur vide letter 48/Mines/2023 dated 10.11.2023. About 100539 m³ of rough stone will be produced in five years (from the date of excavation) up to a depth of 44 m bgl, (with 12 m bgl remaining). The project cost is about Rs. 35 lakhs and EMP cost is Rs. 7.15 lakhs.

As per the cluster letter issued by Assistant Director, Department of Geology and Mining, Tiruppur vide Rc.No.48/Mines/2023, dated 05.12.2023 for Thiru. V.Gangesan (1.81.0 Ha) the lease area of above said 11 applicants comes in cluster of 500m radius. The total area of cluster is 17.36.5 Ha. The extents of lease area of all individual as per cluster letter are given below,

Existing Quarries

1. D.R. Karuppusamy	–	1.19.0 Ha
2. M. Subbathal	–	1.82.0 Ha
3. D.R. Karuppusamy	–	1.32.5 Ha
4. V.Prakash	–	0.86.0 Ha

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

Proposed Quarries

1. V.Gangesan	–	1.81.0 Ha
2. K.M. Chinnasamy	–	2.42.0 Ha
3. R. Gunasekar	–	1.69.5 Ha
4. V.Prakash	–	1.55.0 Ha
5. P. Gowtham Rathinam	–	2.00.0 Ha
6. P.Subramaniam	–	1.99.5 Ha

Abandoned Quarries

1. P.Vijayalakshmi	–	0.70.0 Ha
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As per MoEF&CC OM: F.No. L-11011/175/2018-IA-II(M), dated 12.12.2018, the EIA/EMP report has to be prepared for the cluster area based on ToR recommended by SEIAA. Therefore, the applicant applied for ToR through PARIVESH website vide online proposal no. SIA/TN/MIN/454038/2023 dated 02.12.2023. The ToR proposal was placed in 441th SEAC meeting, dt 31.01.2024 and 698th SEIAA meeting, dated 19.02.2024. Then ToR has been issued by the SEIAA vide TOR Identification No. TO23B0108TN5824253N/File No: 10592 dated 03.04.2024. The EIA report has been prepared based on the recommended Standard ToR and Specific ToR.

1.2. IDENTIFICATION OF PROJECT AND PROJECT PROPONENT

1.2.1. IDENTIFICATION OF PROJECT

The applicant, Thiru.V.Gangesan, proposed to Rough stone and gravel quarry located in S.F. No. 103/3A1A, 103/3A2 and 103/3B1 over an Extent of 1.81.0 Ha in Kodangipalayam Village, Palladam Taluk, Tiruppur District, Tamil Nadu. The Assistant Director, Department of Geology and Mining, Tiruppur District has directed the applicant, Thiru.V.Gangesan through his Precise area communication letter Roc.No.48/Mines/2023, dated 15.09.2023 to get AMP and obtain EC form SEIAA as per the EIA Notification, 2006.

1.2.2. IDENTIFICATION OF PROJECT PROPONENT

Table. 1.1 Identification of Project	
Particulars	Details
Applicant	Thiru.V.Gangesan
Lease Area	1.81.0 Hectares (Patta land)
Site Location	Kodangipalayam Village, Palladam Taluk, Tiruppur District, Tamil Nadu
Precise Area Communication	Roc.No.48/Kanimam/2023 dated 15.09.2023
Period of Lease	5 Years

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

Mining Plan Approval Details	Mining plan approved by DD, Dept of Geology and Mining, Vide Roc.No.48/Mines/2023, dated 10.11.2023
Table. 1.2 Identification of Project Proponent	
Address of the Project Proponent	Thiru.V.GANGESAN S/o.K.S.Velusamy, No-5/10, Mariyappa Devar Street, Sulur Taluk, Coimbatore District-641402 Mobile No: 9842408077
Status	Individual

Table No: 1.3 Land Particulars

State & District	Taluk	Village	S.F. No	Permissible for quarrying (Ha)	Ownership Occupancy
Tamil Nadu & Tiruppur	Palladam	Kodangipalayam	103/3A1A, 103/3A2, 103/3B1	1.81.0	Patta land
			TOTAL	1.81.0	

1.3. BRIEF DESCRIPTION OF THE PROJECT

1.3.1. Nature and Size of the Project

Open cast Mechanized mining shall be adopted to raise the production in this area and transportation of ore and waste. The excavated rough stone is used for building's basement stones and also used for crushing units and other infrastructure development work in and around the district.

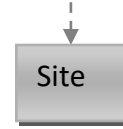
The geological resources of rough stone are estimated as 246494m³, the mineable reserves are estimated as 105830m³ and Gravel as 2116m³ by leaving the required statutory safety distance from the lease boundary as indicated in the letter issued by the Deputy Director of the Department of Geology and Mining, Tiruppur. Production Schedule is proposed as 100539m³ @ 95% of rough stone for five years and 2116m³ of Gravel for one year, up to depth of 44m. Average year wise production of rough stone is 20107m³ per annum or 67m³ per day for the 300-working day in a year by open cast mining. The above said reserves and productions are as per approved mining plan.

1.3.2. LOCATION OF THE PROJECT

The area is accessible from Tiruppur to Palladam by 17 km further travel 11km to reach Kodangipalayam then 1.5km reach the site. The village road is located on the western side for transportation materials.

Route:

Tiruppur 17 Km --> Palladam 11Km --> Kodangipalayam 1.5km



The area is represented by Survey of India Toposheet No. 58 E/4. It is given fig 1.2. The location map is given in fig 1.1. The area lies in the northern latitude of 11° 1' 19.75"N to 11° 1'25.26"N and eastern longitude of 77° 12' 2.02"E to 77°12'7.38"E.

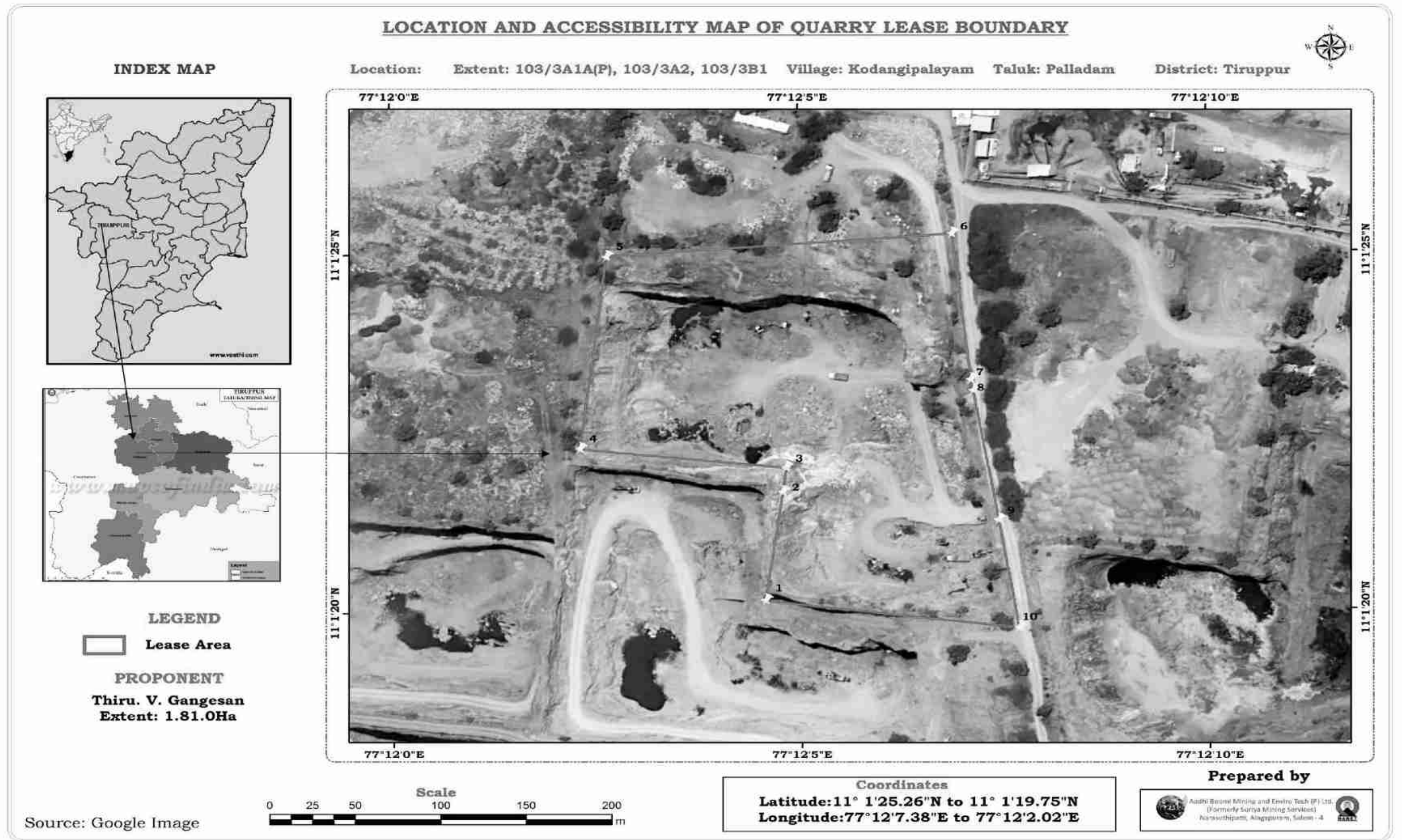


Fig.No.1.1: Showing Location and route map of Proposed quarry lease area

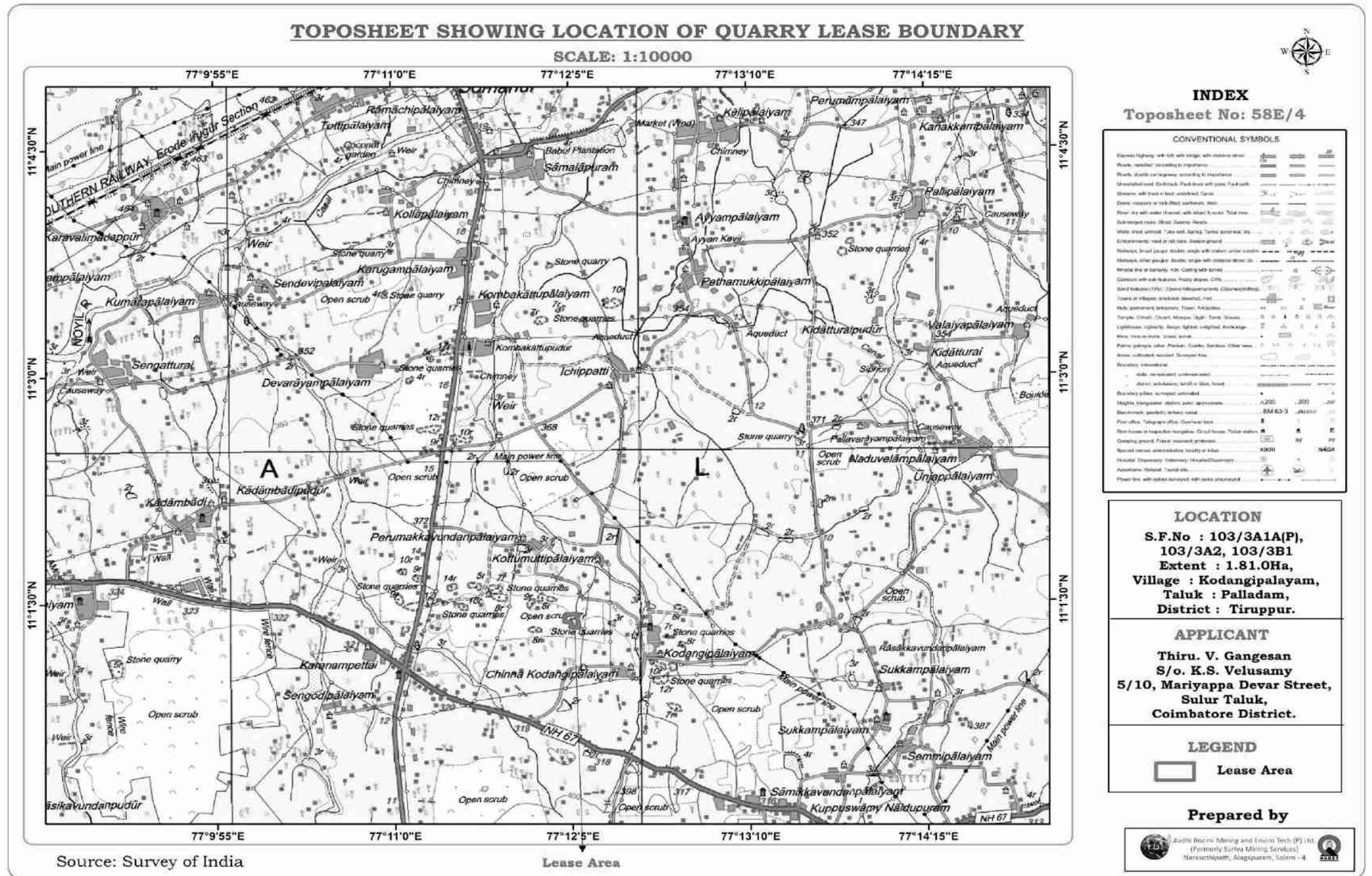


Fig.No.1.2: Toposheet showing Location of the quarry

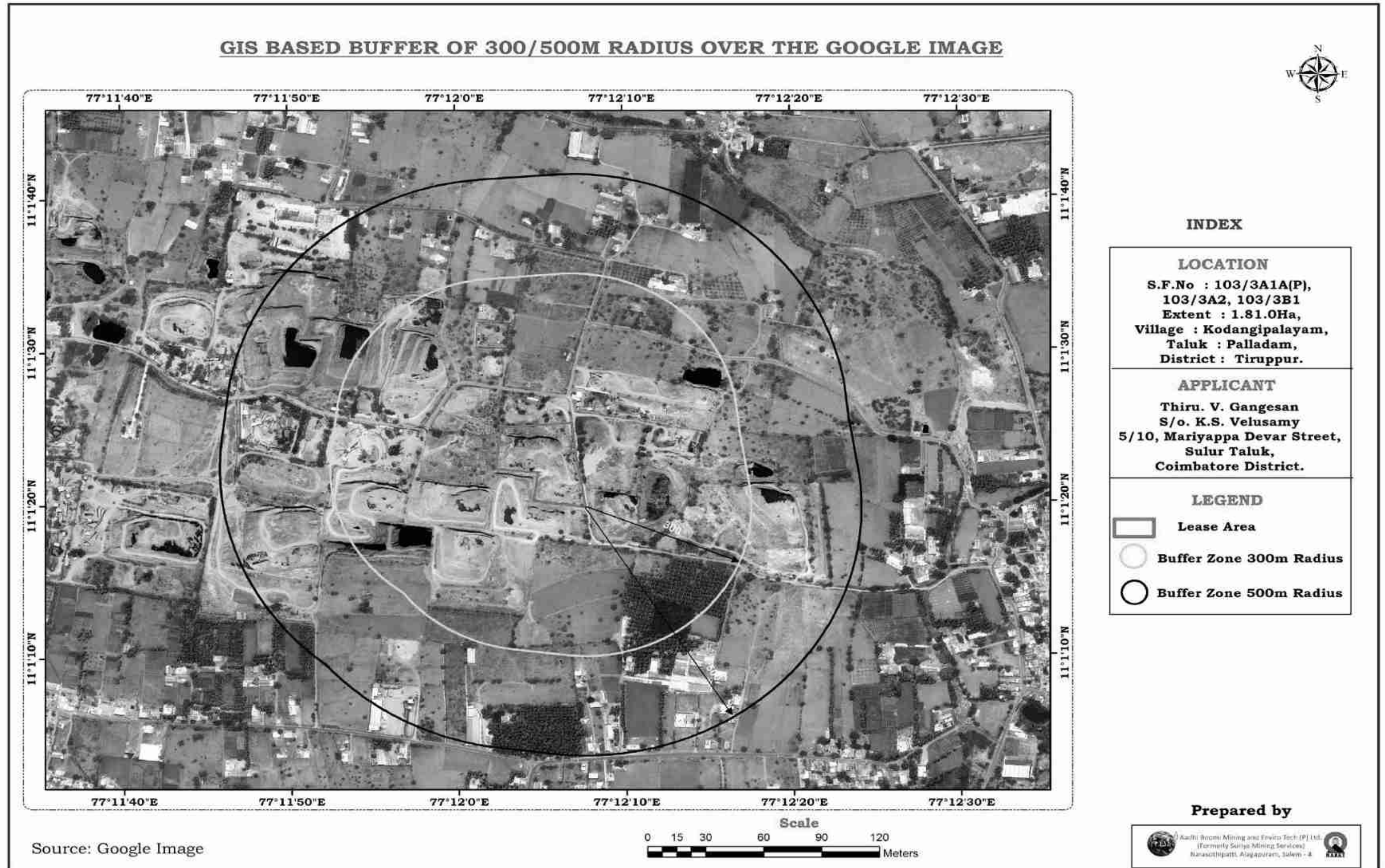


Fig.No.1.3: Google Earth Image showing 300m and 500m radius around lease area

1.4. SCOPE OF THE PROJECT

The proposal for Environment Clearance of Rough stone and gravel quarry lease of Thiru.V.Gangesan, requires Environmental Impact Assessment (EIA) study to be carried out as per Standard, Specific and additional TOR specified by the SEAC. Based on the documents furnished for TOR, the Committee observed that the project falls under the category B1(Cluster) and schedule 1(a) of the EIA Notification, 2006 as the cluster area is greater than 5 Ha and less than 250 Ha. This is primarily to ascertain the potential impacts of the mining activity on environmental components, prediction and evaluation of environmental impacts to delineate Environment Management Plan.

The EIA/EMP report also includes an independent chapter prepared by an Accredited Consultant. The collection and analysis of air, water and soil sample required for preparation of EIA report data will be done by an Environmental Laboratory duly notified under the Environment (Protection) Act, 1986, accredited by NABET/NABL.

The scope of the study includes a detailed characterization of the environment in an area of 10km radius from the quarry lease Area. The EIA covers one season baseline environmental data, as per the standard generic model given by the MoEFCC, New Delhi.

In order to assess the likely impacts arising out of this project on the surrounding environment and evaluating the quantum of likely negative impacts, if any, from this mine, the proponent has selected Aadhi Boomi Mining and Enviro Tech Pvt. Ltd., Salem as their EIA consultant for this project. ABM prepared an Environmental Impact Assessment (EIA) report and made an effective Environment management Plan (EMP) for various environmental components likely to be affected.

The scope covers all the conditions along with the specific and additional TOR prescribed by SEAC/SEIAA, Tamil Nadu vide TOR Identification No. TO23B0108TN5824253N/File No:10592 dated 03.04.2024.

1.5 METHODOLOGY OF EIA STUDY

The EIA study includes detailed baseline data generation and characterization of existing status of environment in an area of 10km radius with the project as its Centre for various environmental components viz. air, noise, water, land, geo-hydrology, Noise & Vibration, biological and socio-economic components and other parameters of interest. The envisaged scope of EIA is as follows:

- To assess the present status of air, biota, water, land, biological and socio-economic components of environment within 10km radius of study area from the project site.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

- To identify and quantify the significant positive and negative impacts due to various mining operation in various components of the environment through identification and prediction of impacts
- To identify the impact and description of the impact with quantitative and qualitative data
- To prepare a detailed Environment Management Plan for implementation of mitigate measures
- To suggest a monitoring program to evaluate the effectiveness of mitigate measures
- Post-project environmental quality monitoring program to be followed

The baseline monitoring study has been carried out during the December 2022 to February 2023 for various environmental components so as to assess the anticipated impact on the environment and suggest suitable mitigation measures for likely adverse impacts due to the project. Environmental attributes, source and frequency of monitoring are outlined in table 1.4.

Table: 1.4 Environment Attributes

S. No	Attributes	Parameters	Source and Frequency
1	Meteorology	Temperature, Wind Speed, Wind Direction, Rain fall, Relative Humidity,	Secondary sources of IMD station, Tiruppur. Hourly recorded data for the period of 3months.
2	Ambient Air Quality	PM ₁₀ , PM _{2.5} , SO ₂ and NO _x	8-hour samples twice in a week for three months at 5 locations.
3	Water Quality	Physical, Chemical and Biological parameters	Grab sampling at 3 locations once during study period.
4	Noise levels	Noise levels in dB(A)	At 5 locations data monitored once in a month for three months for 24 hours during EIA study.
5	Soil Characteristics	Physical and Chemical parameters	Once at 3 locations during study period
6	Hydrogeology	Drainage area and pattern, nature of streams, aquifer characteristics, recharge and discharge areas	Based on data collected through field investigation devices once in a study.
7	Land use	Existing land use for different categories	Based on Survey of India Toposheet and Google Earth imagery

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

8	Ecology and Biodiversity	Existing terrestrial flora and fauna within 10Km radius	Field observation and utilization of Secondary data.
9	Socio–Economic aspects	Socio–economic and demographic characteristics, worker characteristics	Based on collection of primary data through questionnaire analyses and utilization of Secondary data from census records (2001 –2011), statistical hand books, topo sheets, health records and relevant official records.
10	Risk assessment and Disaster Management Plan	Identify areas where disaster can occur by fires and explosions and release of toxic substances if any	Based on the findings of risk associated with explosives, landslides, slips and fire/explosion during blasting etc.,

The impacts of the project activities on environmental components can be quantified through EIA Studies within the impact zone of the project activities. The results of EIA studies form the basis for the preparation of a viable EMP for mitigation of the adverse impacts.

CHAPTER – 2: PROJECT DESCRIPTION

2.1. NEED FOR THE PROJECT

The applicant Thiru.V.Gangesan, residing at No-5/10, Mariyappa Devar Street, Sulur Taluk, Coimbatore District, and Tamil Nadu has applied for quarry lease Rough stone and gravel quarry in a consent patta land over an area of 1.81.0 hectares, located in S.F.No: 103/3A1A, 103/3A2 and 103/3B1 Patta land of Kodangipalayam Village, Palladam Taluk and Tiruppur District, Tamil Nadu.

The mining plan was approved by Assistant Director, Department of Geology and Mining, Tiruppur vide letter Rc.No.48/Mines/2023, dated 10.11.2023. The proposed rate of production of Rough Stone is about 100539m³ up to the depth of 44m bgl.

Rough stone is one of the important materials for the building construction. The rough stone is used as both as coarse aggregate and fine aggregate after the proper sizing of stone. The coarse and fine aggregate are essential for preparing concrete which is used in foundation, beam, column, roof slab work of the buildings. The infrastructure is the sign of development of nation. So, it is very need to excavate the rough stone for economic and infrastructure development of our Nation.

2.2 DEMAND – SUPPLY GAP

The coarse and fine aggregate are the basic raw material for the building construction and the road formation. It takes place in all villages, towns, cities and metropolitan cities. There is great demand in availability of rough stone. So, it is necessary to fulfill the demand by starting the proposed rough stone quarry.

2.3 LOCATION

The area is represented by Survey of India Toposheet No. 58 E/4. The lease boundary with Geo Co-ordinates is shown in fig 2.1. The area lies in the northern latitude of 11° 1' 19.75"N to 11° 1'25.26"N and eastern longitude of 77°12' 2.02"E to 77°12'7.38"E. Latitude and Longitude of all boundary Pillars are given below,

Table No-2.1 Co-ordinates of Quarry lease Boundary Pillars

Pillar Id	Latitude (N)	Longitude (E)
1	11° 1'20.15"N	77°12'4.28"E
2	11° 1'21.66"N	77°12'4.50"E
3	11° 1'22.00"N	77°12'4.54"E
4	11° 1'22.28"N	77°12'2.02"E
5	11° 1'24.96"N	77°12'2.36"E
6	11° 1'25.26"N	77°12'6.59"E
7	11° 1'23.22"N	77°12'6.81"E
8	11° 1'23.07"N	77°12'6.84"E
9	11° 1'21.26"N	77°12'7.14"E
10	11° 1'19.75"N	77°12'7.38"E

- No Trees will be uprooted due to this quarrying operation.
- 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.
- There will be no Export of this quarrying rough stone

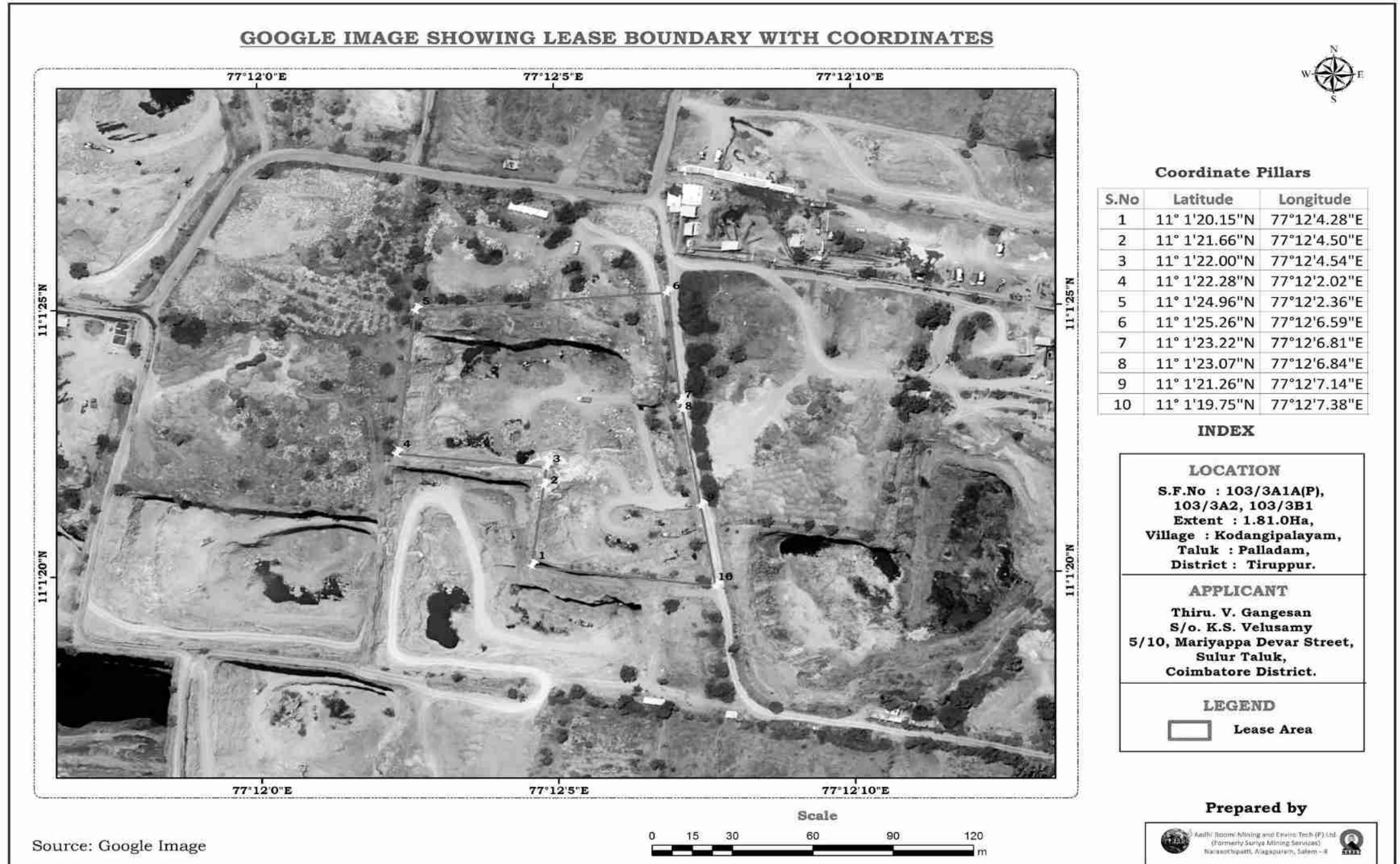


Fig.No.2.1: Google image showing lease boundary and Coordinates of the Quarry

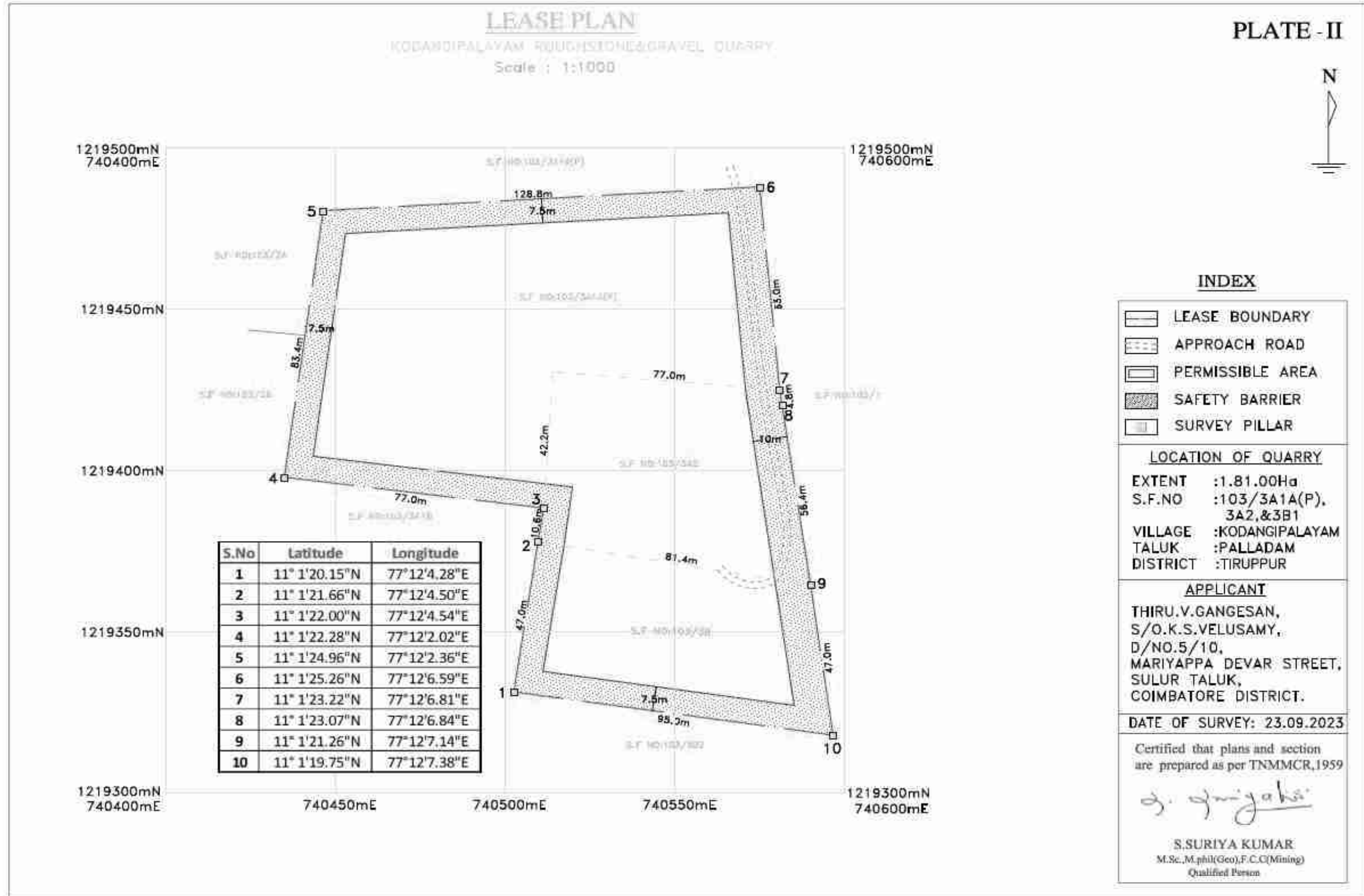


Fig. No. 2.2: Lease Plan

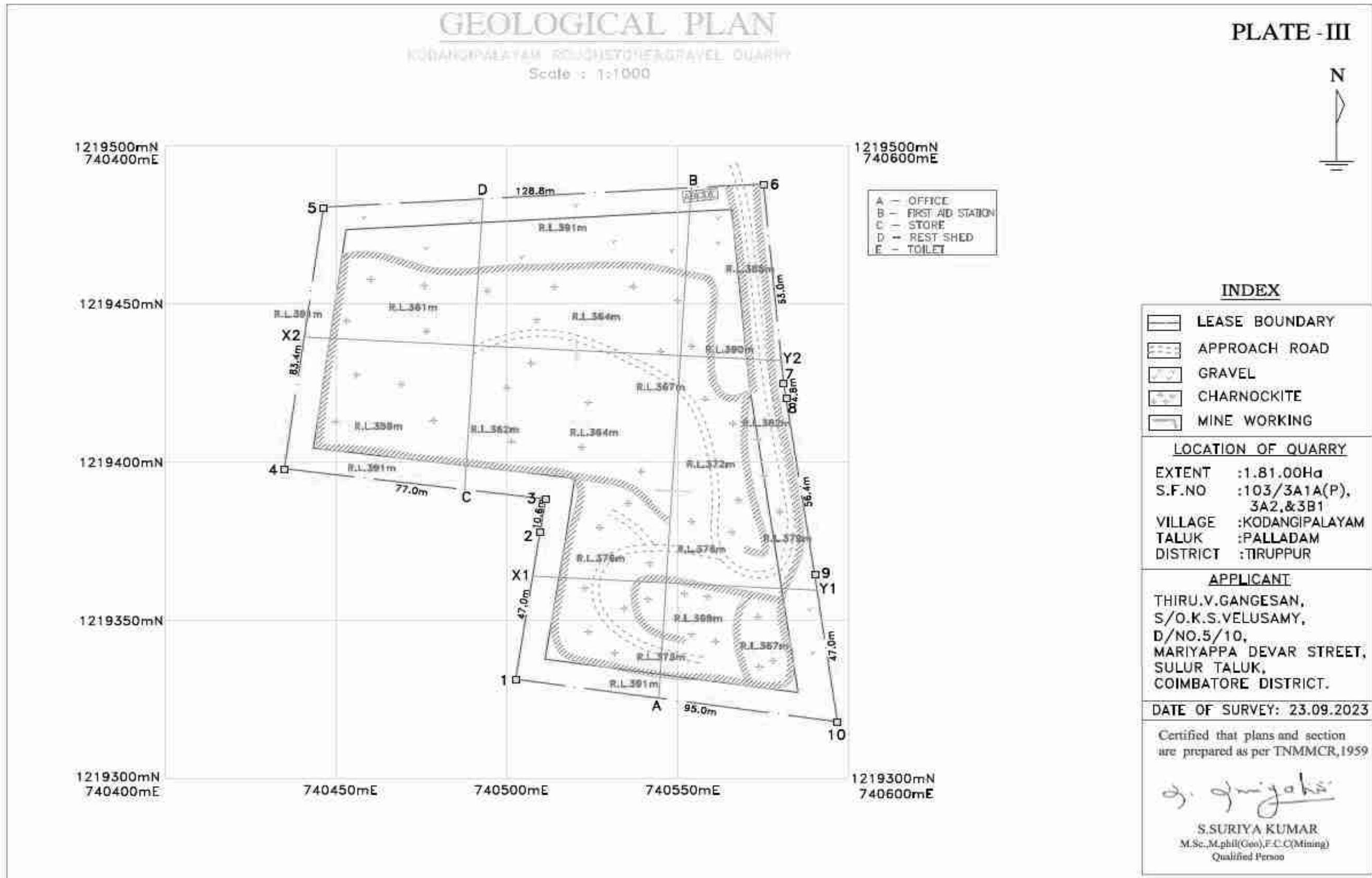


Fig. No. 2.3: Geological Plan

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District



Fig. No. 2.4 Photograph shows general view of lease area

Table No. 2.2.: Environmental Settings

Project Details				
Proponent	Thiru. V.Gangesan			
Total Mine Lease Area	1.81.0 Ha - Rough Stone and Gravel			
Survey No.	S.F. No. 103/3A1A, 103/3A2 and 103/3B1 (Patta land)			
Site Location	Kodangipalayam Village, Palladam Taluk, Tiruppur District, Tamil Nadu			
Geographical Co-ordinates	Latitude: 11° 1' 19.75"N to 11° 1'25.26"N Longitude: 77° 12' 2.02"E to 77°12'7.38"E			
Toposheet No.	58 E/4			
Elevation	Elevation of the area is 391m above MSL and Toposheet No. 58E/4.			
Accessibility				
Nearest Habitation	750m – SE			
Nearest Village	Kodangipalayam – 1.5km - SE			
Nearest Settlement	Name of Village	Direction	Distance from Mines (Approx.)	Population
	Ichipatti	N	2.13 km	9527

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

	Karanampettai	SW	2 km	6987
	Sukkampalayam	NE	3.64 km	4420
	Kadampadi	NW	4.24 km	8147
Nearest Town	Palladam – 7.19km - NE			
Nearest Roadway	NH-44- Coimbatore to Chidambaram - 2.13 km-SE SH 169- 2.6km-SW			
Nearest Railway station	Somanur Railway Station – 8km - N			
Nearest Airport	Coimbatore – 17.3 km - NW			
Environmental Sensitiveness				
Interstate Boundary	Kerala – Tamil Nadu Interstate Boundary – 50km – SW			
Coastal Zone	Arabian Sea-186 km – SW			
Reserve Forest	There is no Reserve Forest up to 25 km in lease area			
Wildlife sanctuary	Nil within 10km radius			
Water bodies	There are no major river or water bodies, odai track, nallah and ponds found within 500m radius. 1. Sendevipalayam Dam – 6 km –NW 2. Noyyai River – 6 km - NW			
Defense Installations	Sulur Air Force runway -3.5km SW in the lease area			
Critically Polluted area	Nil within 10km radius			
Quarries around 500m radius	Four existing quarries, six present proposed quarries and one abandoned quarry located within the 500m radius from the lease boundary of the proposed project site. Total Cluster area: 17.36.5 Ha AD Cluster Letter: Rc. No: 48/Mines/2023 dated: 05.12.2023			
Seismic zone	Zone-II, Low damage risk zone as per BMTPC, Vulnerability atlas Seismic zone of India IS: 1893-2002			

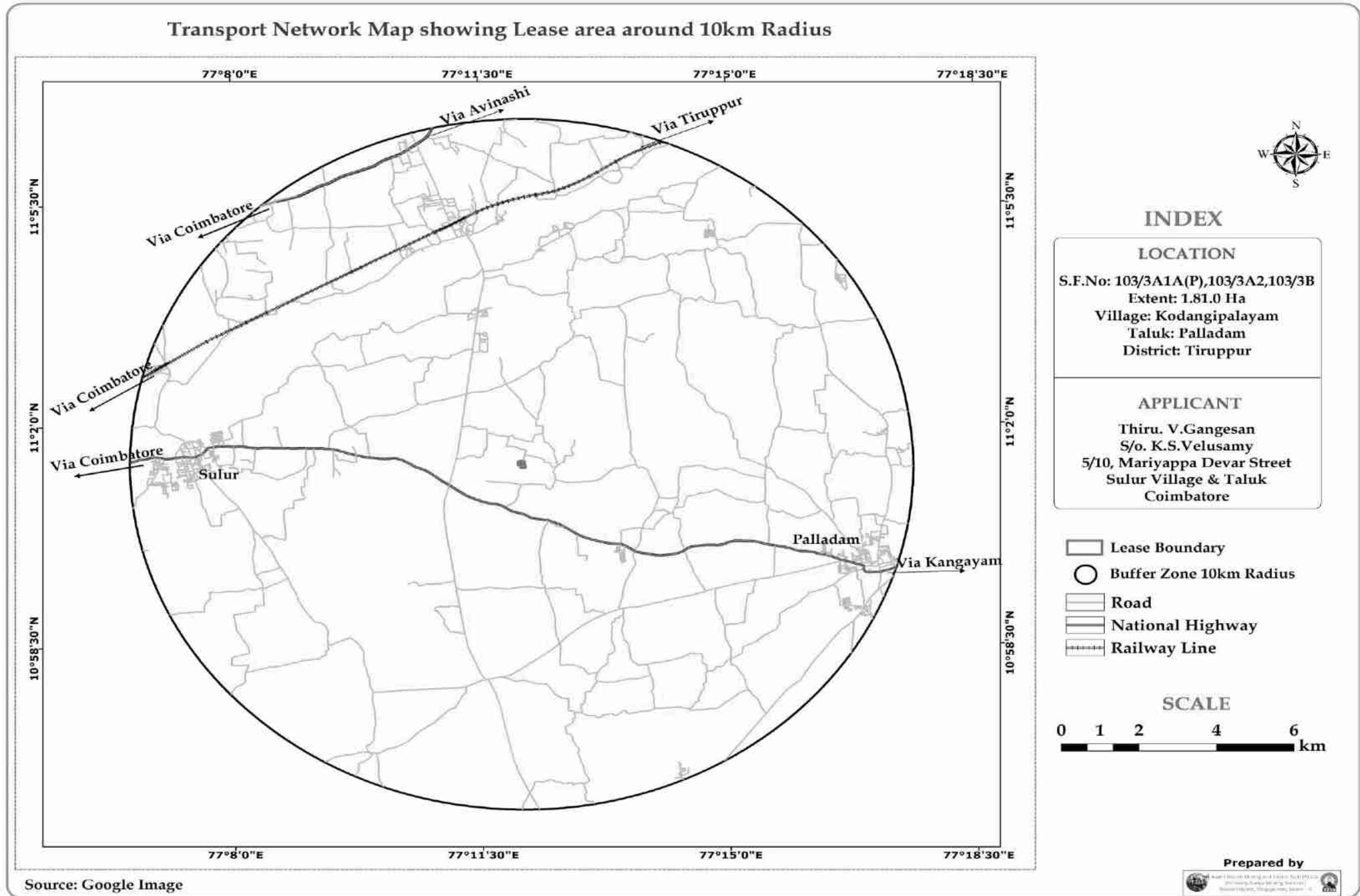
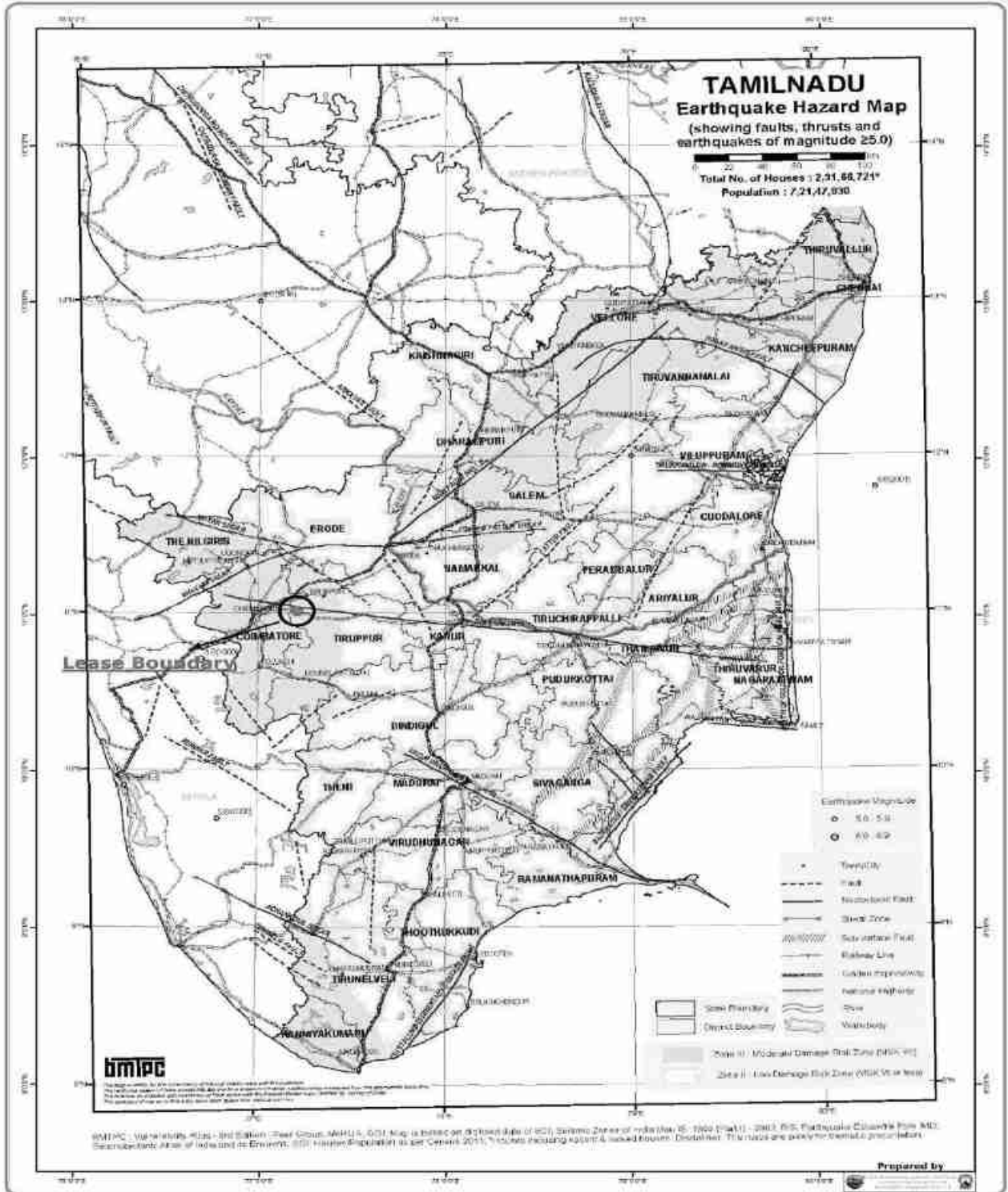


Fig.No.2.5: Google Earth Image showing Transport Network of 10 km radius around Proposed Project Site

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District



The area falls under Zone-II, Low damage risk zone as per BMTPC, Vulnerability atlas Seismic zone of India IS: 1893-2002.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

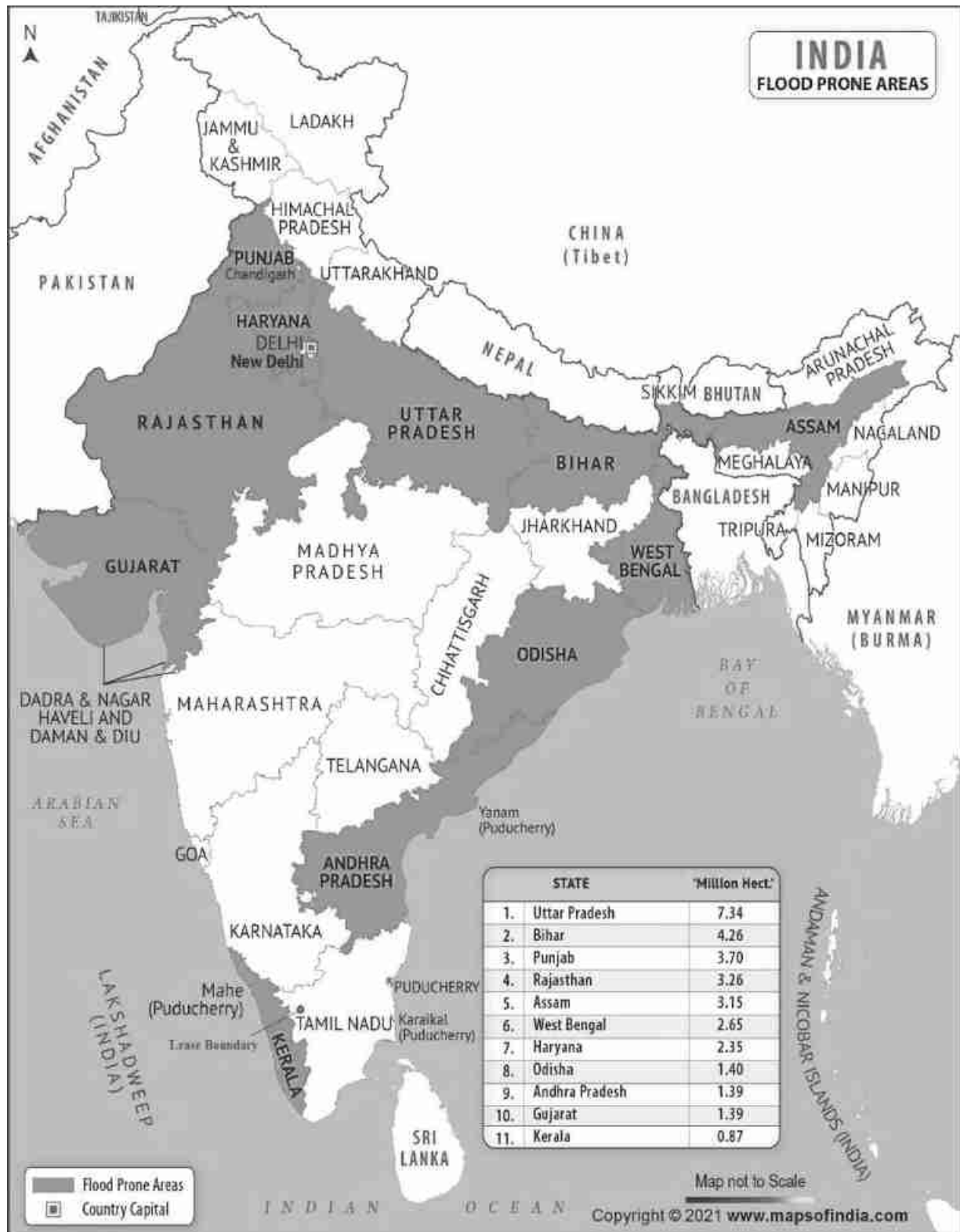


Fig No: 2.7 Flood Hazard Map

The area falls under Probable Maximum Surge Height of 3.5m.

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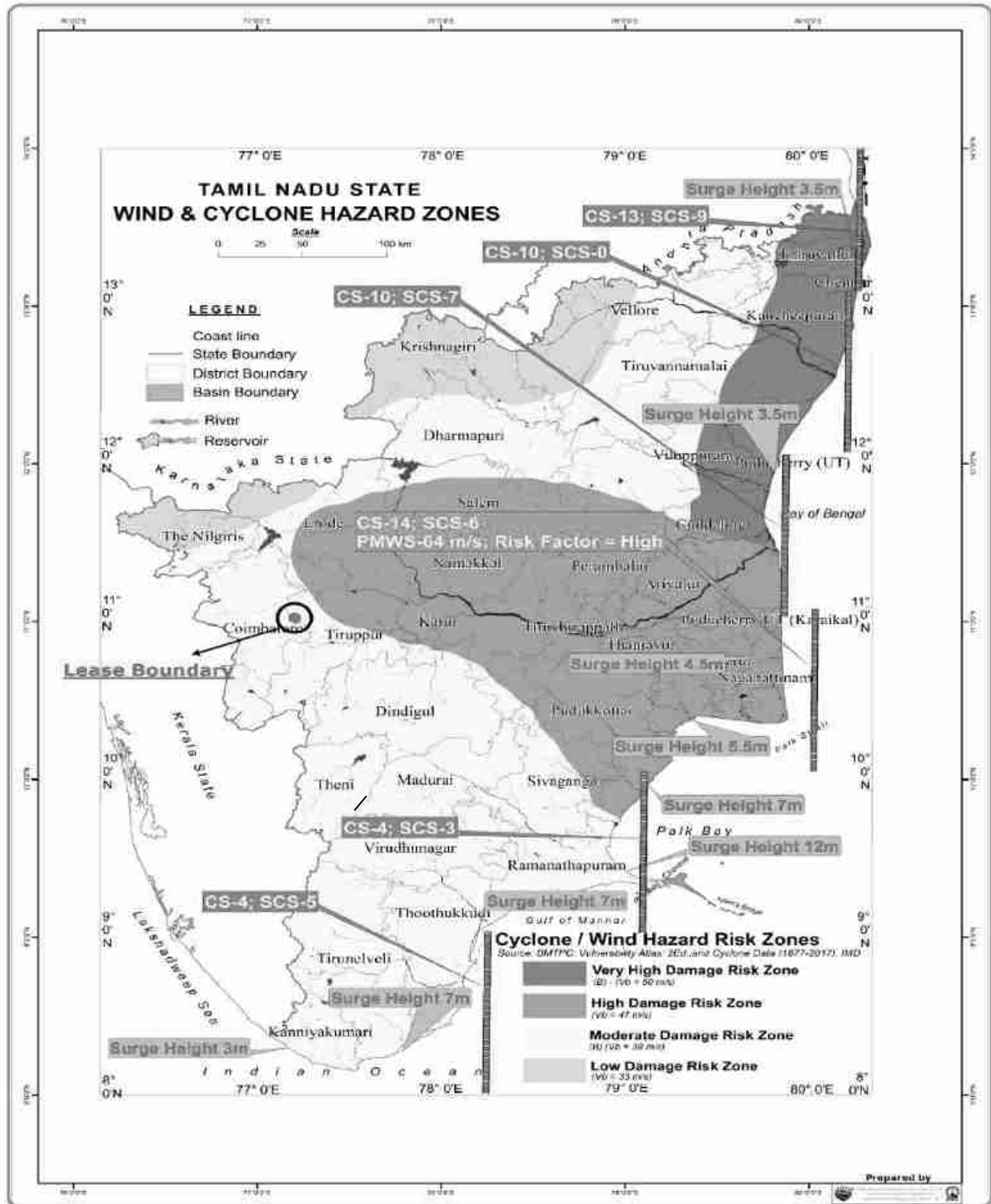


Fig No: 2.8 Winds and Cyclone Hazard Map

The area falls under Low Damage Risk Zone-B ($V_b = 33$ m/s).

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Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

2.4 Size or Magnitude of Operation

Table No. 2.3: Mining Details

Particulars	Details
Method of Mining	Open cast mechanized mining
Geological resources	259467m ³
Mineable reserves	Rough stone -105830m ³ for five years and Gravel – 2116m ³ for one year.
Production (95%)	Rough stone -100539 m ³ for five years 20107 m ³ per annum
Top soil	-
Ore: Waste ratio	1: 0.07
Depth of Mining	44m bgl
Water Table	57 m bgl
Road design	1: 10 inside the pit and ramp 1:16 for transport
Overall Pit Slope	45°
Period of Lease	5 years from the date of execution

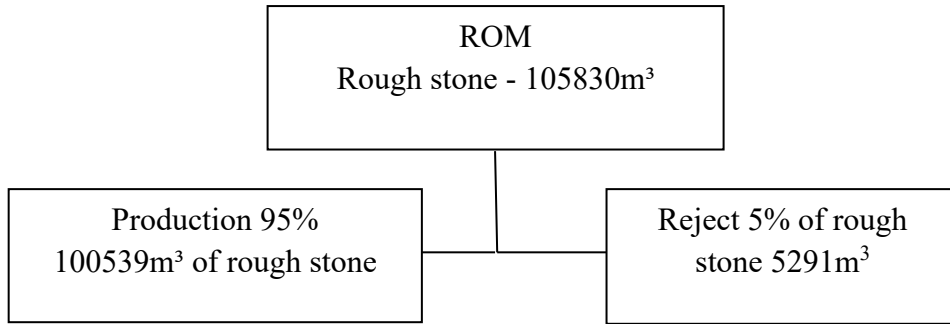


Fig. No. 2.9: Material Balance

2.5 Proposed schedule for approval and implementation

The proposed activity will be commenced only after obtaining Environment Clearance from SEAC/SEIAA, Tamil Nadu and CTE/CTO from TNPCB and other necessary clearance from concerned departments.

2.6 Technology and process description

2.6.1 Regional Geology

Geologically, Tiruppur district of Tamil Nadu forms a part of southern Granulitic terrain and is predominantly occupied by crystalline rocks of Archaean to late Proterozoic age. Regionally, the rocks can be grouped under five categories namely i. Charnockite Group represented by Charnockite, Pyroxene Granulite and Magnetite Quartzite, ii. Peninsular Gneissic Complex (II) comprising hornblende-biotite gneiss, iii. Basic intrusive include Pyroxinite/Dunite iv. Younger intrusive comprising, Nepheline-Syenite, Pink Granite, Pegmatite and Quartz veins and v. Quaternary sediments of Kankar and soil. Tiruppur District is predominantly occupied by hornblende Biotite gneisses of PGC (II) with enclaves of Magnetite Quartzite, Pyroxene Granulite and Charnockite. The area exposes several bands of Pyroxene Granulite which is medium grained, medium to dark grey in colour and stand out prominently in the gneissic country generally parallel to regional foliation. Charnockite is coarse grained, massive, many places it is foliated, grey coloured and greasy and exposed as bouldery outcrops and small knolls. It is well exposed in Central, Western and Southern parts of the Tiruppur District. The general strike of foliation varies from ENE-WSW, E-W with dipping towards NW and N respectively.

Hornblende-Biotite gneiss is well foliated, medium to coarse grained, pale grey and exposed as sheets and small knolls. Pink Granite gneiss occurs as thin bands and lensoidal bodies. It is a medium grained rock composed of alternating bands of mafic (mainly of biotite and hornblende) and felsic (Feldspar and Quartz) minerals. It is well recognized in Avinashi area.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

Stratigraphy of the area

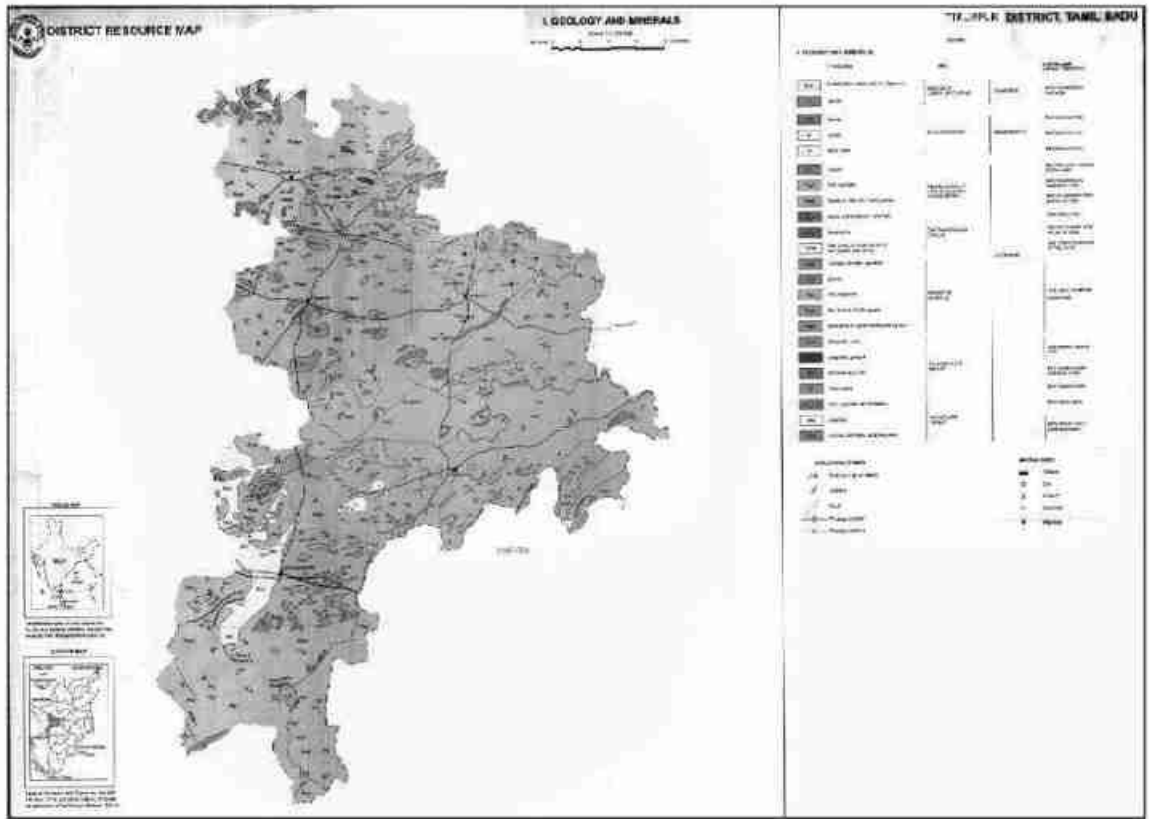
Age	Group	Lithology
Holocene		Blockcotton soil/clay±gypsum
Cenozoic		Kankar/calc-tufa
Neoproterozoic	Acid intrusive	Quartz veins, Pegmatite and Pink Granite
	Sivamalai syenite Complex	Nepheline-syenite
	Chalk Hills (Basic Intrusives)	Pyroxenite/Dunite
Archaean-Palaeoproterozoic	Peninsular Gneissic Complex (II) PGC (II)	Pink Granite Gneiss Hornblende Biotite gneiss
Archaean	Charnockite Group	Charnockite (Unclassified) Pyroxene Granulite Banded Magnetite Quartzite

Basic rocks such as pyroxenite/dunite occur as outcrop and lensoidal body in the country rock and mostly concordant to the regional foliation. Many basic intrusives are reported in south and south-east of Tiruppur town. The trend of these bodies is east-west. Nepheline syenite is a leucocratic, coarse-grained rock and composed mainly of Feldspar with Nepheline and shows pitted appearance due to removal of Nepheline. This alkaline rock is available in and around Sivamalai area only.

Acid intrusives comprising pink granite, pegmatite and quartz veins are traversed country rocks in micro (cm wide-meter long) to meso-scale (few meters wide and several meter long) extend. Granite is exposed around 9 km SW of Avanashi. Small scale pegmatite and quartz veins are noticed almost in all the rock types.

Acid intrusives are overlain by sediments of Quaternary age, represented by Kankar and black cotton soil with Gypsum. Most of the area is covered by brown and red brown soil. Some part of the area covered with black cotton soil contains Gypsum lumps. Black cotton soil covers south-western part of the district.

GEOLOGY MAP OF TIRUPPUR DISTRICT



2.6.2. Geology of the lease area

Mining activities carried out in the district is Opencast Semi Mechanized/ Mechanized and Manual method.

The Economic important mineral found in Tiruppur District are mainly Gypsum, Kankar, Magnesite, Dunite, Quartz, Feldspar, varieties of colour Granites (Dimensional stones), Rough stone (Aggregates) and Gravel/Earth. Mining activities based on these minerals are very less. However, numerous Rough Stone quarries are under operation for production of construction materials and earth fill (gravel) in Kodangipalayam, Morattupalayam, Madathukulam, Kiranur, Moolanur areas in the In addition to above, 'Dimensional Stones' (Granite) is also available in Avinashi, and Kangeyam Taluks. It is mainly used in fencing stone and Stone crushing units and size reduced in to 1/2, 3/4 and 1 1/2 inches Jelly and M sand, P sand which are mainly used in road and building construction purpose.

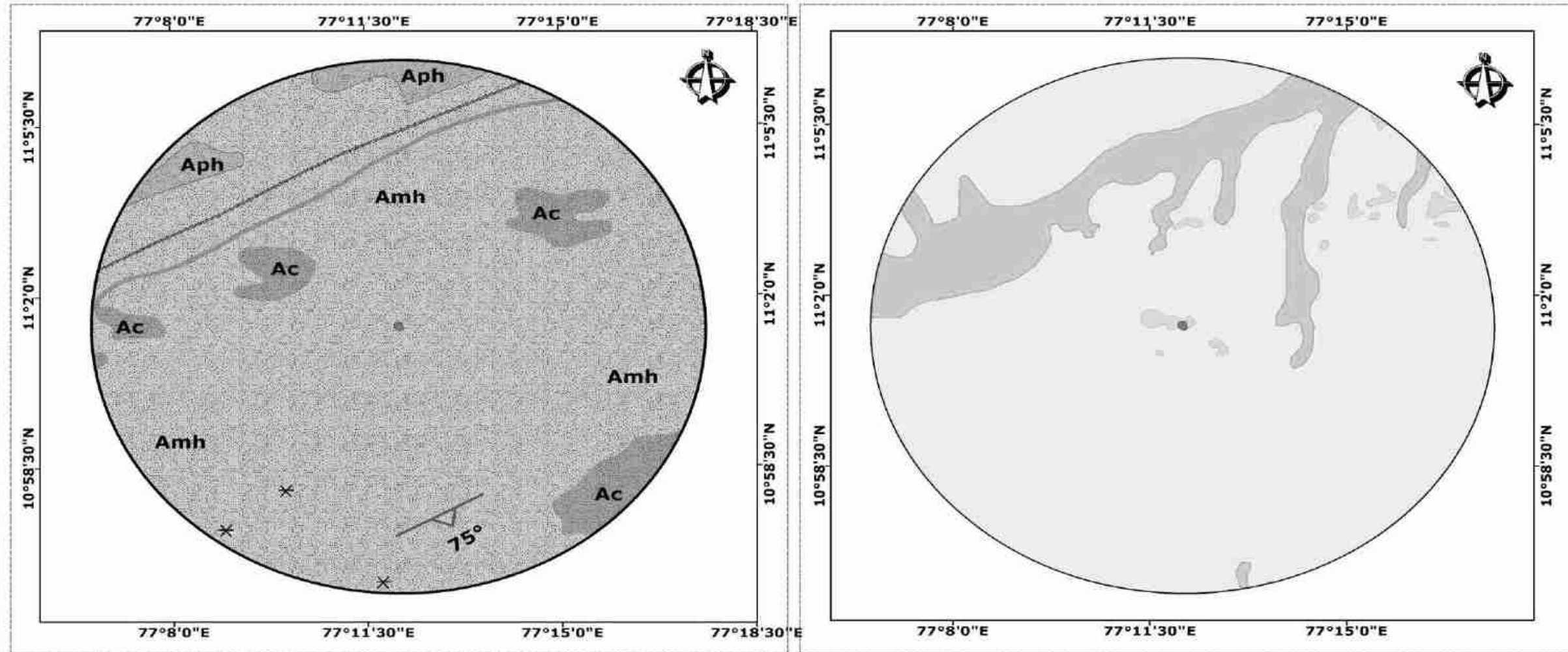
2.6.2.1 Exploration

The proposed area is an almost flat terrain with small outcrops exposed. No explorations in like boreholes/trenches are carried out.



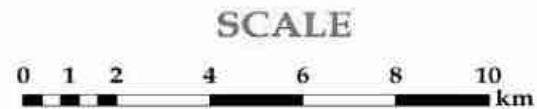
Fig No 2.10: Close view of colour of Rock Formation

Geology and Geomorphology Features map of Lease area around 10km radius



- LEGEND**
- Lease Boundary
 - Buffer Zone 10km Radius
 - Strike dip of Foliation
 - Gypsum
 - Railway Line
 - Noyyal River
 - Fissile-hornblende biotite gneiss(Aph)
 - Hornblende biotite gneiss(Amh)
 - Charnockite(Ac)

- Level Three Landforms**
- Moderately weathered/moderately buried Pediplain
 - Pediment/ Valley Floor
 - Shallow weathered/shallow buried Pediplain



Source: Geological Survey of India, 1995

Prepared by

Fig.No.2.11: Regional Geology and Geomorphology Map

2.6.3 Method of Mining

a) Open cast working:

Mechanized opencast quarrying method will be adopted for exploiting the rough stone. Before opening a mine, several aspects should be considered like construction of semi-permanent structures, planning for the development / production works, formation of faces, lying of approach road to various benches for movement of dumpers, recruitment of man power, deployment of machinery, selection of dump sites, stacking yards etc.

Hydraulic excavators and tippers in combination will be utilized to recover the sizeable rough lumps and deliver to the crushing plant to get the required size of M. Sand, ½, ¾, 1½ inches and Jelly chips, etc. Bench height is designed as 6m based on boom height of excavator (8.5m) and permitted additional height of 1.5m for hard formations as per Reg. 106 (2) (b) of MMR, 1961. The bench slope is 60°. S1 fencing shall be constructed at the top of high benches in order to safe guard the unauthorized entry of men and machinery. In the case of entry and exit of pit(s), G1 fencing as a parapet should be made to control trespasses.

Gravel shall be removed and used for construction and afforestation purposes.

b) Mode of working:

The quarry operation involves drilling, muffle blasting, excavation, loading and transportation of rough stone to the needy crusher/other buyers. The production of rough stone and gravel in this quarry involves the following method which is typical for rough stone and gravel 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 pit head to the needy crusher/other buyers.

2.6.4 Extent of Mechanization

The following machinery is proposed to be exclusively for the development and production work at this quarry. The machinery is proposed to be purchased or engaged on hire basis.

i) Drilling equipment:

Drilling of shot-holes will be carried out using compressor and Jack Hammers combination on hire basis. Depth of holes shall be 1-2m. The spacing shall be 0.75m and burden shall be 0.60m from the preface. To achieve a correct blasting geometry certain amount of trial blast is prerequisite to effect a perfect pre-determined fragmentation and fly rock control. In case of heavy blasting qualified mine manager has to be appointed for proper

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

calculation of powder factor and control blasting sequencing and arrangement of explosives etc. Details of drilling equipment's are below as

Table No. 2.4: Details of drilling equipment

Type	Nos	Dia.of hole	Size/Capacity Make	Make	Motive Power	H.P
Jack Hammer	2	32mm	Hand held	Atlas copco	Air	60
Hydraulic Breaker	1	-	TATA Ex 200	Tata	Diesel	180
Compressor	1	-	-	Atlas copco	Diesel	80

ii) Loading Equipment:

Loading of waste and reject materials shall be done by excavator into 15 tonnes tippers from the working place periodically. The applicant is proposed to engage one hydraulic excavator with 1.2 Metric tons capacity and two tippers of 10/15 tonnes capacity for internal transport of waste from the working face to the dumps. Details of loading equipment are tabulated below,

Table No. 2.5: Details of loading equipment

Type	Nos	Bucket/Capacity(m ³)	Make	Motive Power	H.P
Hydraulic excavator	2	1.20m ³	Tata Hitachi	Diesel	EX-200

iii) Transportation:

Transport of Rough stone, Rejects and waste shall be done by Tippers of 10 tonne capacity.

Table No. 2.6: Details of transportation equipment

Type	Nos	Size/Capacity(m ³)	Make	Motive Power	H.P
Tipper	4	10 M.T	Ashok Leyland and Tata	Diesel	120

iii) Blasting Pattern

The massive formation shall be broken into pieces of portable size by jack hammer drilling and shot hole blasting. Powder factor of explosives for breaking such hard rock shall be in the order of 6-7 tons per Kg of explosives. Blasting parameter proposed to be adopted for shot holes shall be,

$$\text{Depth (m)} * \text{Burden (m)} * \text{Spacing (m)} = \text{Volume (m}^3\text{)}$$

$$1.00 \quad x \quad 0.60 \quad x \quad 0.75 = 0.45 \text{ m}^3$$

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

Quantity of broken rock per hole	= 0.45 x 2.6 = 1.17 MT
Blasting efficiency @90%	= 1.17 x 90% = 1.05 MT/hole
Charge per hole	= 140 gm of 25 mm dia. cartridge.
Quantity of rock broken per day (ROM)	= 15.2m ³ or 38 M.T.
Requirement of explosives per day	= 5.4 Kg (@7 M.T. per Kg explosives)
No. of holes to be drilled per day	= 15.2MT/1.05= 14 Holes

iv) Types of Explosives

Following explosives are recommended for efficient blasting with safe practice.

Table No. 2.7: Explosives Details

S.No.	Description	Class / Division	Type	Size
1	Slurry	Class-3	Nitro compound	25x200
2	Detonators OD, Delay, E.D or Nonel tubes	Class – 6	Ordinary, Electric and non- electric types	6.5 x 32

Slurry explosives will be initiated directly by blue sump fuse with ordinary detonators or electric detonators. The Powder factor for waste rock development shall be 7 Tonnes per Kg. of explosives.

The following steps shall be adopted to control ground vibration during blasting. Geometry of blasting pattern like burden, spacing and inclination of hole should be

$$\begin{array}{ccc} \text{Burden (m)* Spacing (m)} & \text{Inclination} & \\ 0.60 & \times 0.75 & 70^\circ \end{array}$$

- ❖ High strength explosives like slurry in the form of cartridge should be used. ANFO mixture for shot holes should not be used which may cause huge fly rock fragments in view of critical diameter problem.
- ❖ To control vibration abatement, use delay or relay arrangements with specific charges.
- ❖ Charge per hole should exceed the powder factor designed for each hole based on quantum of blasting, strength of rocks, fracture pattern etc.
- ❖ In case any objection from the public, a long trench in the direction of blasting near lease boundary may be opened to a depth of 2m to control longitudinal waves (P-waves) to arrest any damage to infrastructures.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

- ❖ If any building lies within 50m, muffle blasting practice may be followed in addition to the regular safety procedures and the charge per blast hole shall not exceed 2kg as specified by DGMS.
- ❖ Any other method of safety measures shall be advised to the Applicant as and when required by the qualified Mine Manager.

v) Storage of explosives

The Applicant is advised to store the explosives as per the Indian Explosives Act, 1958 and the Explosive Rules, 1983. Necessary permissions should be obtained from the Joint Controller of Explosives to store and uses of explosives in the quarry in the magazine permit under Form -23 or Agreement shall be made with holder of Form-22 who can supply and fire explosives as per safety practices. However, blasting in the quarry shall be done as per MMR 1961 under the supervision of Mines Blasting certificate holder appointed under Reg160 of Metalliferous Mines Regulations, 1961.

2.7 Land Use Pattern of the Core Zone

The proposed area is flat terrain, composed of gravel with elevation about 391m above mean sea level. The table indicating the area put on use at start of plan and additional requirement during plan period for calculation of net area and the area considered for reclamation has given below.

Table No 2.8: Computation of present and proposed land use pattern

S.No	Head	Area put on use at start of plan (Ha) (Present)	% of Use	Total Area used at the end of plan (Ha)
i)	Mining area	1.15.60	73.5%	1.33.15
ii)	Road	0.01.50	1%	0.02.50
iii)	Green belt & Safety area	0.44.55	25%	0.44.55
iv)	Labor shed	0.00.80	0.5%	0.00.80
v)	Virgin area	0.18.55	0%	0.18.55
Total		1.81.0	100%	1.81.0

2.8 ESTIMATION OF RESERVES

a) GEOLOGICAL RESOURCES

The geological resources are estimated by cross sectional method is as 246494m³ of Rough Stone up to a depth of 44m below the ground level, having considered the depth of mining, recovery, safety barriers etc. A detail of estimation of geological resources is given in the table 2.9.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

Table No. 2.9: Computation of Geological Resources and Reserves

SECTION	L (m)	W(m)	D(m)	Volume m ³	Recovery @95%	Reject@5%
AB-X1Y1	27	23	7	4347	4130	217
	58	66	16	61248	58186	3062
AB-X2Y2	20	10	24	4800	4560	240
	88	50	18	79200	75240	3960
CD-X2Y2	16	72	28	32256	30643	1613
	77	72	14	77616	73735	3881
TOTAL				259467	246494	12973

Total Geological resources up to a depth of 44m = 259467m³

Total Geological reserves @ 95% = 246494m³

Total Waste @ 5% = 12973m³

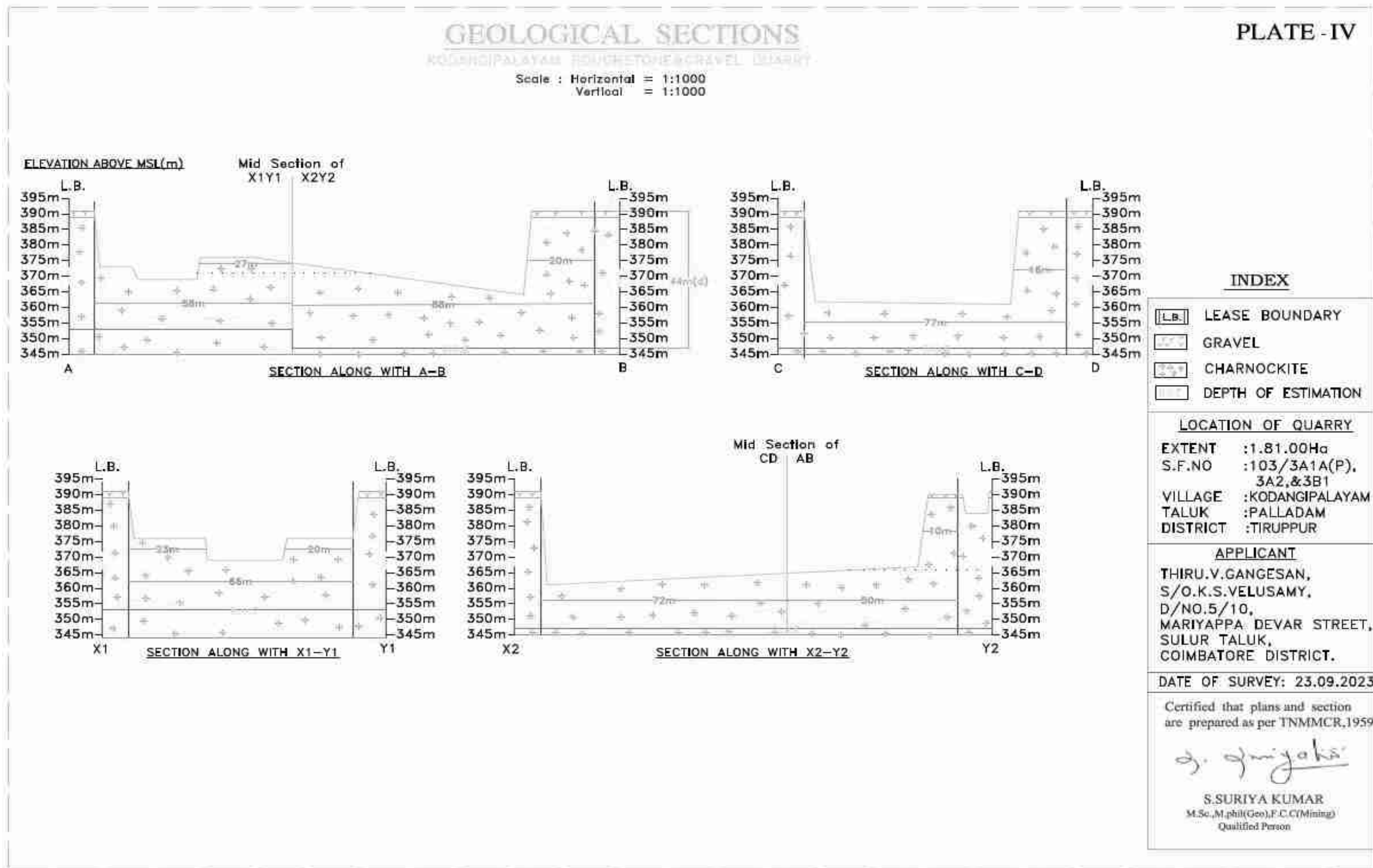


Fig. No. 2.12: Geological Cross Section

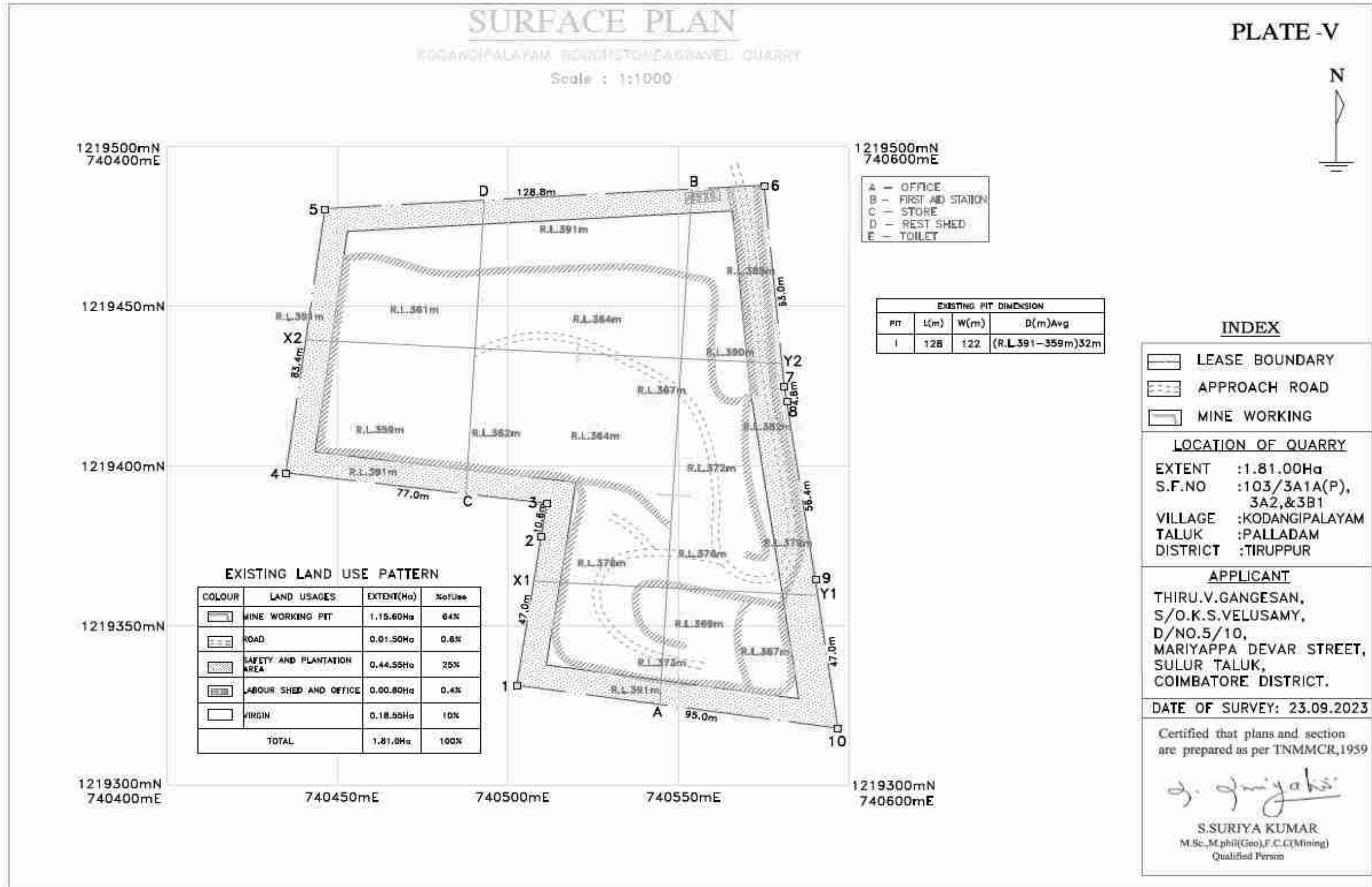


Fig. No. 2.13: Surface plan

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Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

b) MINEABLE/RECOVERABLE RESERVES:

The mineable/recoverable reserves are estimated by cross-sectional method having considered the recovery factor, depth of mining, safety barriers etc. The mineable reserves are estimated as 100539m³ of rough stone to a depth of mining 44m bgl as well as 2116m³ of gravel. Details of estimation of mineable reserves are given in table 2.10

Table No. 2.10: Computation of Mineable/Recoverable Reserves

SECTION	BENCH	L (m)	W (m)	D (m)	Volume (m ³)	Reserve @ 95%(m3)	Reject @ 5%(m3)	Gravel
AB-X1Y1	IV	30	29	5	4350	4133	217	
	V	50	40	6	12000	11400	600	
	VI	44	28	6	7392	7022	370	
	VII	38	16	6	3648	3466	182	
AB-X2Y2	I	18	9	2				324
	II	17	7	6	714	678	36	
	III	11	2	6	132	125	7	
	IV	6	33	6	1188	1129	59	
	V	37	33	6	7326	6960	366	
	VI	62	33	6	12276	11662	614	
	VII	56	27	6	9072	8618	454	
	VIII	50	21	6	6300	5985	315	
CD-X2Y2	I	14	64	2				1792
	II	12	64	6	4608	4378	230	
	III	7	64	6	2688	2554	134	
	VI	50	64	4	12800	12160	640	
	VII	38	58	6	13224	12563	661	
	VIII	26	52	6	8112	7706	406	
TOTAL					105830	100539	5291	2116

Note:

Total ROM Mineable reserves to a depth of 44m	=	105830m ³
Total Mineable reserves @ 95%	=	100539m ³
Total Reject @ 5%	=	5291m ³
Total Gravel	=	2116m ³
Total Waste Ratio for Rough stone and gravel		
(Reject + gravel) 5291+2116m ³	=	7407m ³ / 100539m ³
	=	1: 0.07

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

The recovery factor is taken as 95% from the top bench up to the bottom. The life of the mine is computed as 5 years at an average production rate of 20107m³ per annum for the depth up to 44m below the ground level.

2.9 Year Wise Production and Development

The five years period of production and the generation of rejects are described in the year-wise development/production schedule as tabulated for rough stone in table 2.11. The five years production is designed up to a depth of 44m. The year-wise development/production plan is shown in fig 2.14-2.18 and the composite Plan of year-wise sections is given in fig 2.18.

Table No: 2.11. Computation of year wise production

YEARS	Section	Bench	L(m)	W(m)	D(m)	Volume (m ³)	Recovery @95% (m ³)	Reject @5% (m ³)
I	AB-X2Y2	II	17	7	6	714	19153	36
	CD-X2Y2	II	12	64	6	4608		230
	CD-X2Y2	III	7	64	6	2688		134
	AB-X2Y2	III	11	2	6	132		7
	AB-X2Y2	IV	6	33	6	1188		59
	AB-X1Y1	IV	30	29	5	4350		217
	AB-X1Y1	V	27	40	6	6480		324
II	AB-X1Y1	V	23	40	6	5520	19226	276
	AB-X2Y2	V	37	33	6	7326		366
	AB-X1Y1	VI	44	28	6	7392		370
III	AB-X2Y2	VI	62	33	6	12276	20022	614
	CD-X2Y2	VI	50	44	4	8800		440
IV	CD-X2Y2	VI	50	20	4	4000	20193	200
	CD-X2Y2	VII	38	58	6	13224		661
	AB-X2Y2	VII	56	12	6	4032		202
V	AB-X2Y2	VII	56	15	6	5040	21945	252
	AB-X1Y1	VII	38	16	6	3648		182
	AB-X2Y2	VIII	50	21	6	6300		315
	CD-X2Y2	VIII	26	52	6	8112		406
TOTAL						105830	100539	5291

Overall pit slope 45⁰

Total production of rough stone for the five years = 105830m³

Total Recovery of Rough stone for the five years @ 95% = 100539m³

Total production of gravel = 2116m³

Total Rejects @ 5% = 5291m³

Rough stone and gravel to waste ratio (2116+5291) = 7407/100539 =1:0.0

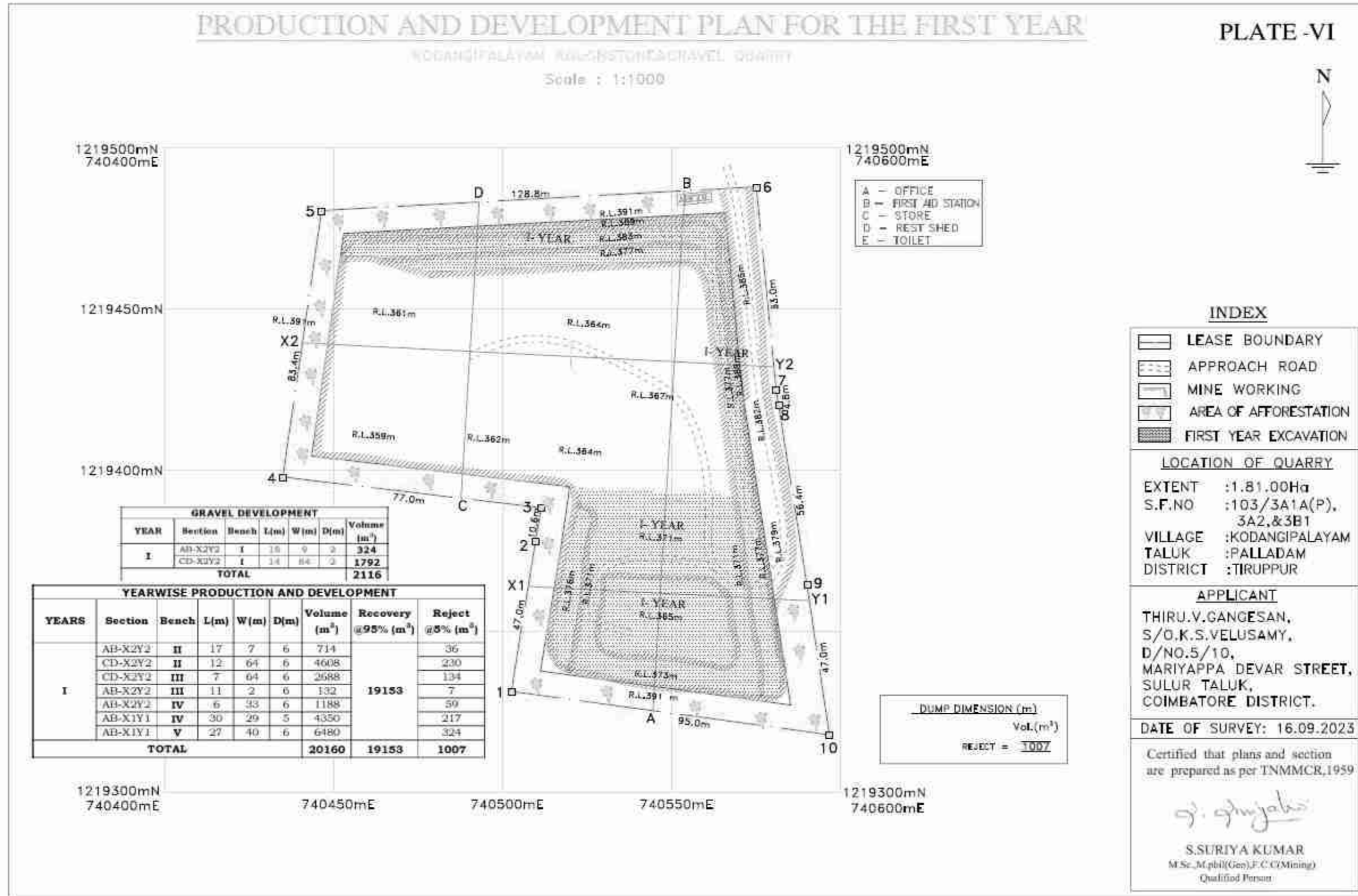


Fig. No. 2.14: Year Wise Development and Production Plan for the first year

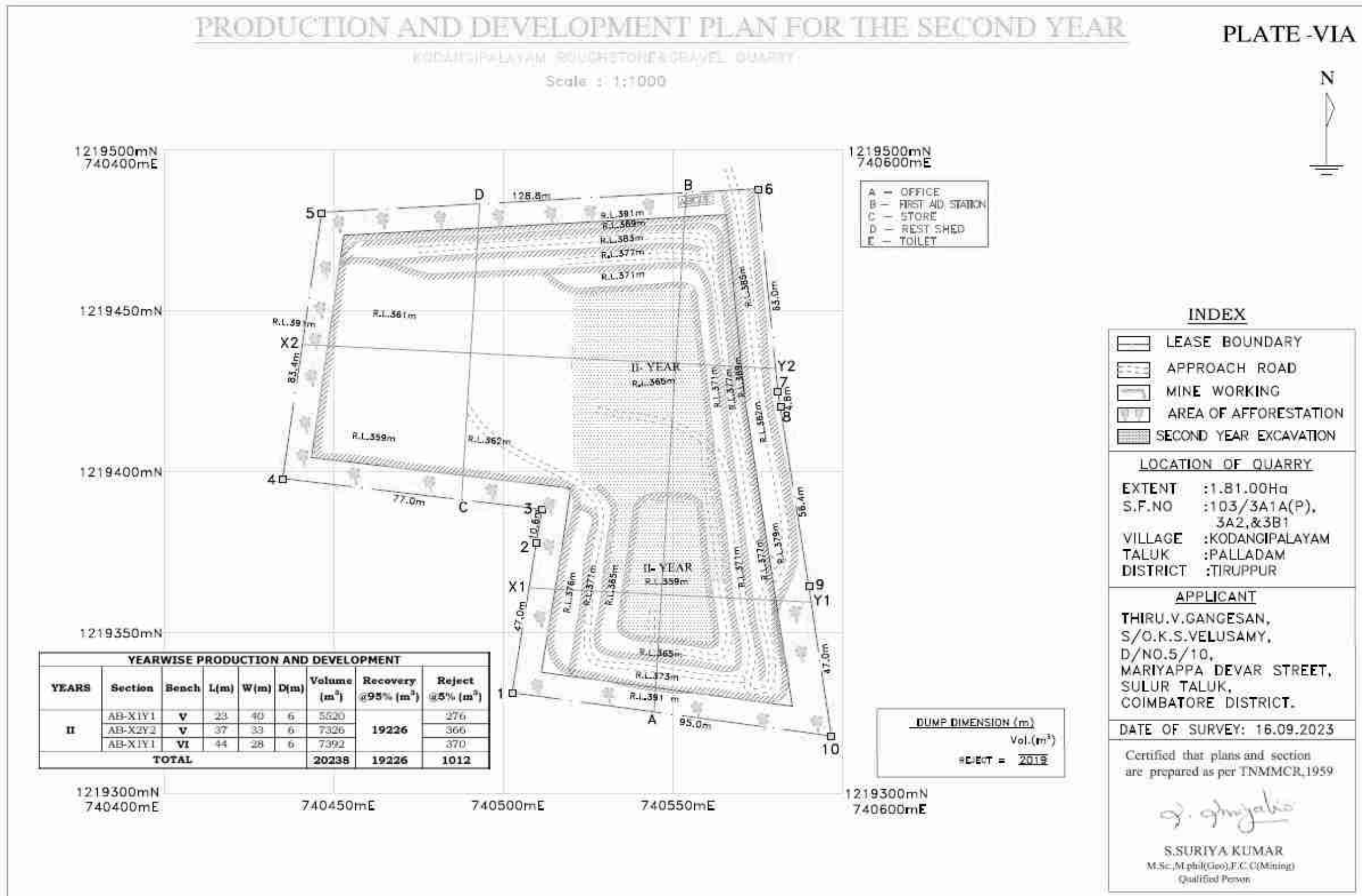


Fig. No. 2.15: Year Wise Development and Production Plan for the second year

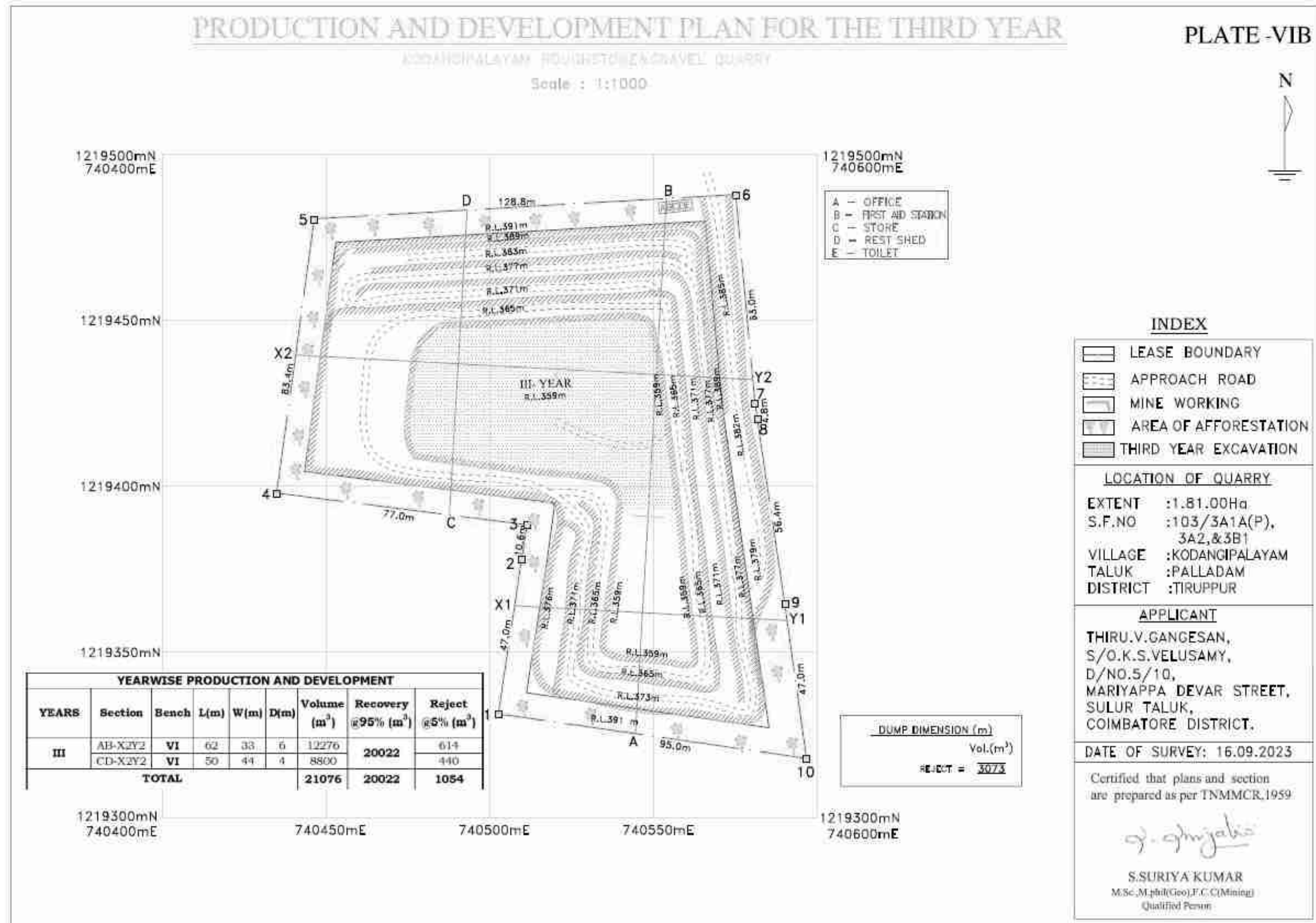


Fig. No. 2.16: Year Wise Development and Production Plan for the third year

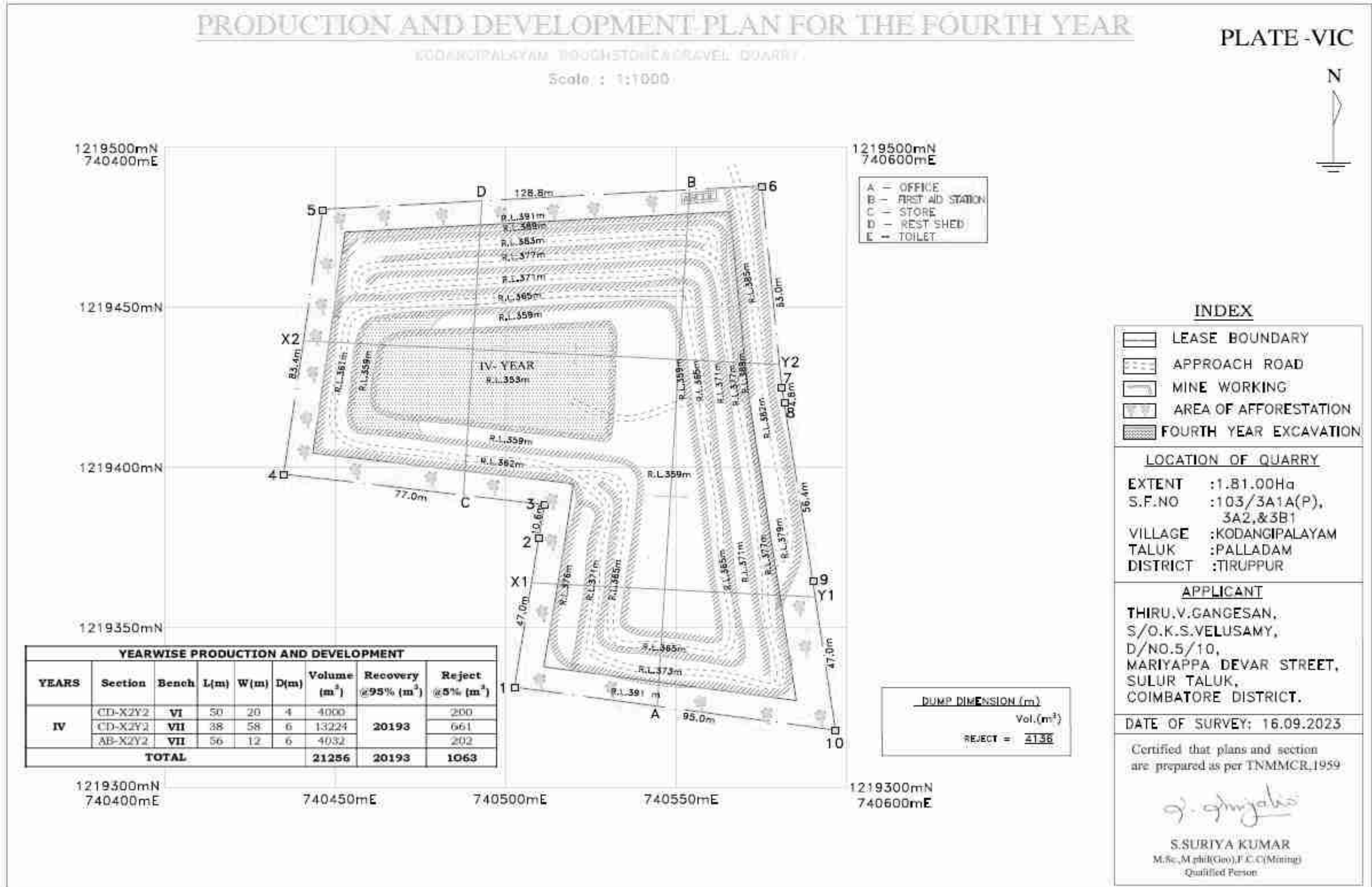


Fig. No. 2.17: Year Wise Development and Production Plan for the fourth year

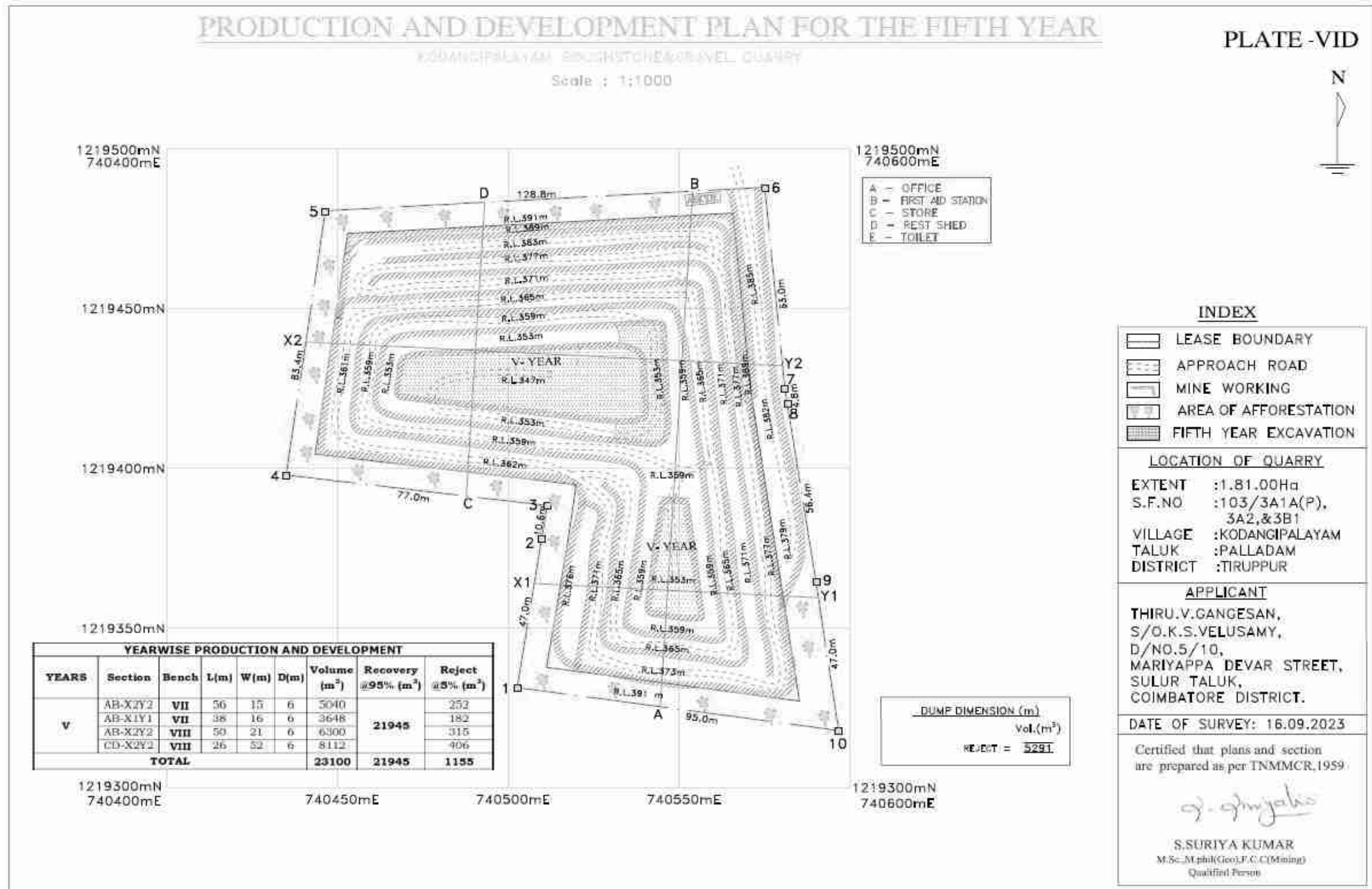


Fig. No. 2.18: Year Wise Development and Production Plan for the fifth year

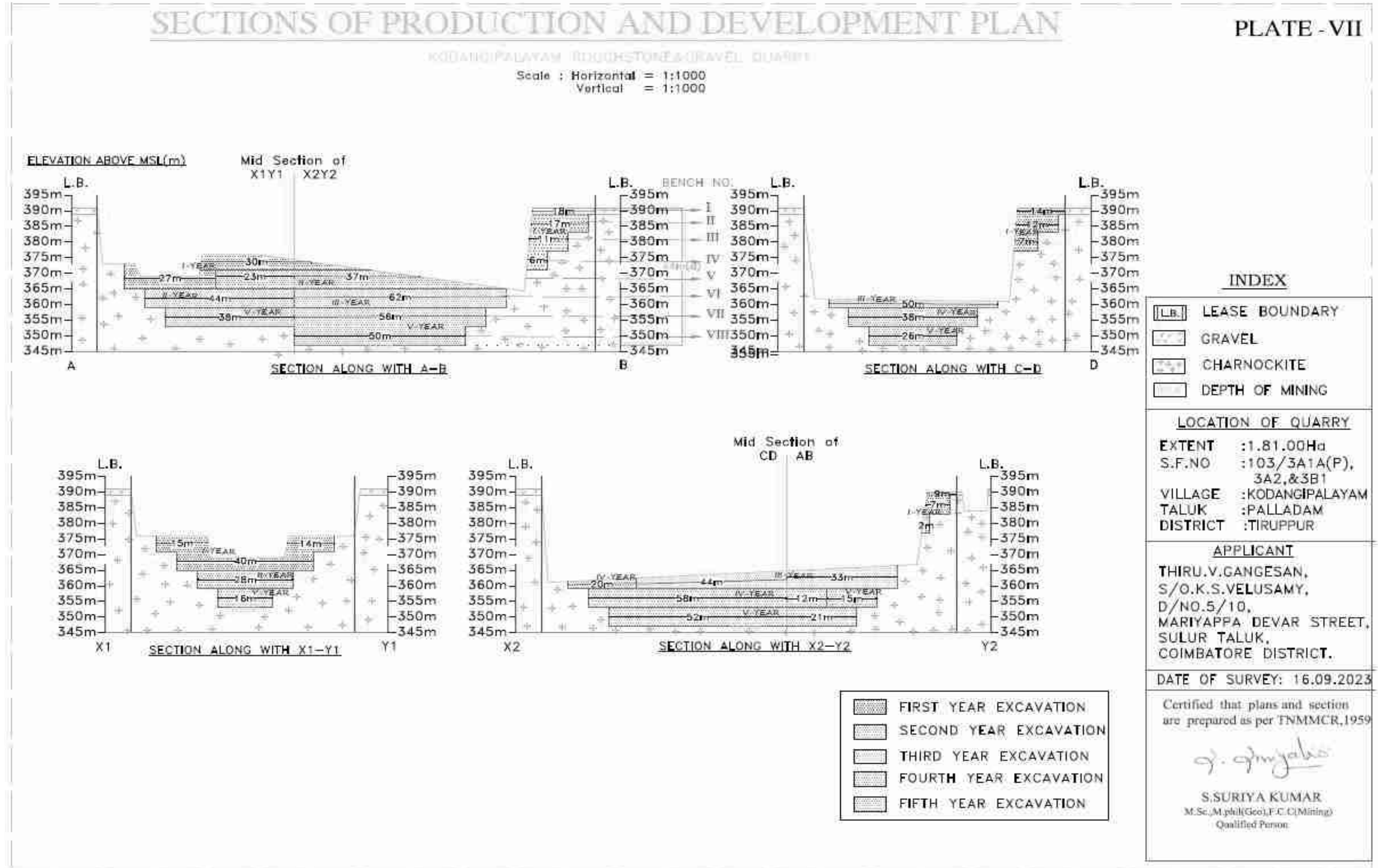


Fig. No. 2.19: Section of Production and Development Plan

2.10 Stacking of Mineral Rejects and Disposal of Waste

Rough Stone rejects which amount to 5% of the total excavation; about 5291m³ will be generated for mining up to 44m depth from surface. It is revealed in the final mine closure plan showing the ultimate depth of mining and ultimate pit configuration. Maximum height and spread of dumps for the first five years are given as under

Table No 2.12: Computation of rejects materials

Year	Gravel (m ³)	Rough Stone Rejects @ 5% (m ³)	Total
First	2116	1007	3123
Second	--	1012	1012
Third	--	1054	1054
Fourth	--	1063	1063
Fifth	--	1155	1155
Total	2116	5291	7407

Top soil shall be removed and stacked separately along lease boundary as earth bund which will be used for afforestation purposes. All the rejects shall be dumped within the lease area.

Table No. 2.13: Year-Wise Dump Dimension (m³)

Description		Volume (m ³)
Reject @ 5%	=	5291m ³
Total	=	5291m³

2.11 Conceptual Mining Plan/ Final Mine Closure Plan

Conceptual Mining Plan is prepared to determine the ultimate pit limits, depth of mining and final slope angle adapted with an object of long-term and systematic development of bench lay-outs, selection of permanent dump(s), avoidance of re-handling, selection of sites for construction of infrastructures, lying of roads. Kindly refer table 2.14 and fig 2.20.

The ultimate pit size is so designed based on certain practical factors such as the economical depth of mining, safety zones followed, available area for mining. The Ultimate pit size of the mine in bench-wise arrived and calculated as hereunder

Table No 2.14: Computation of ultimate pit dimension

<i>Ultimate Pit Dimensions-PIT-I (m)</i>				
Bench	Mineral / overburden	Length(m)	Width(m)	Depth(m)
I	Gravel and Rough stone	146m	77m	2m
II	Rough stone	144m	75m	6m
III	Rough stone	137m	68m	6m
IV	Rough stone	131m	59m	6m
V	Rough stone	118m	58m	6m
VI	Rough stone	106m	50m	6m
VII	Rough stone	94m	38m	6m
VIII	Rough stone	50m	26m	6m
Total (m)				44

However, mining with 6m vertical bench from horizontal during extraction of blocks will be maintained for optimum exploitation.

The quantum of mineable reserves of the applied area is estimated as 105830m³ up to a depth of 44m from the surface. Out of which, the generated rejects are estimated to be 5291m³. All rejects materials are dumped along lease boundary and backfilled at the end of mine life.

Description		Volume (m³)
Reject	=	5291m ³
Total	=	5291m³

2.11.1 Restoration, Reclamation of already mined out area.

As the rate of production of rough stone is 95% for the five years, only 5% rejects are available to backfill in the quarried-out pit. The quarried-out pit will be used as water storage pond which improves the agricultural activity in the buffer zone. The quarried pit will be fenced by using Barbed wire fencing to prevent inherent entry of public and cattle.

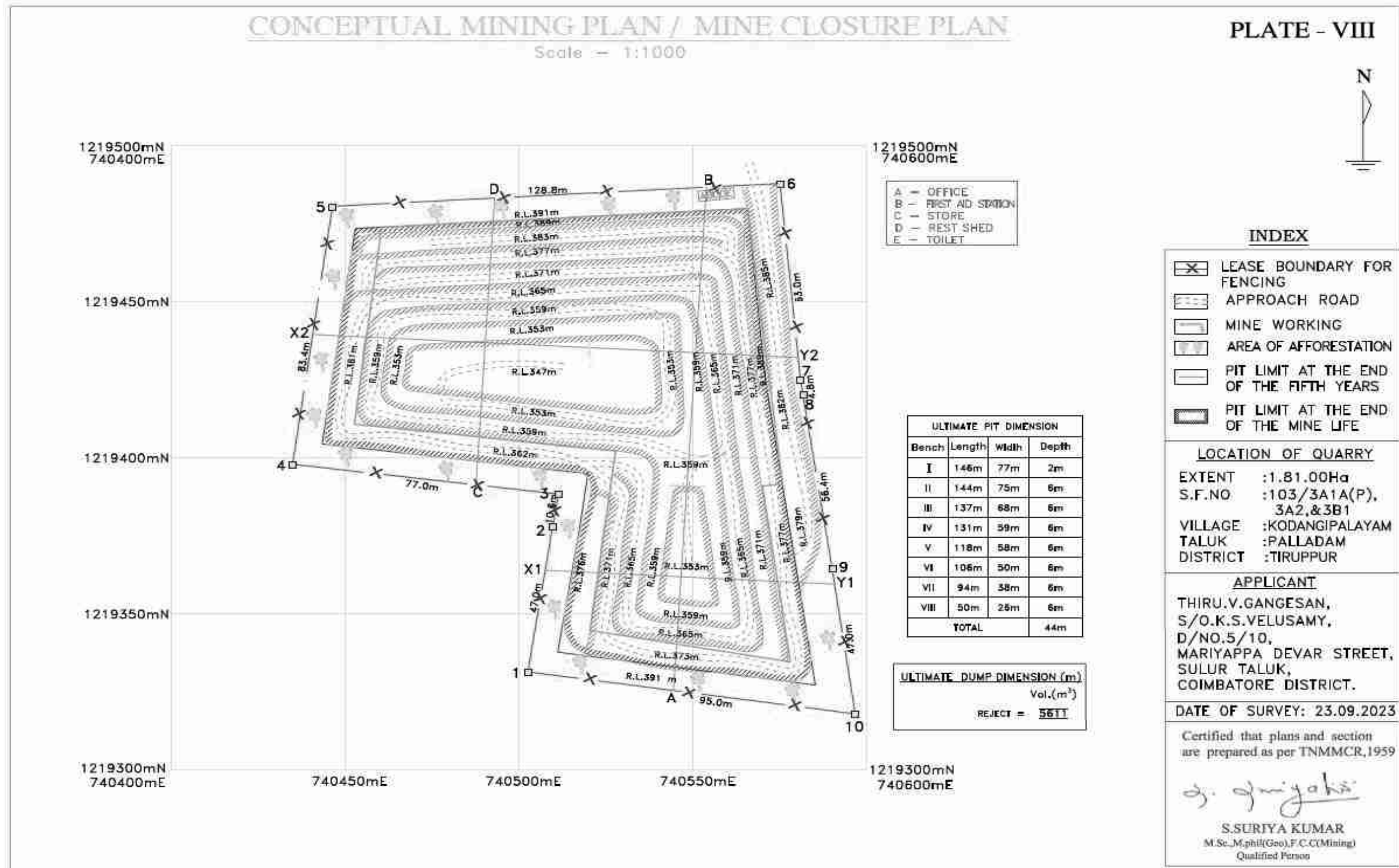
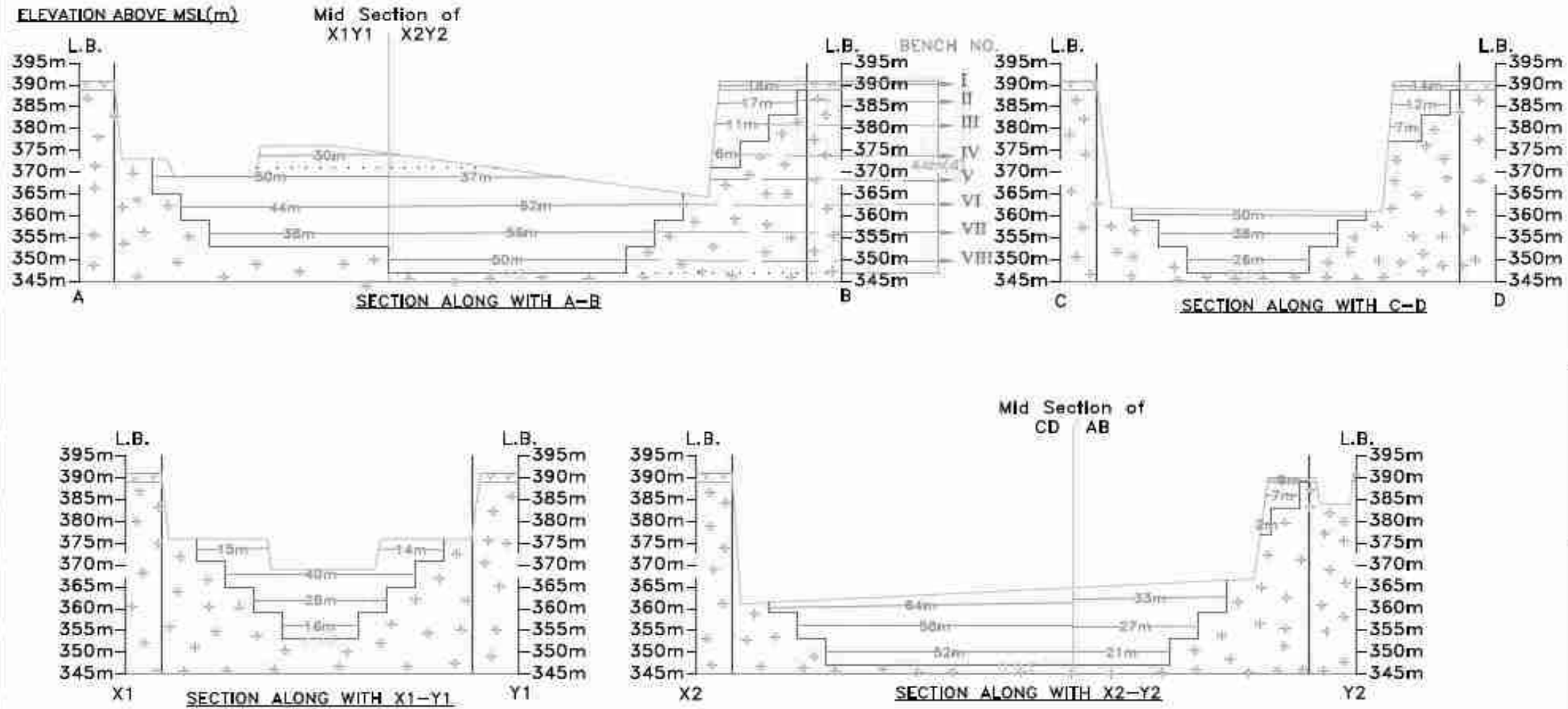


Fig. No. 2.20: Conceptual mining plan

SECTIONS OF ULTIMATE PIT LIMIT

KODANGIPALAYAM ROUGH STONE & GRAVEL QUARRY

Scale : Horizontal = 1:1000
 Vertical = 1:1000



INDEX

[L.B.]	LEASE BOUNDARY
[Gravel Pattern]	GRAVEL
[Charnockite Pattern]	CHARNOCKITE
[Dashed Line]	ULTIMATE PIT LIMIT
[White Box]	DEPTH OF ESTIMATION

LOCATION OF QUARRY

EXTENT	:1.81.00Ha
S.F.NO	:103/3A1A(P), 3A2,&3B1
VILLAGE	:KODANGIPALAYAM
TALUK	:PALLADAM
DISTRICT	:TIRUPPUR

APPLICANT
 THIRU.V.GANGESAN,
 S/O.K.S.VELUSAMY,
 D/NO.5/10,
 MARIYAPPA DEVAR STREET,
 SULUR TALUK,
 COIMBATORE DISTRICT.

DATE OF SURVEY: 23.09.2023

Certified that plans and section are prepared as per TNMMCR,1959

S. Suriya Kumar
 S.SURIYA KUMAR
 M.Sc.,M.phil(Geo),F.C.C(Mining)
 Qualified Person

Fig. No. 2.21: Sections Ultimate Pit limit

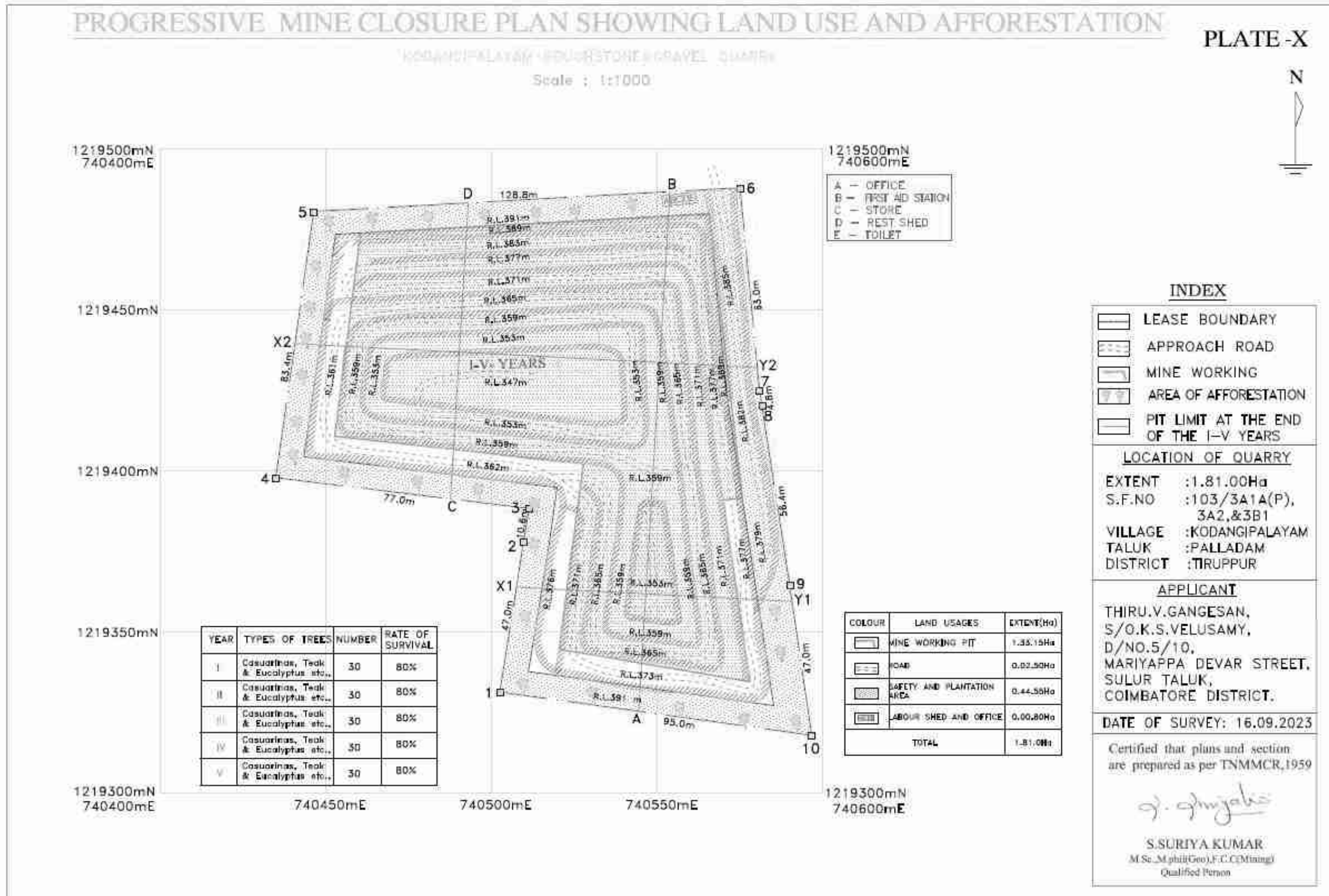


Fig No 2.22 Progressive Mine closure plan and Afforestation

2.12 Employment Potential (Management & Supervisory personal)**Table No 2.15: Employment Potential of Thiru. N.Gangesan, Rough stone and gravel quarry**

Management and supervisory personal	Mines manager	1 No
	Foreman	1 No
	Mate	1 No
Skilled	Operator and Driver	4 No's
Semi-skilled	Driller	4 No's
Unskilled	Musdoors/Labours	4 No's
	Cleaners	1 No
	Register Keeper	1 No
	Management	1 No
Total		18 No's

Table No 2.16: Water Requirements (5.0 KLD)

Domestic & Sanitary	Drinking Water- 0.5KLD Domestic Purposes- 1.0KLD
Dust suppression & Green Belt	Green belt purpose -1.5KLD water sprinkling on haul roads – 1.5KLD Wet drilling operation- 0.5KLD
Source	Drinking water - Mineral water industries by water canes. Domestic, Dust suppression and green belt - water tank vendor

2.13 Amenities**2.13.1 Sanitary facilities**

Semi-permanent latrines & urinals shall be maintained at convenient places for use of labours as per the provisions of Rule (33) of the main rules, 1955 separately for males and Females. Washing facilities shall also be arranged as per rule (36) of the mines Rules, 1955.

2.13.2 First Aid facility

First Aid station as per provisions under Rule (44) of the Mines Rules, 1955 will be provided and First aid kits kept in mines office room, the qualified first aid personnel should be appointed or nominated to attend emergency first aid treatment.

In case of eventuality, the victim will be given first aid immediately at the site and the injured person will be taken to the hospital located in Palladam. The competent and statutory of Foreman / Mate / Permit Manager will be incharge of the First aid.

2.13.3 Labour Health

Periodic medical examination has to be made for occupational health once in a year in addition to attending medical treatment of occupational injuries under Rule 45(A).

2.13.4 Precautionary safety measures to the Labourers

Safety provisions like helmet, goggles, safety belt, safety shoes etc., have to be provided as per the circulars and amendments made for Mine labors under guidance of DGMS.

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

2.13.5 The Child labor Employment

As per the Mines Act, 1952, no child labors below 18 years of old were engaged for any work in the quarry.

2.14 Project Cost

Proposed financial estimate / budget for (EMP) Environment Management

a) Project cost / investment

i) Land Cost	= Rs. 5,00,000/-
ii) Machinery to be used	= Rs. 25,00,000/-
iii) Fencing of the lease area	= Rs. 1,00,000/-
iv) Labourers Shed	= <u>Rs. 4,00,000/-</u>

Total = Rs 35,00,000/-

(* Part of machineries shall be hired)

b) EMP Cost

i) Personal protective equipment	= Rs. 50,000/-
ii) Environmental monitoring	= Rs. 2,50,000/-
iii) Occupation Health	= Rs. 75,000/-
iv) Green belt and Dust suppression	= Rs. 2,50,000/-
v) Wheel Washing station	= Rs. 75,000/-
vi) Sign Boards	= <u>Rs. 15,000/-</u>

Total = Rs. 7,15,000/-

2.15 End Use

The excavated rough stone is used for building's basement stones and other infrastructure development work in and around the district.

CHAPTER – 3: DESCRIPTION OF THE ENVIRONMENT

3.1 GENERAL

Collection of baseline environmental data of the project influenced area helps to predict the magnitude of impacts that are likely to be caused due to proposed activity of project. It also helps to identify critical environmental attributes required to be monitored during and after the proposed improvements. The baseline status of the project on environment is described section wise for better understanding of the broad-spectrum conditions. The baseline environment quality represents the background environment scenario of various environment components such as Land, Water, Air, Noise, Biological and Socio-economic status of the study area. Field monitoring studies to evaluate the base line status of the project site were carried out covering December 2022 – February 2023 with CPCB guidelines. Environmental data has been collected with reference to proposed rough stone and gravel quarry for:

- ❖ Land
- ❖ Water
- ❖ Air
- ❖ Noise
- ❖ Biological
- ❖ Socio-economic status

3.2 STUDY AREA

Exploitation of mineral resources from the land through mining causes Environmental and ecological instability, severe land degradation besides biological physical and socio-economic imbalance. The impact of the mining activities can be quantified through Environmental Impact Assessment Studies within the impact zone. The findings of EIA studies help in preparation of the environmental management plan for mitigating the adverse impacts. For the purpose of studying the baseline status of the environment, core zone and buffer zone are considered for Impact Assessment.

The core area for the purpose comprises mining lease area of 1.81.0 Ha and located in S.F.No. 103/3A1A, 103/3A2 and 103/3B1, Kodangipalayam Village, Palladam Taluk, Tiruppur District and Tamil Nadu. Geographical coordinates of the project site are 11° 1' 19.75"N to 11° 1' 25.26"N latitude, 77° 12' 2.02"E to 77° 12' 7.38"E longitude. The buffer zone comprises a 10 km from around the core area. This section contains a description of the existing baseline environmental status of the area surrounding the core zone. The data

collected has been used to define the environmental scenario of the area, against which the potential impacts of the project has been assessed.

3.3 STUDY PERIOD

Collection of base line data is an integral part of the preparation of environmental impact assessment reports. The scope of the study includes preparation of Environmental Impact Assessment study with detailed characterization of various environmental components such as, air, noise, water, land, biological and socio economic and other impacts of mining like hydrogeological disturbances of the area around 10 km radius around the mine located at Kodangialayam Village of Tiruppur District, Tamil Nadu. The scope covers all the conditions outlined in the TOR prescribed by SEIAA, Tamil Nadu for this mining project vide TOR Identification No. TO23B0108TN5824253N/File No: 10592 dated 03.04.2024. EIA study was conducted during the period of December 2022 – February 2023 to assess the Impact of this project to the environment and society.

3.4. BASELINE ENVIRONMENT

3.4.1. Scope of Baseline Data Collection

The scope of baseline data collection with respect to project activity covers the following environmental components.

- **Site Meteorology:** Collection of micro meteorological data on wind speed, Wind direction, temperature, relative humidity and solar radiation on hourly basis continuously during the study period.
- **Ambient Air Quality:** Collection of AAQ data at five locations for PM₁₀, PM_{2.5}, SO_x and NO_x.
- **Noise Environment:** Collection of noise levels at five locations on hourly basis to compute the day equivalent and night equivalent.
- **Water Environment:** Collection of water samples from various sources in and around mine site within 10 km radius were collected for assessment of the existing physico-chemical and bacteriological quality.
- **Land Environment:**
 - ❖ **Soil quality:** Collection of soil samples from five locations within 10 km radius of in site for analysis of the Physico-chemical characteristics.
 - ❖ **Land use and land cover:** Assessment of land use and land cover pattern of the study area through Remote sensing technique.
 - ❖ **Hydrology:** Collection of information on surface water bodies is to assess the interference with project activities.

- ❖ **Hydro Geology:** Collection of information on ground water status (Quality, quantity and ground water table) is to assess impact of mining on subsurface water bodies.
- **Ecology and Biodiversity:** Collection of primary data to understand baseline ecological status, important floristic and faunal elements, sensitive habitat and rare species; from field observation; collection of data from local village about importance and status of plants and animals. Compare the data so generated with authentic past records to understand changes with respect to proposed project; Identification of sensitive locations or protected as per Wildlife Conservation and Protection Act, 1972.
- **Socio-economic Environment:** Collection of details of the project affected persons does draw Rehabilitation & Resettlement. Collection of socio-economic status of various villages and amenities exists within an area of 10 km around the project area.

3.5 METEOROLOGY

Meteorology is the important characteristics in assessing the diffusion pattern of air pollutants released into atmosphere. Meteorological characteristic plays a vital role in assessing possible environment impacts and in preparing environmental management plan. Since meteorological factors show wide fluctuations with time, meaningful interpretation can be drawn from long-term reliable data. Such source of data is India Meteorological Department (IMD), which maintains a network of meteorological stations at important locations. The nearest IMD station for this proposed site is located at Tiruppur district.

3.5.1 Regional Meteorology

The Tiruppur district receives rainfall during NE monsoon, SW monsoon, summer and winter. The normal annual rainfall varies from 618 mm per year. Tiruppur has a tropical climate. The summers are much rainier than the winters in Tiruppur. The driest month is January, with 0.2 in of rainfall.

The rest of the district lies in the rain shadow region of the Western Ghats and experiences decent climate throughout the year, except the central and northern parts of the district. However, the eastern part of the district also having a meaningful rainfall and hood climate. The temperature ranges from 23.5°C to 33°C in plains and in hilly terrain of the district experiencing a maximum of 22°C in summer and a minimum of 10°C during winter.

3.5.2 Meteorological Data Recorded at IMD Station, Tiruppur District

The meteorological parameters were recorded on hourly basis during the study period for parameters like rainfall, wind speed, wind direction and temperature. In the present study,

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Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

in the month of December 2022 to February 2023 meteorological data has been taken to find the dispersion of pollutant concentration. Wind-rose diagram for the study period is shown given below in fig 3.1.

Table No 3.1: Summary of the Meteorological data for the study period

S. No	Month	Temperature (°C)		Rainfall (mm)	Humidity (%)	Avg. wind speed (mps)
		Max	Min			
1	December, 2022	33.4	23.1	134	62.4	2.0
2	January, 2023	30.7	19.7		64.2	2.2
3	February, 2023	33.3	21.2		54.3	2.4

In the present study, in the month of December 2022 to February 2023 meteorological data has been taken to find the dispersion of pollutant concentration. Wind-rose diagram for the study period is given below in fig 3.1.

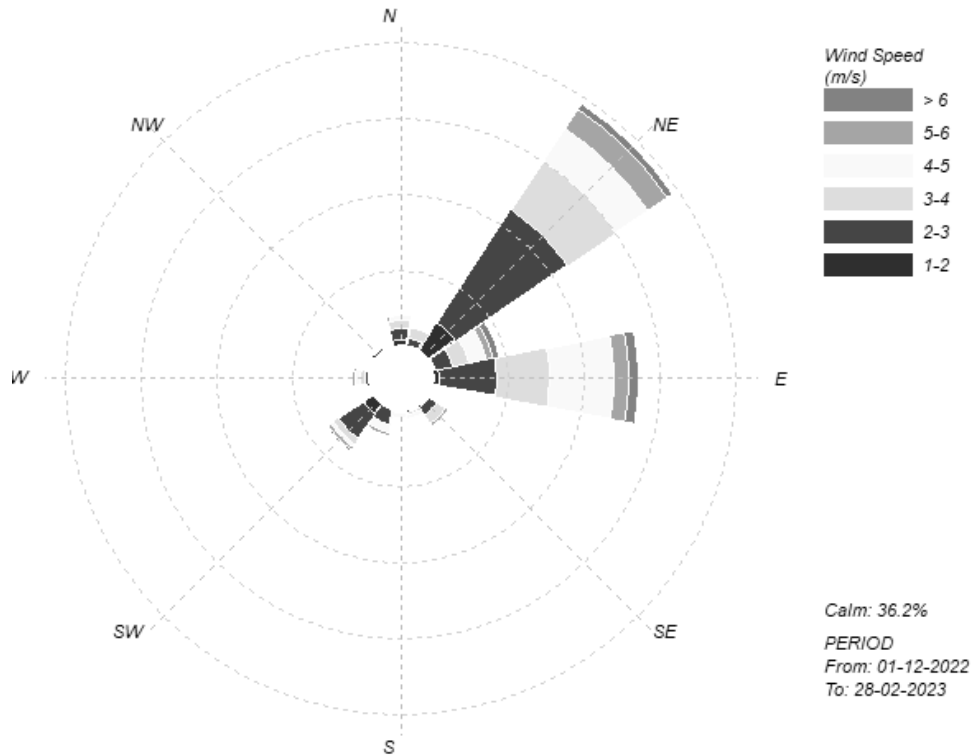


Fig No 3.1 Wind Rose Pattern

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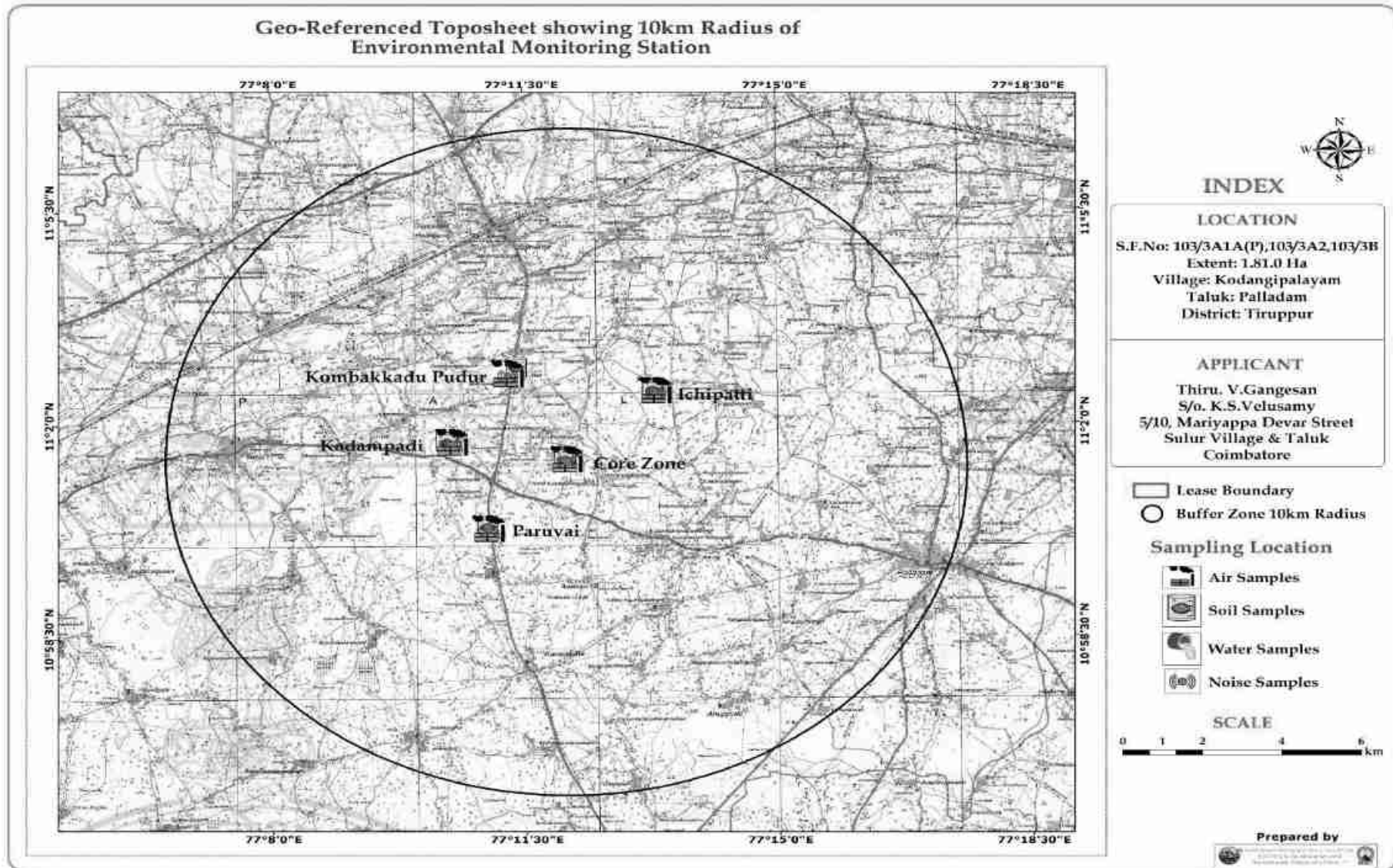


Fig No 3.2 Geo-Referenced Toposheet showing 10km radius of Environmental Monitoring Stations

3.6 AIR ENVIRONMENT

To assess the existing air quality of the study area, the baseline air quality was carried out. This will also be useful for assessing the standards of the ambient air quality of the proposed project after the operation.

3.6.1 Ambient Air Monitoring

3.6.1.1 Selection of sampling location

To assess the ambient air quality, monitoring was carried out on monthly basis in the surrounding areas of the project site. Air quality survey has been conducted for assessing the ambient air quality of the study area at 5 locations over a period of summer season i.e. December 2022 to February 2023. Major air pollutants viz, Particulate matter (PM₁₀ & PM_{2.5}), Sulphur Dioxide (SO_x) and Nitrogen Dioxide (NO_x) represents the basic air pollutants in the region for Ambient Air Quality Monitoring (AAQM). The ambient air quality monitoring stations are given in table 3.2.

Table No 3.2: Ambient Air Quality Monitoring Stations

Sampling Code	Location	Latitude (N)	Longitude (E)	Distance (km)	Direction
AAQ1	Lease area	11 ⁰ 1'25.39"	77 ⁰ 12'4.63"	--	--
AAQ2	Kombakkadu Puthur	11 ⁰ 2'49.72"	77 ⁰ 11'16.48"	3.8	N
AAQ3	Ichipatti	11 ⁰ 2'32.85"	77 ⁰ 13'18.84"	2.1	E
AAQ4	Kadampadi	11 ⁰ 1'42.58"	77 ⁰ 10'29.61"	4.0	W
AAQ5	Paruvai	11 ⁰ 0'17.38"	77 ⁰ 10'59.51"	3.7	S

3.6.1.2 Parameters and Monitoring Methodology

Ambient air quality monitoring was conducted over 3 months i.e. from December 2022 to February 2023 at a frequency of twice a week at each station adopting a 24-hours schedule. The sampling equipment was placed at a height of 3 to 3.5 meters above ground level at each monitoring station, thus negating the effects of wind blow ground dust. Ambient Air quality monitoring was conducted in respect of the following parameters:

- ❑ Particulate Matter (PM₁₀)
- ❑ Particulate Matter (PM_{2.5})
- ❑ Sulphur Dioxide (SO_x)
- ❑ Nitrogen Dioxide (NO_x)



Fig No 3.3: Air Sampling at Core and Buffer Zone

Geo-Referenced Toposheet showing 10km Radius of Air Sampling

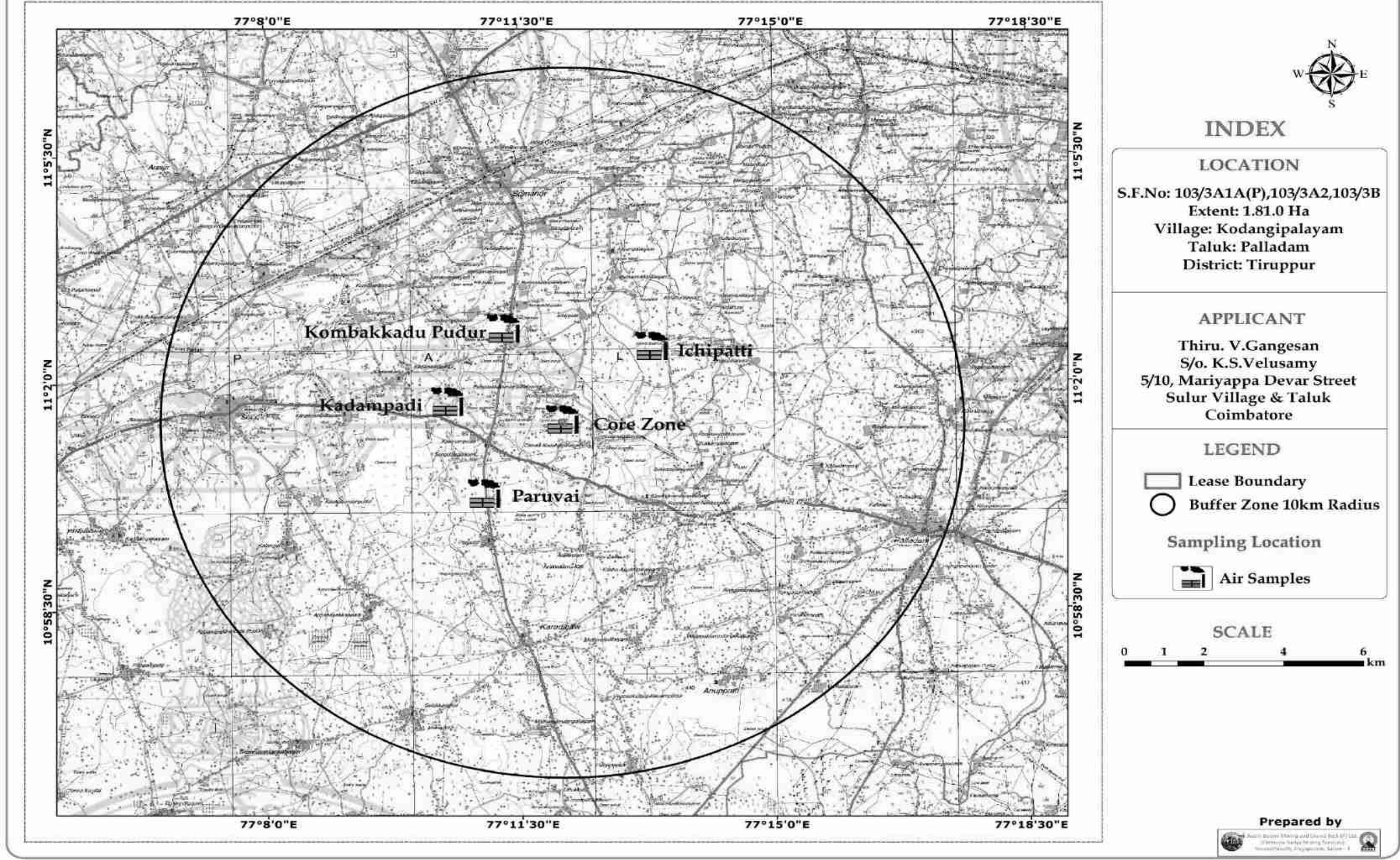


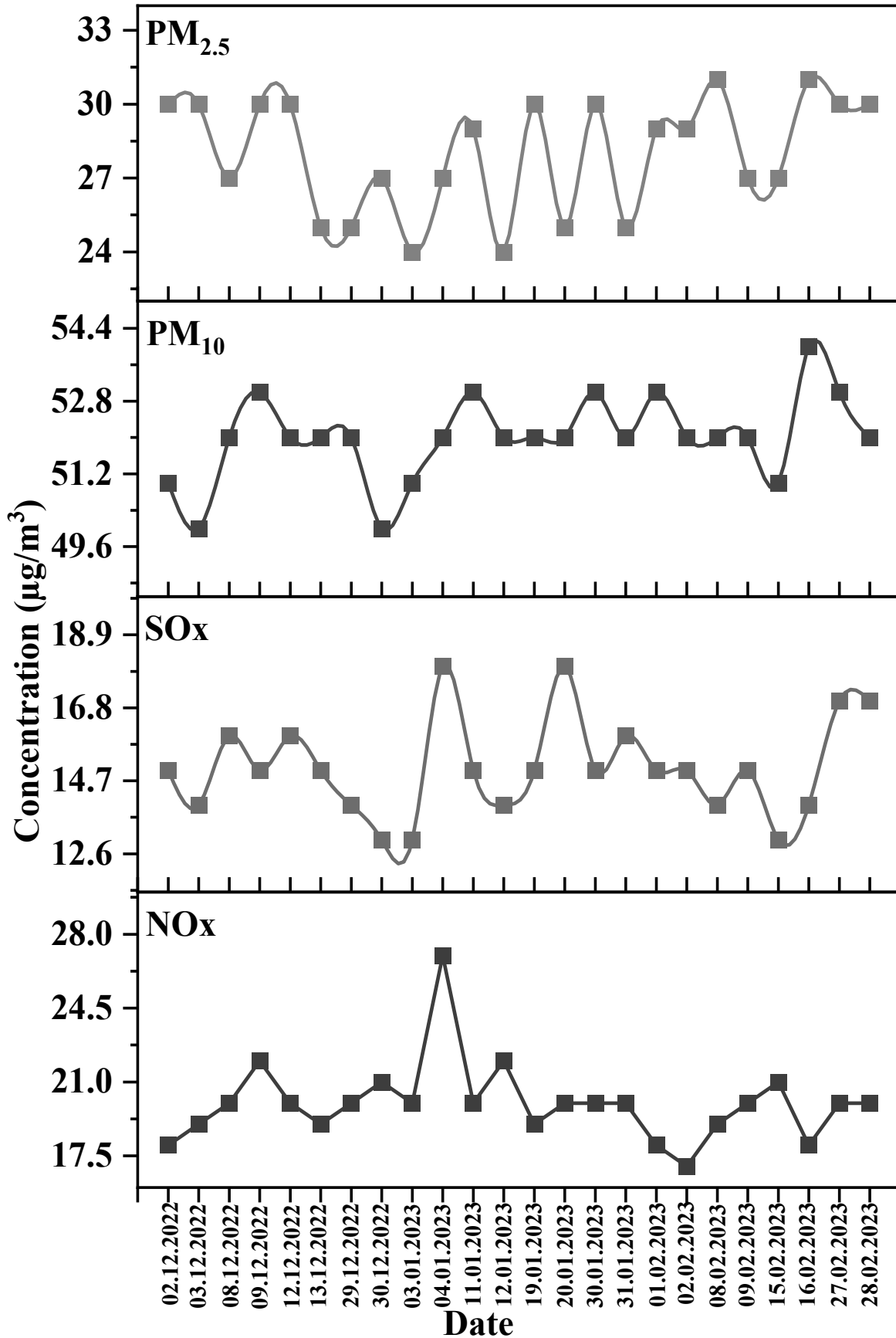
Fig No 3.4: Geo referenced Toposheet showing air sampling location

3.6.2 Monitoring Result

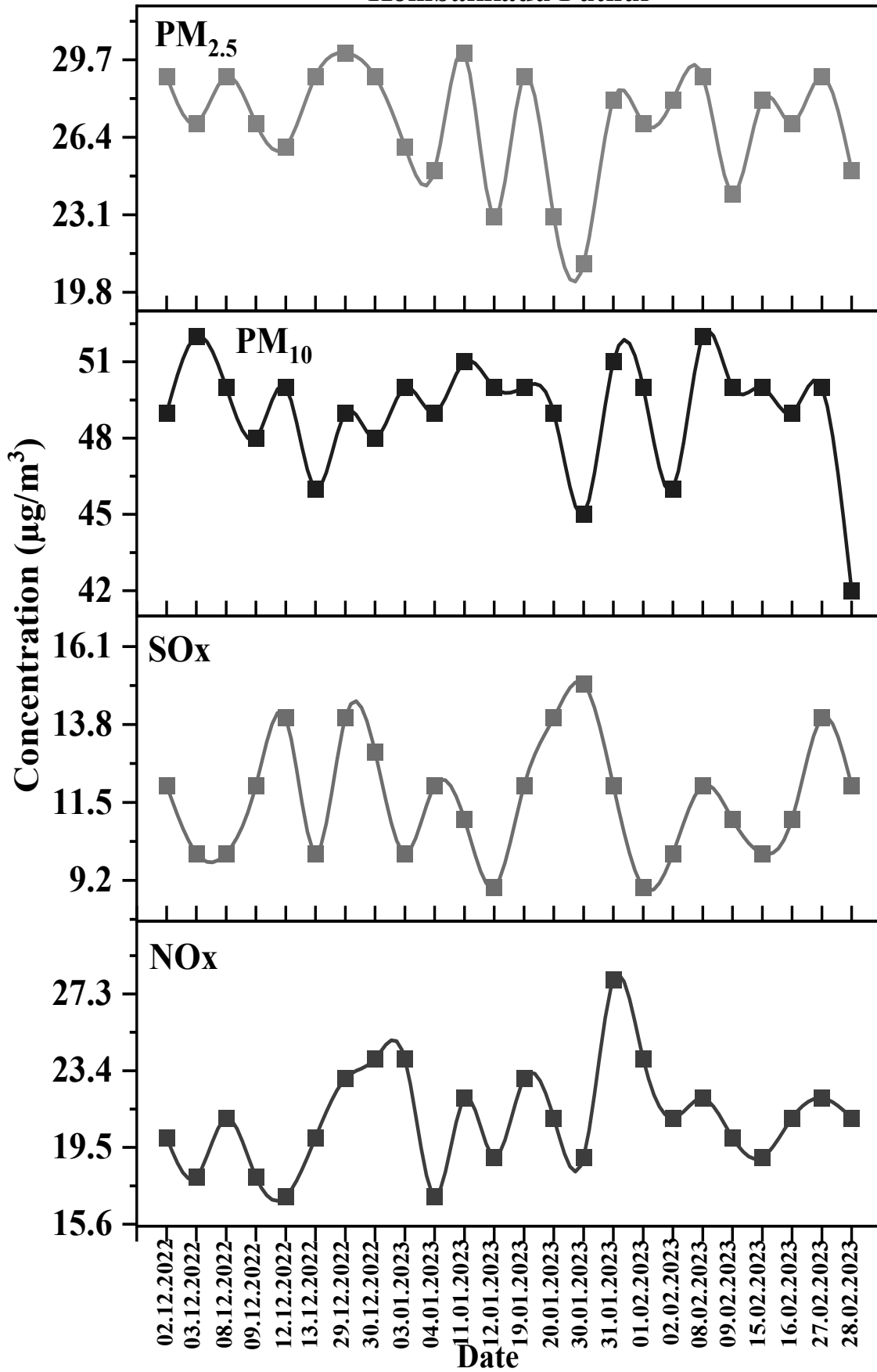
Statistical Analysis of Ambient Air Quality in the study area for the monitoring period are shown parameter wise in table 3.3.

SAMPLING SITE		PARAMETERS															
		PM ₁₀ (µg/m ³)				PM _{2.5} (µg/m ³)				SO _x (µg/m ³)				NO _x (µg/m ³)			
		Minimum	Maximum	Average	98%	Minimum	Maximum	Average	98%	Minimum	Maximum	Average	98%	Minimum	Maximum	Average	98%
Lease Area		40	54	52	53.5	17	32	28	31	9	19	15	18	14	30	20	25
Buffer Zone	Kombakkadu Puthur	42	57	49	52	15	32	27	30	11	22	12	14.5	14	30	21	29
	Ichipatti	44	55	50	52.5	18	30	28	30	7	20	14	19.5	11	27	23	27
	Kadampadi	39	53	48	51.5	18	29	26	28	9	19	13	17	17	32	22	26
	Paruvai	38	50	46	49	15	30	25	29	7	17	11	15	12	25	19	23
	NAAQS	100				60				80				80			

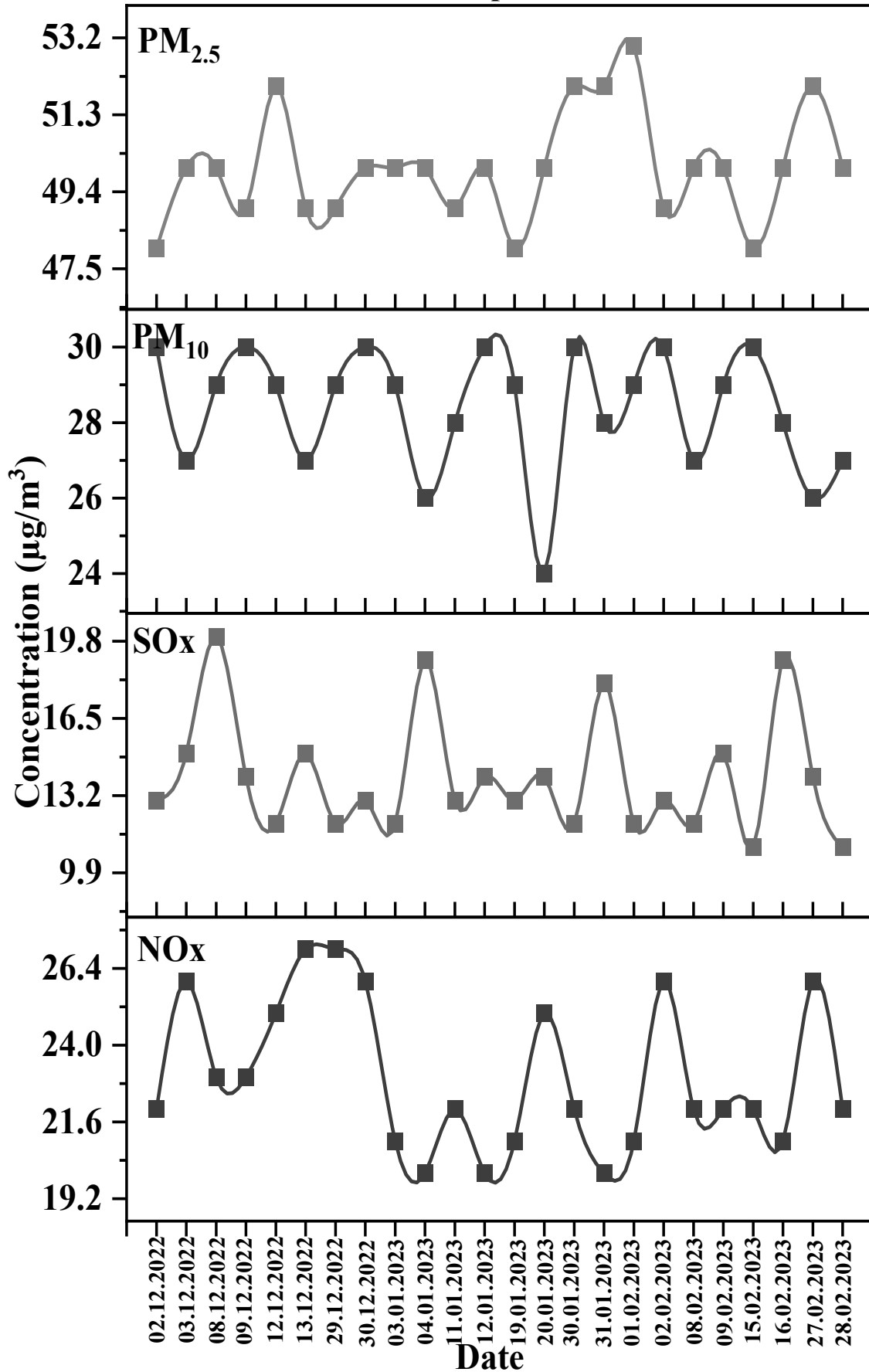
Core Zone

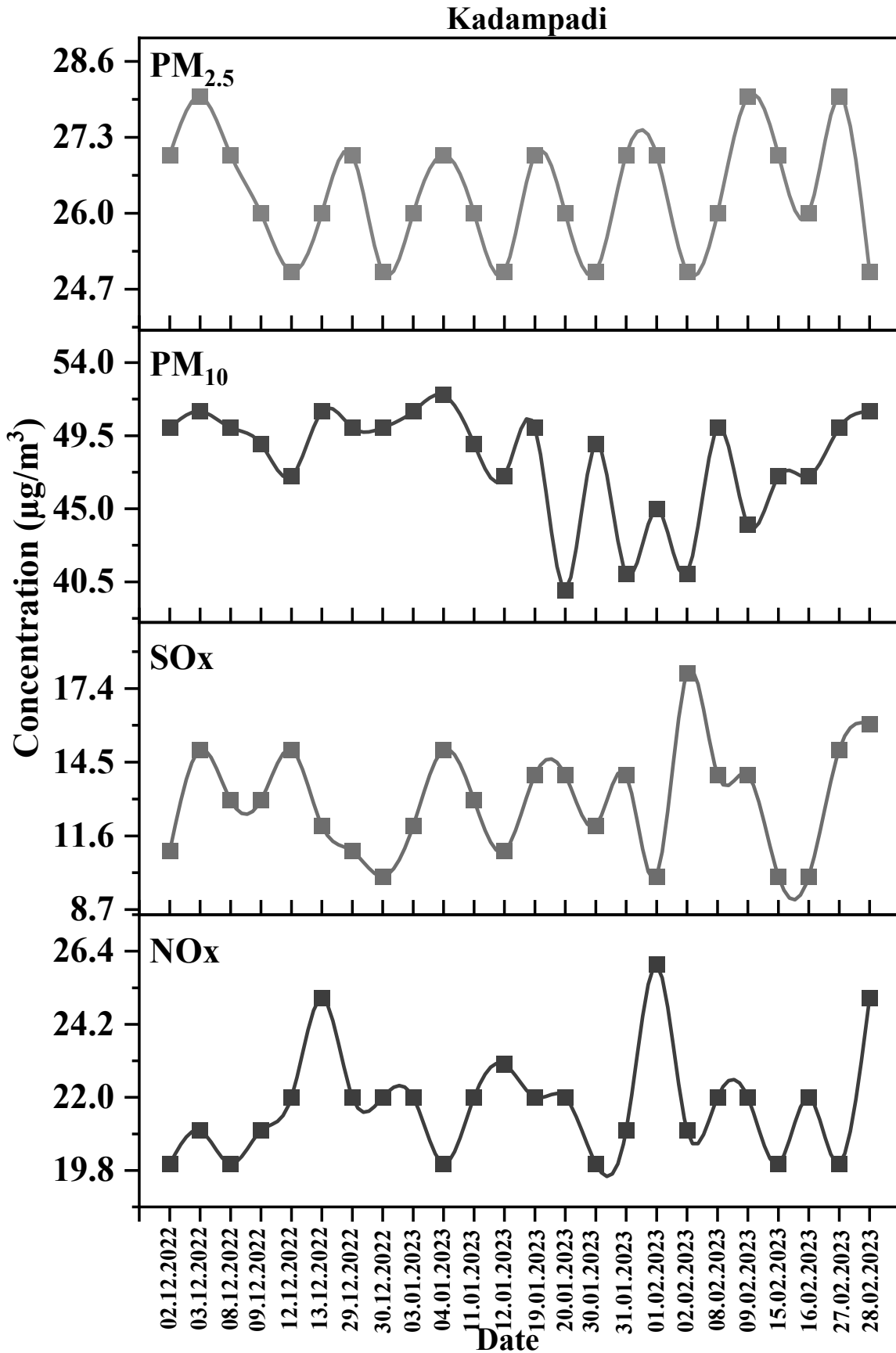


Kombakkadu Puthur



Ichipatti





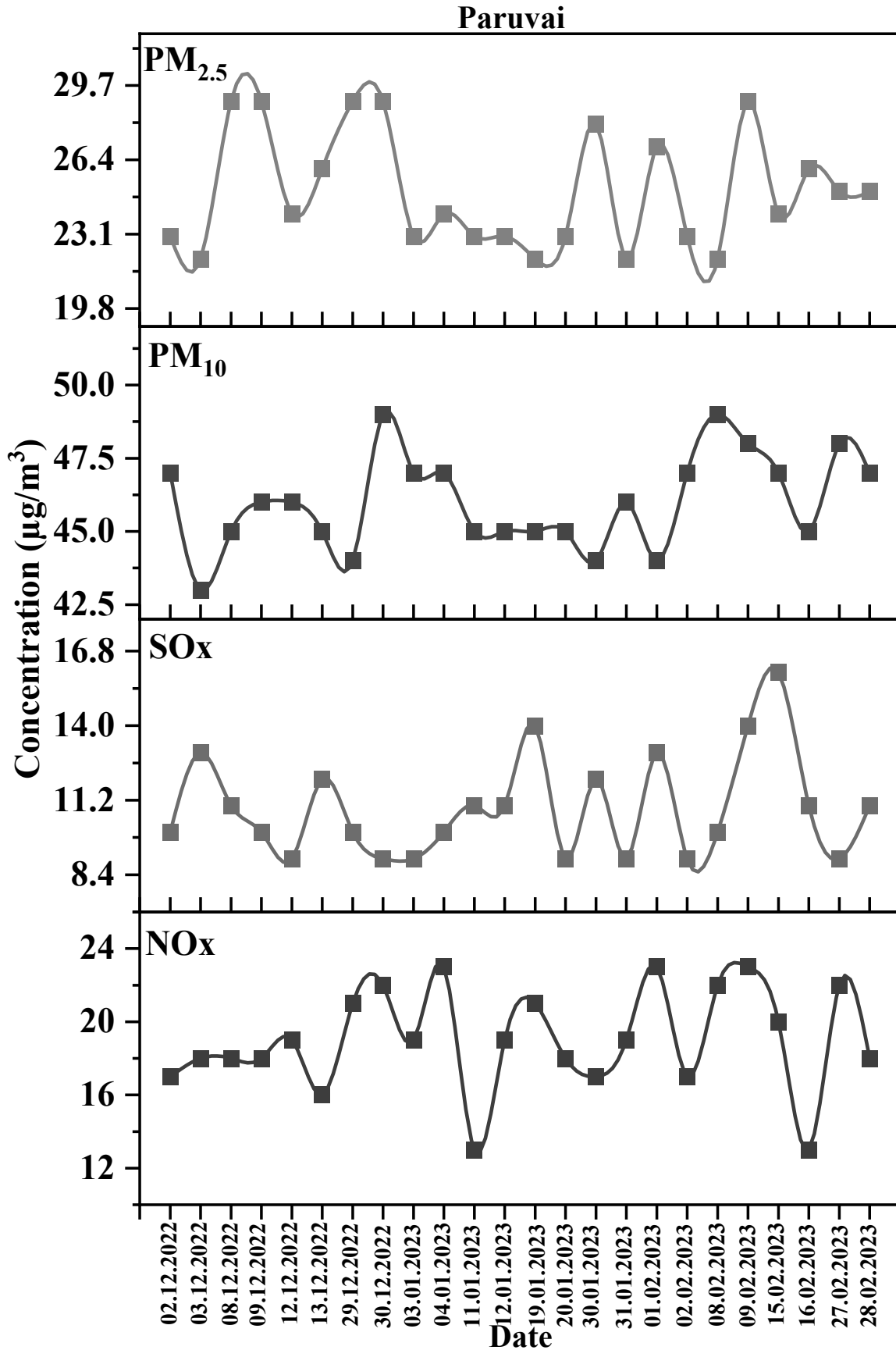


Fig No 3.5: Air quality analysis of Core and Buffer Zone

3.6.3 Observation

Air pollution has a negative impact on environmental quality and global climate change, which requires almost every country to make policies to improve air quality. The primary statistical analysis was performed with respect to the parameter such as PM₁₀, PM_{2.5}, SO_x and NO_x. The study area PM_{2.5} range was about 17 to 32 µg/m³, with an average value of 28 µg/m³ in lease area. Other four station minimum and maximum value on 15 to 32 µg/m³ at Paruvai and Kombakkadu Puthur, with an average value of 25 to 28 µg/m³ during the study period. Further discussed PM₁₀ was observed in five station minimum and maximum of 40 to 54 µg/m³, with an average value 52 µg/m³ in lease area and other station maximum concentration was noticed on 57 µg/m³ in Kombakkadu Puthur, minimum was observed in 38 µg/m³ at Paruvai village.

In this study area SO₂ minimum and maximum concentration was 9 to 19 µg/m³, with an average value of 15 µg/m³ at lease area during the study period. Other sampling station minimum and maximum concentration of 7 to 22 µg/m³ at Ichipatti and Kombakkadu Puthur village, with an average value of 11 to 14 µg/m³ with the same. NO₂ concentration of the during the study period minimum and maximum of 14 to 30 µg/m³ with an average value of 20 µg/m³ was noticed in the lease area. Further four station air sample minimum and maximum concentration was observed in 11 to 32 µg/m³ at Ichipatti and Kadampadi village, with an average value of 19 to 23 µg/m³ at Ichipatti and Paruvai village. Based on comparison study of results with NAAQS for monitored parameters, it is interpreted that ambient air quality of the monitored locations can be considered good as all the results of tested parameters are well within the limits of NAAQS prescribed by CPCB.

3.7 NOISE ENVIRONMENT

A preliminary reconnaissance was undertaken for identification and evaluation of the present noise status on the general population. Therefore, noise level measurement was carried out at each ambient air quality station and also at site. The objectives of Noise environment studies are:

- To assess the ambient noise level in the study area.
- To characterize the noise pollution area.
- To predict the temporal changes in the ambient noise level of the area.

The baseline noise levels were taken to assess the Impact of Noise on the workers in the mine site and on the nearby settlements due to mining machineries, movements of vehicles etc. Ten locations were identified based on the activities in the study area in dB (A)

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Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

scale. Georeferenced top map showing location of noise sampling is given in the fig 3.7. The noise recording stations are shown below in table 3.4 and fig 3.6.

Table No 3.4: Noise Monitoring Stations

Sl. No	Location	Station code	Distance (km)	Direction
1	Lease area	N1	--	--
	Lease boundary pillar (North)	N2	0.1	N
	Lease boundary pillar (South)	N3	0.1	S
	Lease boundary pillar (East)	N4	0.1	E
	Lease boundary pillar (West)	N5	0.1	W
2	Kombakkadu Puthur	N6	3.8	N
3	Ichipatti	N7	2.1	E
4	Kadampadi	N8	4.0	W
5	Paruvai	N9	3.7	S

3.7.1. Method of Monitoring

Sound Pressure Level (SPL) was measured at nine locations; one reading per hour was taken for 24 hours. The day time noise levels were monitored during 6 am to 10 pm and night time levels during 10 pm to 6 am at all the monitoring locations within the study area. Noise monitoring location of core and buffer zone are given in the fig 3.8.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District



Fig No.3.6: Noise Sampling at Core and Buffer Zone

For each location, day and night time Leq values have then been computed from the hourly Leq values such that comparison could be made with the national ambient noise standards.

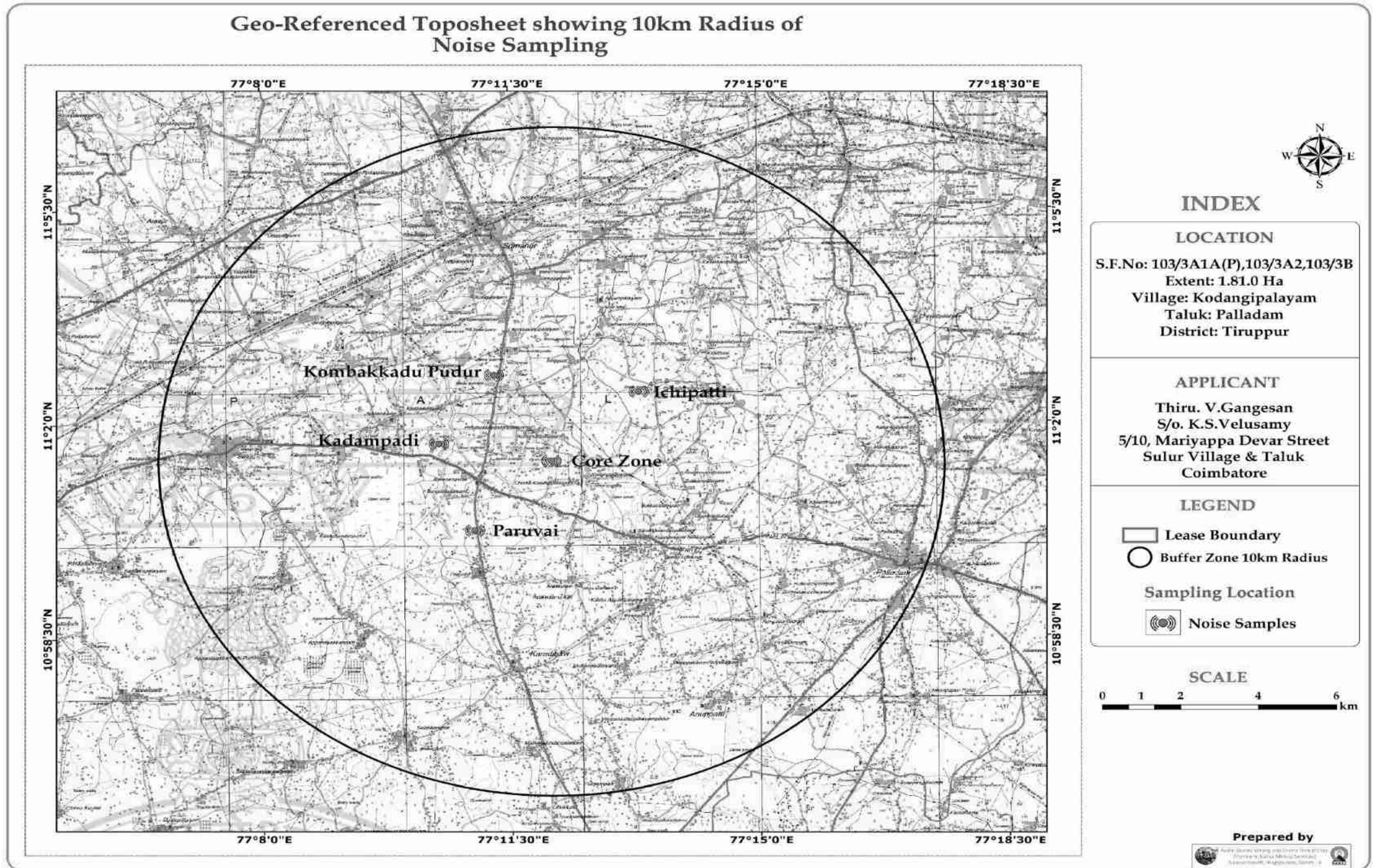


Fig No 3.7: Georeferenced Toposheet showing Noise sampling locations

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Table No 3.5: Summary of Ambient Noise Level during study period

Sample code	Location	Decibel dB (A)		TNPCB Standards
		Day Time	Night Time	
N1	Lease area	41.3	36.4	Industrial – 75 dB(A)
N2	Lease boundary pillar (North)	37.4	30.2	
N3	Lease boundary pillar (South)	36.9	29.7	
N4	Lease boundary pillar (East)	42.1	35.6	Residential – 55 dB(A)
N5	Lease boundary pillar (West)	39.8	31.5	
N6	Kombakkadu Puthur	49.4	37.7	
N7	Ichipatti	45.6	36.5	
N8	Kadampadi	46.8	35.6	
N9	Paruvai	37.0	31.1	

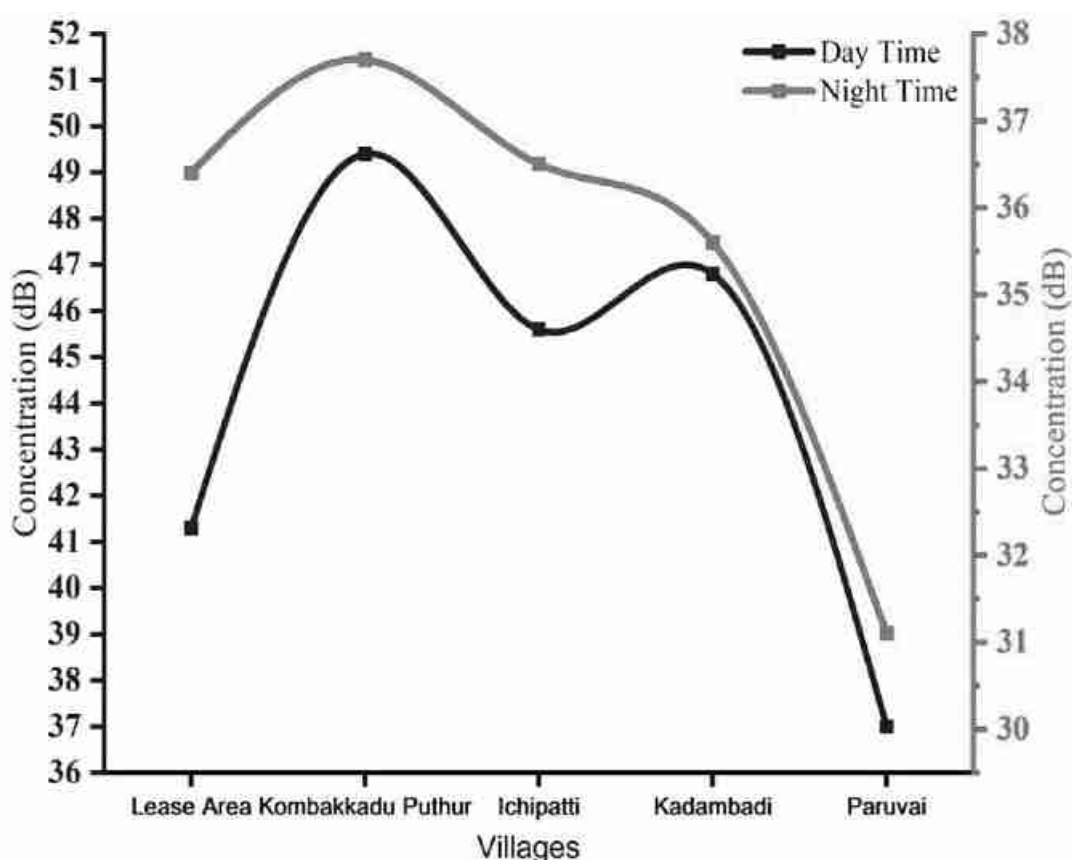


Fig No 3.8: Ambient Baseline Noise Level

3.7.2 INTERPRETATION

Sound begins as the movement of air molecules. A vibrating object sets up alternating bands of compression and expansion in the surrounding air. The human ear is the organ of the body that directly responds to sound and can be damaged if the sounds are too loud. Unwanted, uncontrollable, and unpredictable sounds, whether soft or loud labeled noise can be annoying and very disturbing. The body reacts to the annoyance of these unwanted sounds, or noises, through a complex set of physiological responses that are collectively

labeled stress. These physiological responses can include: a rise in blood pressure, excessive secretion of certain hormones, a change in heart rhythm, or a slowing down of digestion. Should the noise continue to be disturbing and the stress reaction sustained, then permanent ailments may occur in the circulatory, cardiovascular, or gastrointestinal system. Thus, noise mediated by stress can affect many organs of the body indirectly.

The day time noise levels at lease area were observed as 45.2 dB (A) being well within the Industrial area prescribed limit of 75 dB (A) whereas the noise levels at all study area such as Kombakkadu Puthur, Ichipatti, Kadampadi and Paruvai were observed to be in the range of 49.4, 45.6, 46.8 and 37.0 dB (A) being well within the Residential area prescribed limit of 55 dB (A) as per CPCB Standard for Industrial Areas.

In this study area night time noise levels at Kombakkadu Puthur, Ichipatti, Kadampadi and Paruvai villages were observed to be in the range of 37.7, 36.5, 35.6 and 31.1 dB (A) being well within the residential area prescribed limit of 55 dB (A) whereas the Noise level in the lease area was observed as 36.4 dB (A) which is also within the prescribed limit of 75 dB (A) as per CPCB Standard for Industrial Areas.

3.8 WATER ENVIRONMENT

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

- ❖ Identification and Location of major surface and ground water sources
- ❖ Location of the project site
- ❖ Water samples were collected and analysed for physical, chemical and biological parameters characteristics as per IS 10500:2012

Five water samples were collected one from lease area and four from the buffer area. Samples for chemical analysis were collected in polyethylene bottles. Samples for bacteriological analysis were collected in sterilized glass bottles. Selected physico-chemical and bacteriological parameters have been analyzed for projecting the existing water quality (baseline values) status of ground and surface water in the study area. Photographs of core and buffer zone water sampling locations are given in the fig 3.9. Details of water sampling locations are present in table 3.6. In addition, water quality details are given in the table 3.7. The following image of Georeferenced topo map showing locations of water samples are given in the fig 3.10.

Table No 3.6: Water Sampling Locations

Sampling code	Location	Latitude (N)	Longitude (E)	Distance (km)	Direction
WQ 1	Lease area	11 ⁰¹ '25.81"	77 ⁰ 12'10.43"	--	--
WQ 2	Kombakkadu Puthur	11 ⁰² '53.63"	77 ⁰ 11'24.18"	3.8	N
WQ 3	Ichipatti	11 ⁰² '35.36"	77 ⁰ 13'17.84"	2.1	E
WQ 4	Kadampadi	11 ⁰¹ '43.36"	77 ⁰ 10'29.68"	4.0	W
WQ 5	Paruvai	11 ⁰⁰ '17.73"	77 ⁰ 10'59.95"	3.7	S



Fig No. 3.9: Water Sampling at Core and Buffer Zone

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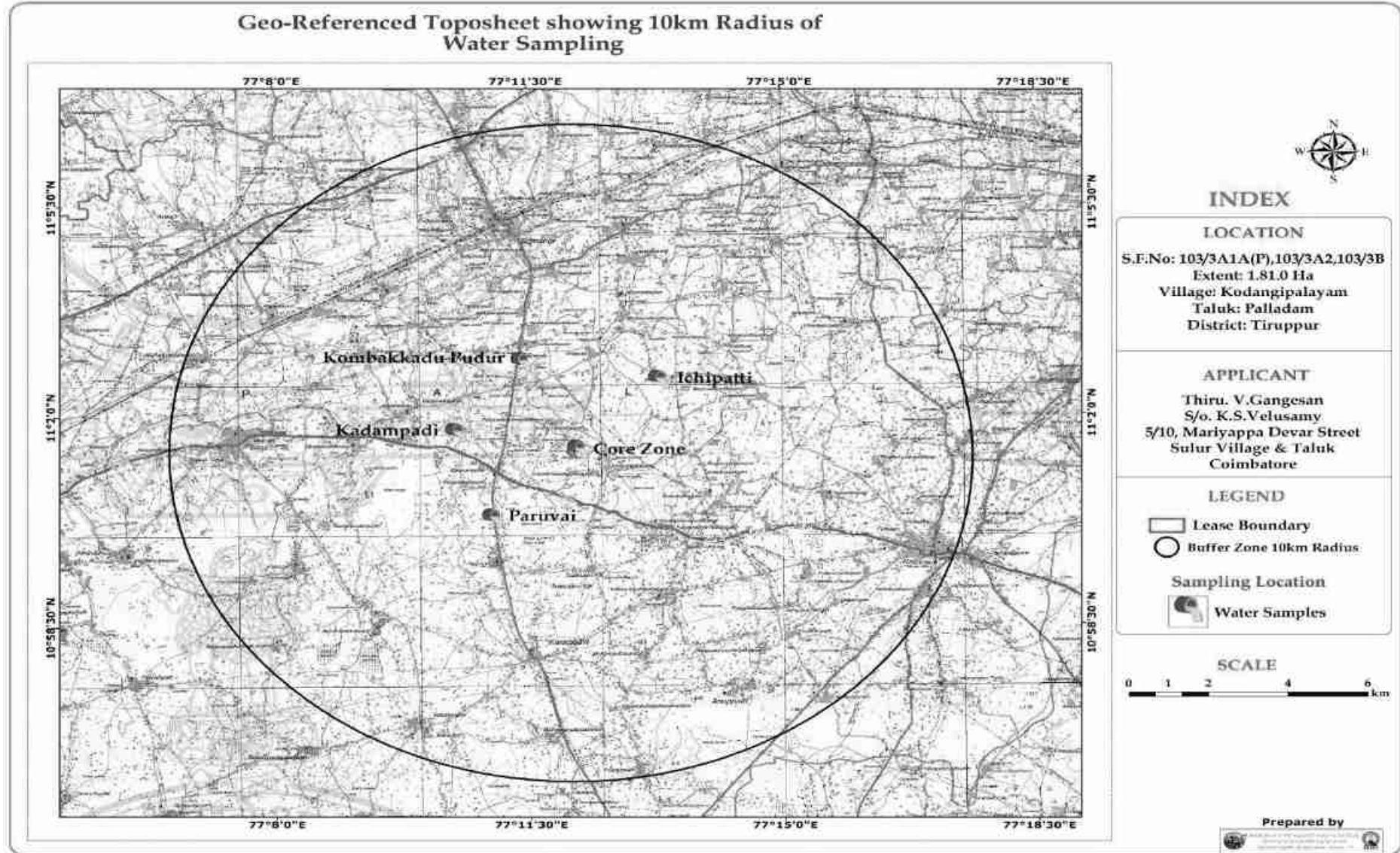


Fig No 3.10: Geo referenced Toposheet showing water sampling location

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Table No: 3.7: Summaries of Water Quality Results

Sampling Site		Parameters												
		pH	EC µs/cm	Tur (NTU)	TSS (mg/l)	TDS (mg/l)	TH (mg/l)	Ca (mg/l)	Mg (mg/l)	Cl (mg/l)	TA (mg/l)	HCO ₃ ⁻ (mg/l)	SO ₄ ²⁻ (mg/l)	Fe (mg/l)
Core Zone		7.49	1192	BDL	2	714	380	260	120	290	190	190	43	0.06
Buffer Zone	Kombakkadu Puthur	7.07	1364	BDL	2	830	390	240	150	341	210	210	47	0.07
	Ichipatti	7.84	758	BDL	1	464	190	110	80	220	80	80	56	0.04
	Kadampadi	7.25	1540	BDL	4	924	460	270	190	430	310	310	84	0.08
	Paruvai	7.15	2100	BDL	6	1260	420	96	44	273	168	168	93	0.09
IS 3025/Ref lab report	AL	6.5-8.5	-	1	-	500	200	75	30	250	200	-	200	0.3
	PL	6.5-8.5	-	5	-	2000	600	200	100	1000	600	-	400	0.3

*Protocol followed by: APHA 23rd Edition 2017

Tur- Turbidity, **TSS**- Total Suspended Solids, **TDS**-Total Dissolved Solids, **TH**- Total Hardness, **Ca²⁺**- Calcium, **Mg²⁺**-Magnesium, **Cl**-Chloride, **TA**-Total Alkalinity, **HCO₃⁻**- Bicarbonate, **SO₄²⁻**- Sulfate and **Fe**-Iron.

AL- Acceptable Limit.

PL-Permissible limit.

3.8.1. Interpretation

The physico-chemical characterization of the collected groundwater samples was performed as per the standard protocol IS 10500:2012.

Natural groundwater quality depends on the geological and geographical structures of the region. Typically, hydrochemical assessment of groundwater flow systems are based on the available information regarding groundwater chemistry. The study area groundwater pH range was about 7.07 to 7.84, all water sample pH is within the acceptable limit.

The range of electrical conductivity (EC) in 758 to 2100 $\mu\text{S}/\text{cm}$ during the study period. The groundwater samples exceeding the permissible limit in the study area. Based on electrical conductivity, groundwater can be graded as Type I if the salt enrichments are low ($\text{EC} < 1500 \mu\text{S}/\text{cm}$); Type II if the salt enrichments are medium ($\text{EC}: 1500 \text{ and } 3000 \mu\text{S}/\text{cm}$); and Type III if the salt enrichments are large ($\text{EC} > 3000 \mu\text{S}/\text{cm}$) (Subba Rao et al. 2012). Therefore, most groundwater samples in this study region falls under category-I. Turbidity from all the water samples was found below detectable limit. Total Dissolved Solids found in the range of 464 - 1260 mg/l in the study area. Core zone TDS value within the permissible limit and also Ichipatti. Other three water samples higher than the acceptable limit in the study area such as Kombakkadu Puthur, Kadampadi, and Paruvai village.

In the range of total hardness groundwater samples for 190 to 460 mg/l during the study period. Ichipatti groundwater samples within the acceptable limit. Other four groundwater samples fall under permissible limit in the study area. In the study area, calcium concentration was observed 96 to 270 mg/L in the study period. For most rocks, calcium is found in groundwater because of its simple solubility and its abundance. Study area magnesium concentration was 44 to 190 mg/L during the study period. Magnesium is an essential activator of many enzymes but it is also cathartic and diuretic. Even the Silicate rocks and dolomitic rock deposits were found to contribute calcium and magnesium ions.

Chloride in the water samples ranged from 220 to 430 mg/l. Highest Chloride value was recorded in Kadampadi village followed by Kombakkadu Puthur village during the study period. Chloride in drinking water is usually reported to be not toxic in humans except at a higher concentration. High chloride concentration makes the taste of water and beverages salty. High chloride containing water intake causes health problems such as hypertension, ventricular hypertrophy, osteoporosis, renal stones and asthma. Total Alkalinity in the study area water sample within the permissible limit.

The concentration of bicarbonate in the study area 80 to 310 mg/l all water samples under permissible limit. Sulfate ion concentration of 43 to 93 mg/l in the study area and Iron in the study area water samples within the permissible limit.

Overall, the study region's water samples fell into the "Good" category according to the water quality index, and no concern zones could be found in the lease area and within 10 km of the nearby villages.

3.9 LAND ENVIRONMENT

In order to assess impacts of project activities on existing physical, biological and social environment, it is necessary to collect information of Land Environment

3.9.1 Soil Environment

Tiruppur district is characterized by red brown soil, brown soil and black cotton soil etc., Some part of the area covered with black cotton soil contains Gypsum as lumps. Black cotton soil covers south-western part of the district

3.9.2 Methodology

Soil quality study has been carried out at the site and in the study area of 10km radius around the project site during December 2022 to February 2023 understands the physico-chemical nature of the soil. The frequency and methodology of soil quality sampling process is given in table 3.8. The soil quality sampling monitoring locations are given in table 3.9. The soil analysis results and discussion is given in table 3.10. Locations of the soil sampling villages core and buffer zone are given in fig 3.11 and Georeferenced soil map of around 10km radius is given in fig 3.12. The sampling locations have been identified with the following objects:

1. To determine the baseline soil characteristics of the study area.
2. To determine the impact of the project on soil characteristics and
3. To determine the impact on soil on fertility from agricultural productivity.

Table No: 3.8. Frequency and Methodology for Soil Sampling & Monitoring

S. No	Particulars	Details
1	Frequency	One sample from each station— once during the Study Period
2	Methodology	Soil Sample has been collected as per the CPCB standard and

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Table No: 3.9: Soil Sampling Locations

Sampling code	Location	Latitude (N)	Longitude (E)	Distance (km)	Direction
S 1	Core Zone	11 ⁰¹ '25.07''	77 ⁰ 12'3.74''	--	--
S 2	Kombakkadu Puthur	11 ⁰² '55.62''	77 ⁰ 11'23.67''	3.8	N
S 3	Ichipatti	11 ⁰² '33.09''	77 ⁰ 13'16.90''	2.1	E
S 4	Kadampadi	11 ⁰¹ '42.54''	77 ⁰ 10'25.63''	4.0	W
S 5	Paruvai	11 ⁰⁰ '19.01''	77 ⁰ 10'58.97''	3.7	S



Fig No.3.11: Soil Sampling at Core and Buffer Zone

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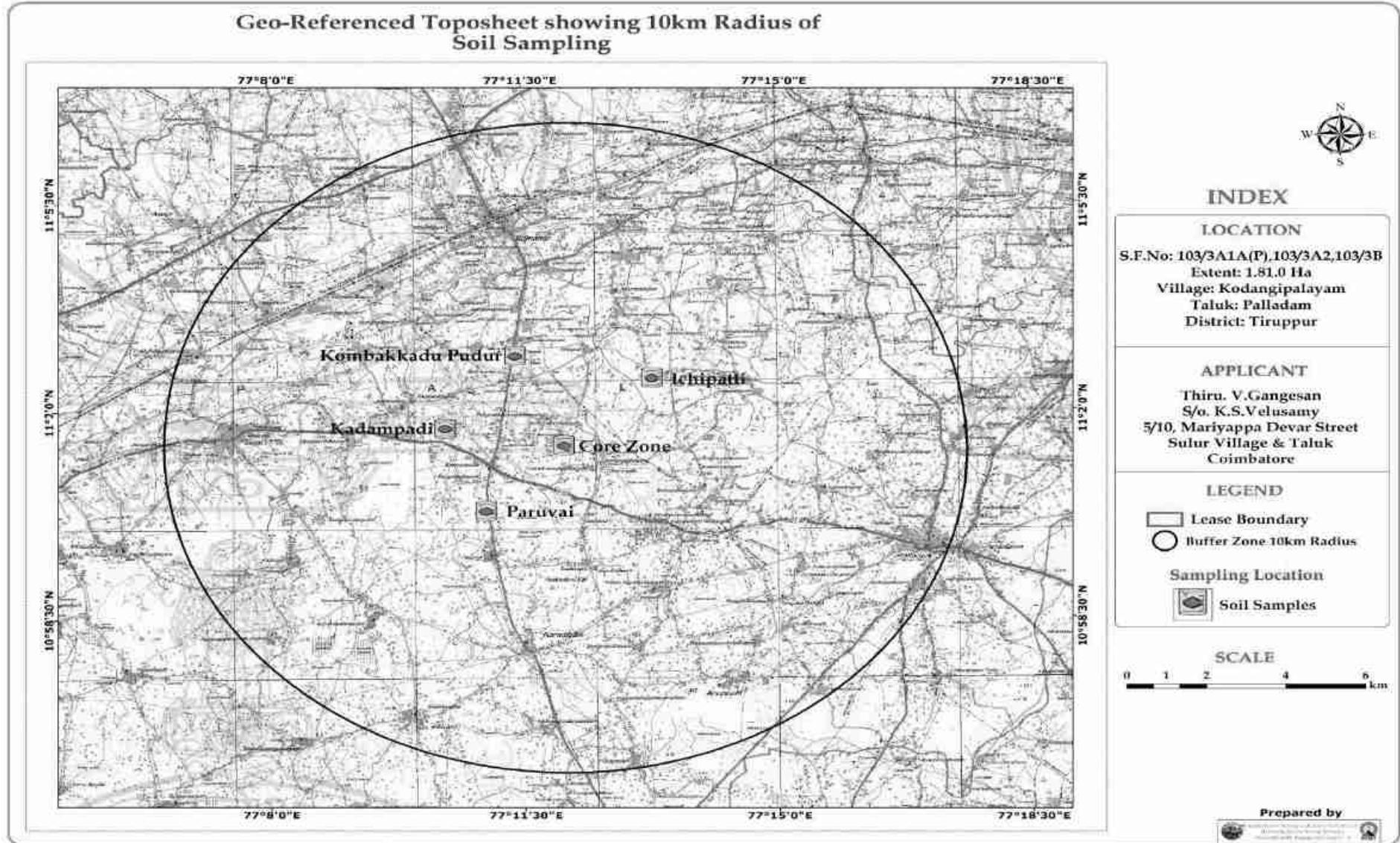


Fig No 3.12: Georeferenced Toposheet showing soil sampling locations

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Table No 3.10: Result of Soil Sample Analysis for Core and Buffer Zone

Sample Site		Soil Parameters											
		pH (10%Sol)	EC (10% Sol) µs/cm	M (%)	BD (g/cc)	WHC (%)	Texture (%)			OM (%)	Ca (%)	Mg (%)	Cl (%)
							Sand	Silt	Clay				
Core Zone		8.10	116	1.58	1.08	56	48	48	4	1.02	0.003	BDL	0.004
					Sandy Loam								
Buffer Zone	Kombakkadu Puthur	8.32	123	2.03	1.04	62	54	26	20	1.35	0.002	BDL	0.004
				Sandy Clay Loam									
	Ichipatti	7.55	104	1.69	1.15	58	48	28	24	0.98	0.003	BDL	0.004
				Sandy Loam									
	Kadampadi	8.31	121	1.95	1.65	64	48	32	20	1.42	0.002	BDL	0.003
				Sandy Loam									
	Paruvai	7.80	108	2.34	1.35	54	52	28	20	1.05	0.004	BDL	0.005
				Sandy Loam									

EC-Electrical Conductivity, **M**- Moisture, **BD**- Bulk Density, **WHC**- Water Holding Capacity, **OM**- Organic Matter, **Ca**- Calcium,

Mg-Magnesium and **Cl**-Chloride.

BDL = Below the Detectable Limit.

DL = Detection Limit.

3.9.3 Observation

Physical characteristics of soil were characterized through specific parameters such as pH, electrical conductivity, moisture, bulk density, water holding capacity, texture, organic carbon, calcium, magnesium and chloride. Soil pH plays an important role in the availability of nutrients. Soil microbial activity as well as solubility of metal ions is also dependent on pH. In the study area, variations in the pH of the soil were found to be 7.55 to 8.32. The soil analysis result shows that, the pH of the soil samples collected was found to be neutral to slightly basic.

Electrical conductivity (EC) is a measure of the soluble salts and ionic activity in the soil and was found to be in the range 104 to 123 micromhos/cm. According to the analysis of soil texture in different site of core and buffer zones the soil texture is mostly sandy loam and sandy clay loam in study area. Total organic matter of the soil varies from 0.98 to 1.42%. From the soil analysis result it can be concluded that the soil of the area is highly fertile and suitable for agricultural purpose.

3.10 LAND USE/LAND COVER STUDY

This section includes the study of natural features like topography, climate, drainage pattern etc. which has been discussed below:

Land Use Studies- Studies on Land use aspects of eco-system play an imperative role in identifying susceptible issues and to take appropriate action to uphold ecological equilibrium in the region. The mining and allied activities involved in river bed mining are creation of temporary haul roads / transportation track and formation of mined pits inside river, etc. The main objective of this section is to provide a baseline status of the study area covering 10km radius around the exiting cluster site so that temporal changes due to the mining activities on the surroundings can be assessed in future.

3.10.1 Objectives

- To determine the present land use pattern;
- To ascertain the temporal changes in land use pattern due to mining.
- To scrutinize the impacts on land use due to existing mining activities in the study area;

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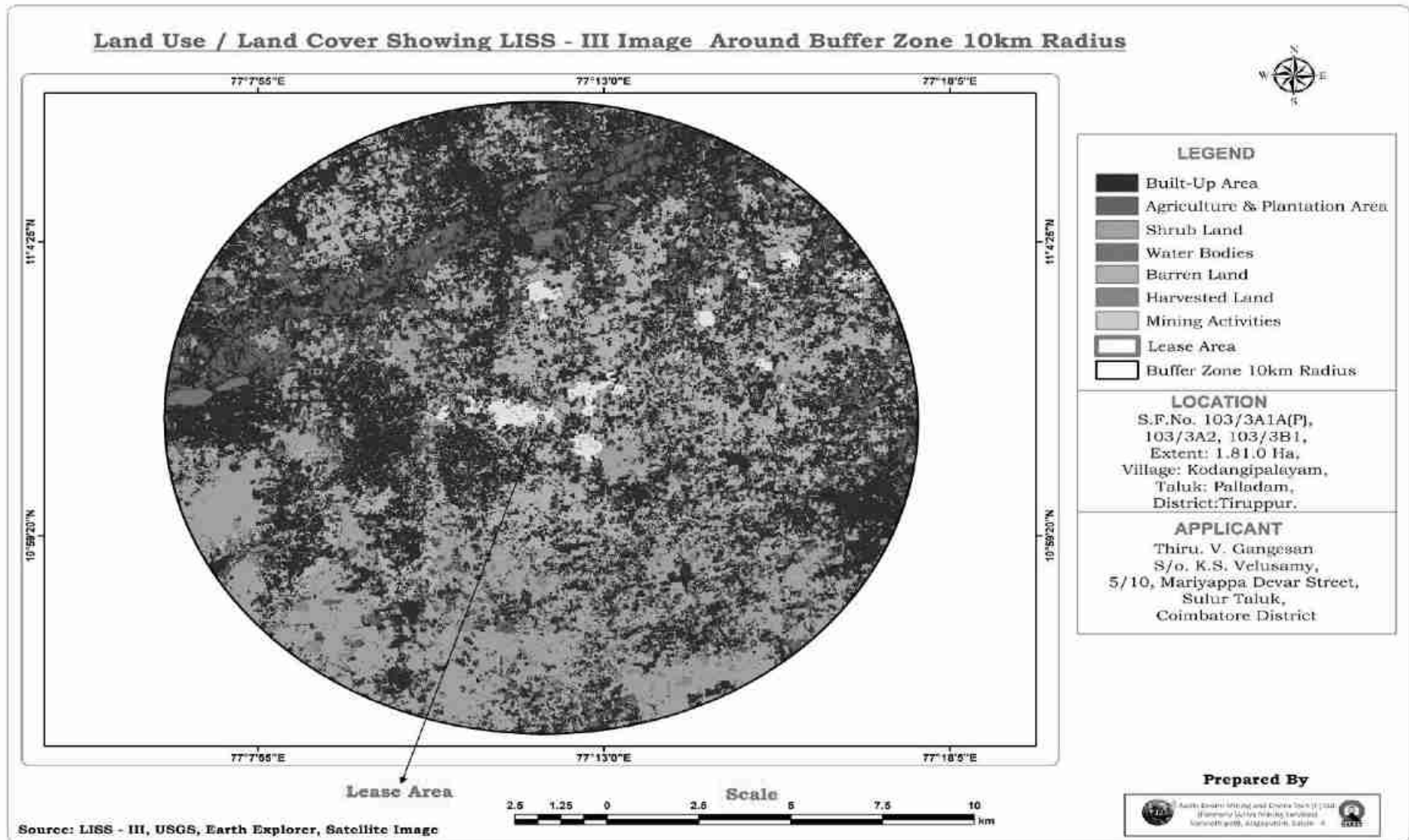


Fig No. 3.13: Land use / Land cover statistics of project study area Land Use cover of 10km radius.

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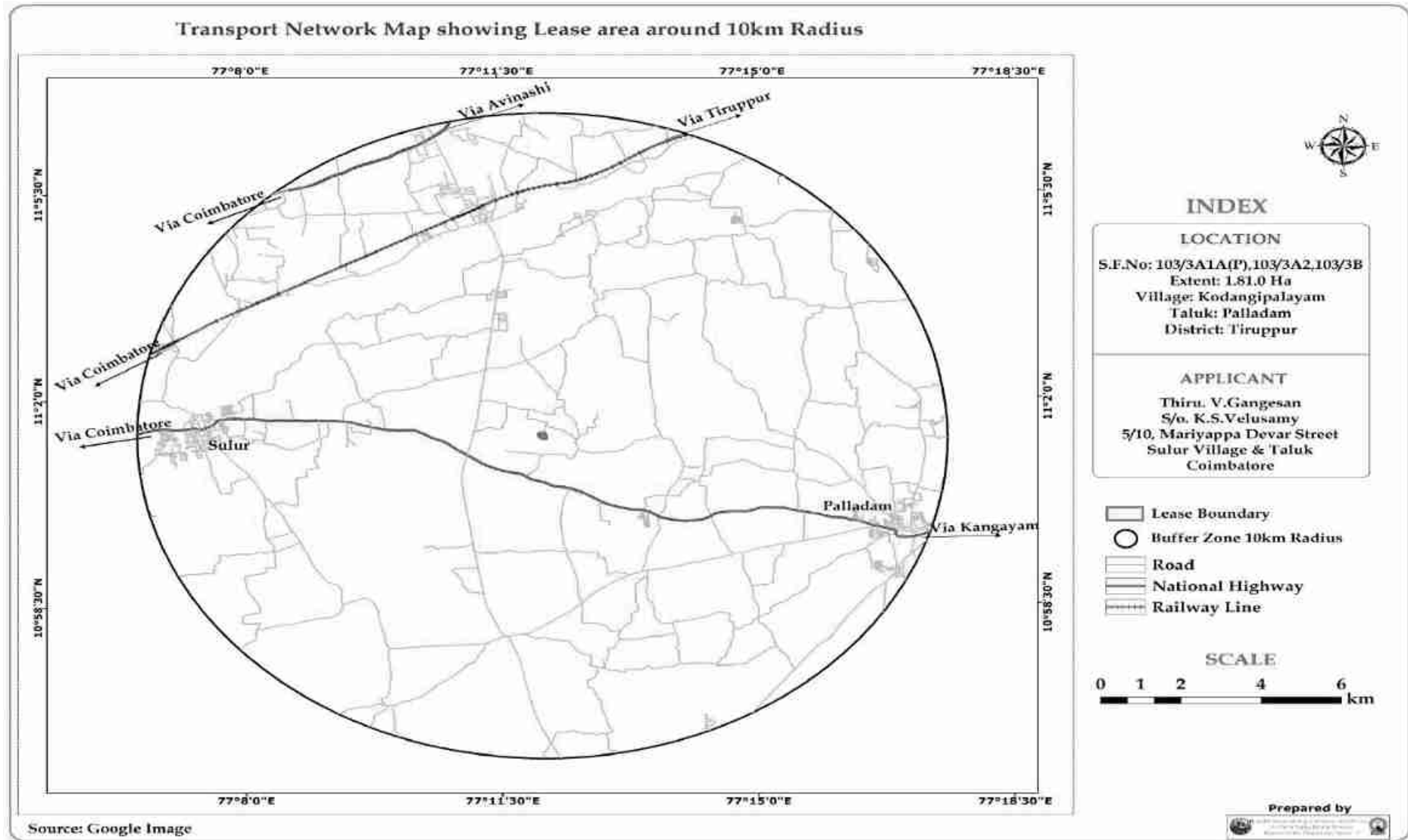


Fig No. 3.14: Toposheet showing Road Accessibility details of 10 Km Radius

3.10.2 Methodology for Baseline Data Generation

Land use/Land cover map preparation, Base map creation; Geometric and Radiometric correction of satellite image have been processed using ERDAS Imagine 9.2 and Arc GIS 10.8 Software. The methodology used for present LU/LC of study area is shown and is detailed below:

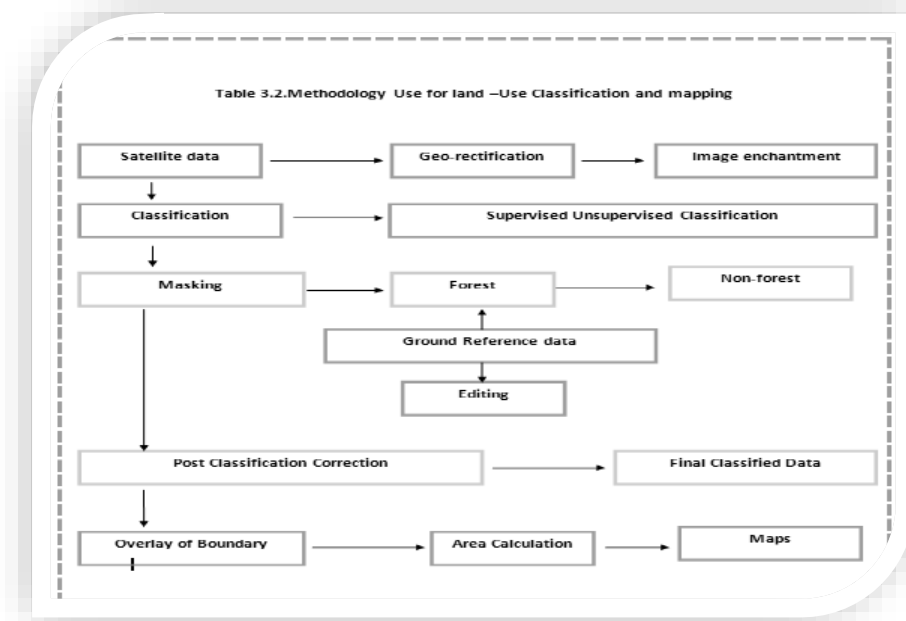


Fig No. 3.15: Methodology use for land- use classification and mapping

3.10.2.1 Methodology Adopted for Thematic Data Extraction from The Satellite Imageries:

ERDAS image processing software and ArcGIS Software were used for the project. Erdas 9.2 Image Processing Software was used for digital processing of the spatial data. Digital image processing techniques were applied for the mapping of the land use/land cover classes of the provided area from the satellite data. The methodology applied comes under following steps:

- a. **Image Extraction:** Satellite imageries were obtained and a sub set for the Area of Interest was created through ERDAS image processing software. Processing functions primarily done to improve the appearance.
- b. **Geo-Rectification:** Geometric correction includes correction for geometric distortions due to sensor, earth geometry variations and conversion of the data to real world coordinates (e.g. Latitude and Longitude) on the Earth's surface. The satellite imagery was geometrically rectified with reference to the geo-referenced toposheets and vector data.

- c. Image Enhancement: Image enhancement is one of the important images. Imagery to assist in visual interpretation and analysis. Various options of image enhancement techniques were tried out to get the best image for visual interpretation. Histogram equalized stretch enhancement techniques was applied to the imagery of the study area for better interpretation of different features in the satellite imagery.
- d. Classification: Satellites images are composed of array of grid; each grid has a numeric value that is known as digital number. Smallest unit of this grid is known as a pixel that captures reflectance of ground features represented in terms of Digital number, which represent a specific land feature. Using image classification technique, the satellite data is converted into thematic information map based on the user's knowledge about the ground area.

Hybrid technique has been used i.e. visual interpretation and digital image processing for identification of different land use and vegetation cover classes based on spectral signature of geographic feature. Spectral signature represents various land use classes. Image interpretation keys are developed based on image characteristics like colour, tone, size, shape, texture, pattern, shadow, association etc which enables interpretation of satellite images for ground feature. Training sites are then assigned based on their spectral signature and interpretation elements.

Land use/Land cover Map has been broadly classified into five classes namely, Built-up Area, Plantation, Agriculture, Water Bodies, Non-agriculture, Barren Land and mining areas have been categorized in others class. Using image classification algorithm land use map is then generated.

3.10.2.2 Topography

The area is marked in the survey of India Toposheet No.58 E/4. The area lies in the northern latitude of 11° 1' 19.75"N to 11° 1'25.26"N and eastern longitude of 77°12' 2.02"E to 77°12'7.38"E with elevation 391m above MSL. Kodangipalayam is a Village in Palladam Block in Tiruppur District of Tamil Nadu State, India. It is located 18 KM towards North East from District headquarters Tiruppur 463KM from State capital Chennai. The total geographical area is 5087.26 Ha.

The base maps of the study area were prepared, with the help of Survey of India Toposheet on 1:50,000 scale. This project site is granted mining lease over an extent of 1.81.0 Hectares in S.F.No: 103/3A1A, 103/3A2 and 103/3B1 patta land of Kodangipalayam Village, Palladam Taluk, Tiruppur District and Tamil Nadu for quarrying Rough stone and gravel.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

Tiruppur is known for the cluster activity and mostly each activity of garment making is being carried out by outside units say Knitting units, Dyeing and Bleaching Units, Fabric Printing, Garmenting, Embroidery, Compacting and Calendaring and other ancillary units. Amaravathi Dam at Amaravathinagar is located in Indira Gandhi Wildlife Sanctuary in Tiruppur District. It was built primarily for irrigation and flood control and now 4 megawatts of Hydal Electric Power Generating unit commissioned. The major horticulture products cultivated in the districts are Fruits (Mango and Amla etc.,) vegetables medical plants etc., In Tiruppur District, Coconut is grown mainly in Gudimangalam Block (9000 Hec.) followed by Udumalai 5346 Hec., Kundadam 3870 Hec. Pongalur 3508 Hec and Madathukulam 3041 Hec. Remaining area of the district contributes to 2200 Hec. In Tiruppur District, Kangayam Taluk plays a major role in procuring copra for oil production. Coconut production play major role in farming the Agro based industries namely production of coconut oil and other by-products of Coconut like coirindustries, Husk production etc.,

Table No. 3.11: LU/LC classes and their coverage in sq. Km of 10 km radius

S. No	Description	Area (Ha)	Percentage (%)
1	Built-up	12294.29	38.41
2	Shrub Land	6543.18	20.44
3	Agriculture & Plantation	3992.87	12.48
4	Water Bodies	160.74	0.50
5	Harvested Land	638.62	2.00
6	Barren Land	7043.97	22.01
7	Mining Area	1332.15	4.16
Total		32005.81	100.0

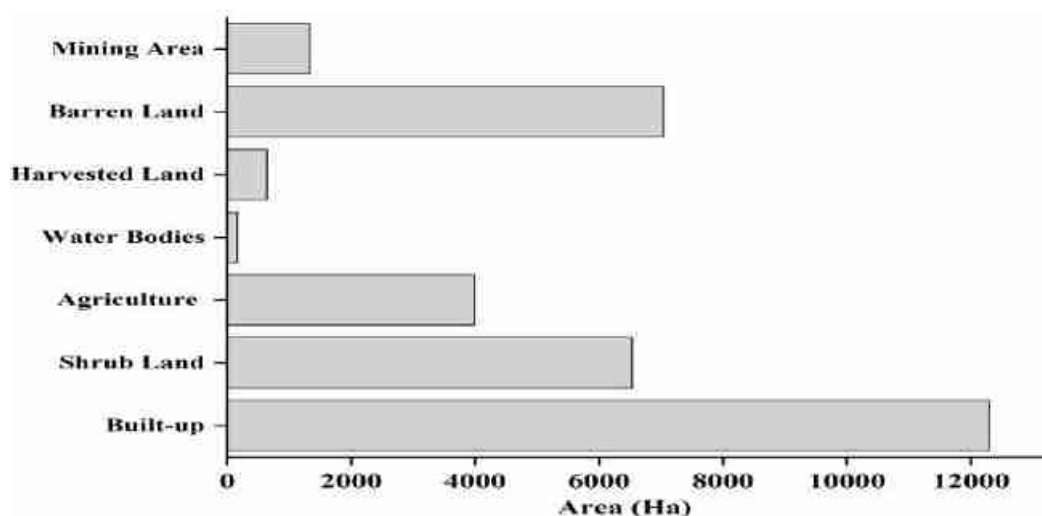


Fig No. 3.16: Chart showing Land use/ Land cover Analysis

3.10.3 Drainage Pattern of the Area

Drainage pattern of the area is dendritic with high stream density due to rugged topography. In the cluster no permanent Nalla/river throwing in the lease area. The rainwater flows down toward the slope of the area and flows into the nearby fields outside the lease area. Ground water occurs under phreatic conditions. The maximum saturated thickness of these aquifers is up to 5m depending upon the topographic conditions. The area lying at the foot hill zones which are seen in the northern parts of the district is underlain by the colluvial material derived from the nearby hill ranges comprising sands and gravels. The maximum saturated thickness of these aquifers is up to 20 m depending upon the topographic conditions. Ground water occurs under phreatic conditions.

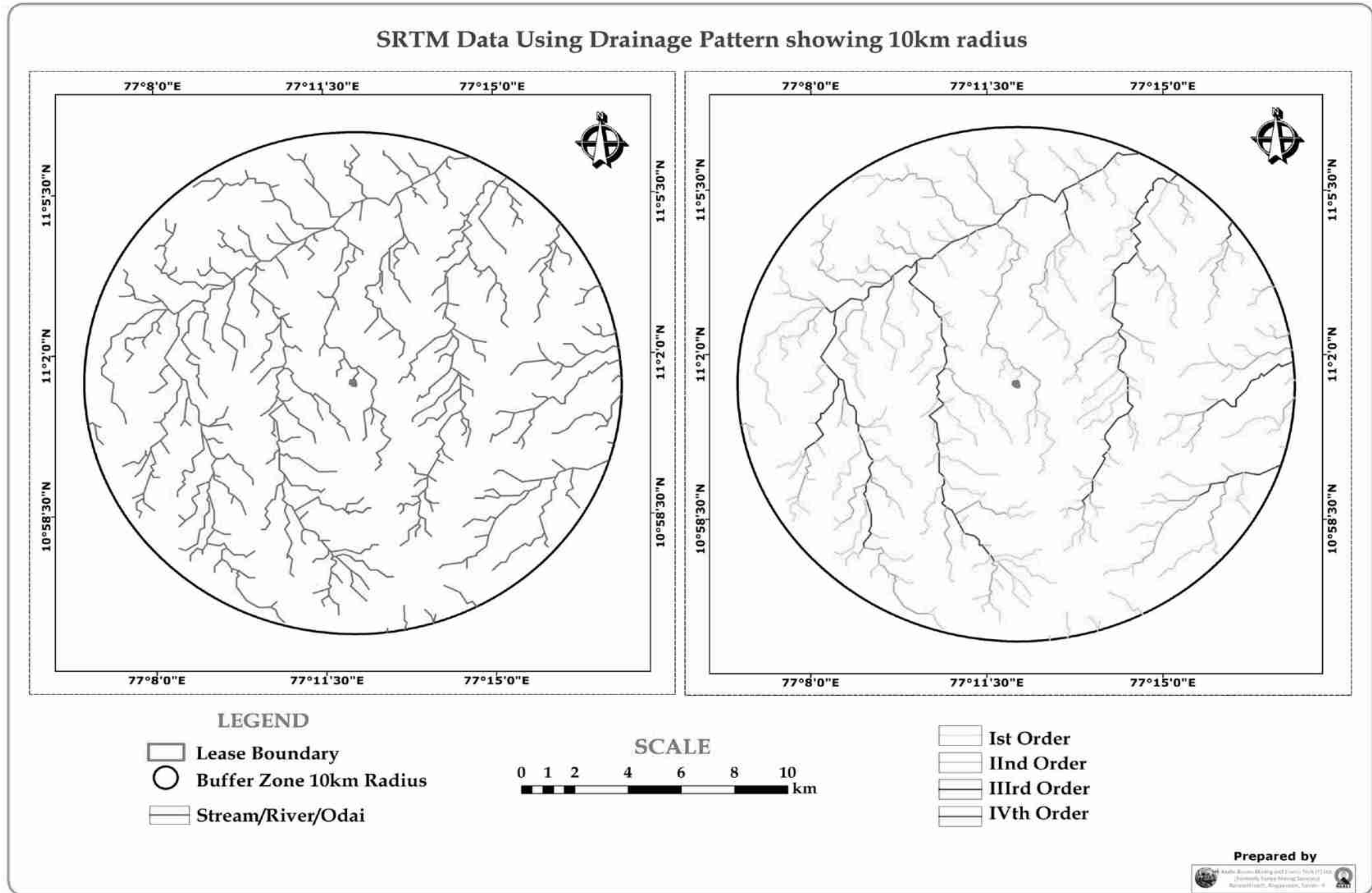


Fig No 3.18: Represents the River/Streams (Drainage) of the study area within 10 km radius from the project site

3.10.4 Contour

Contour lines are the greatest distinguishing feature of a topographic map. Contour lines are lines drawn on a map connecting points of equal elevation, meaning if you physically followed a contour line, elevation would remain constant. Contour lines show elevation and the shape of the terrain in the study area. The contour map was derived from a SRTM data of the study area. Contour interval at 10m, minimum 120m has very plain with fluvial landforms and general terrain is quite elevated at maximum 391m above. To make topographic maps easier to read, because it's impractical to mark the elevation of every contour line on the map, the index contour lines are the only ones labeled fig 3.19.

3.10.5 Slope

The slope map was derived from a SRTM data of the study area. The slope of the study area was classified into five classes, such as less than 10 Percent/degree flat to almost flat no meaningful denudation process. The contour map is prepared in 1:50000 scale from SOI topo sheets. TIN map is created from contour map. Based on the TIN map, slope map is prepared for the study area. The slope map of the study area reveals that the slope is high in hilly 22 terrains which are present in north and east parts. The most part of the study area contains a gentle slope of 0- 1 degree especially landslides that area flat. 30-40° and above 40° very steep, rocks generally begin to unfold a very intensive denudation process have begun to produce rework material Fig.3.19.

3.10.6 Geological structure

Tiruppur District is predominantly occupied by hornblende Biotite gneisses of PGC (II) with enclaves of Magnetite Quartzite, Pyroxene Granulite and Charnockite. The area exposes several bands of Pyroxene Granulite which is medium grained, medium to dark grey in colour and stand out prominently in the gneissic country generally parallel to regional foliation. Charnockite is coarse grained, massive, many places it is foliated, grey coloured and greasy and exposed as bouldery outcrops and small knolls. It is well exposed in Central, Western and Southern parts of the Tiruppur District. Hornblende-Biotite gneiss is well foliated, medium to coarse grained, pale grey and exposed as sheets and small knolls. Pink Granite gneiss occurs as thin bands and lensoidal bodies. It is a medium grained rock composed of alternating bands of mafic (mainly of biotite and hornblende) and felsic (Feldspar and Quartz) minerals. It is well recognized in Avinashi area fig. 3.20.

3.10.7 Soil

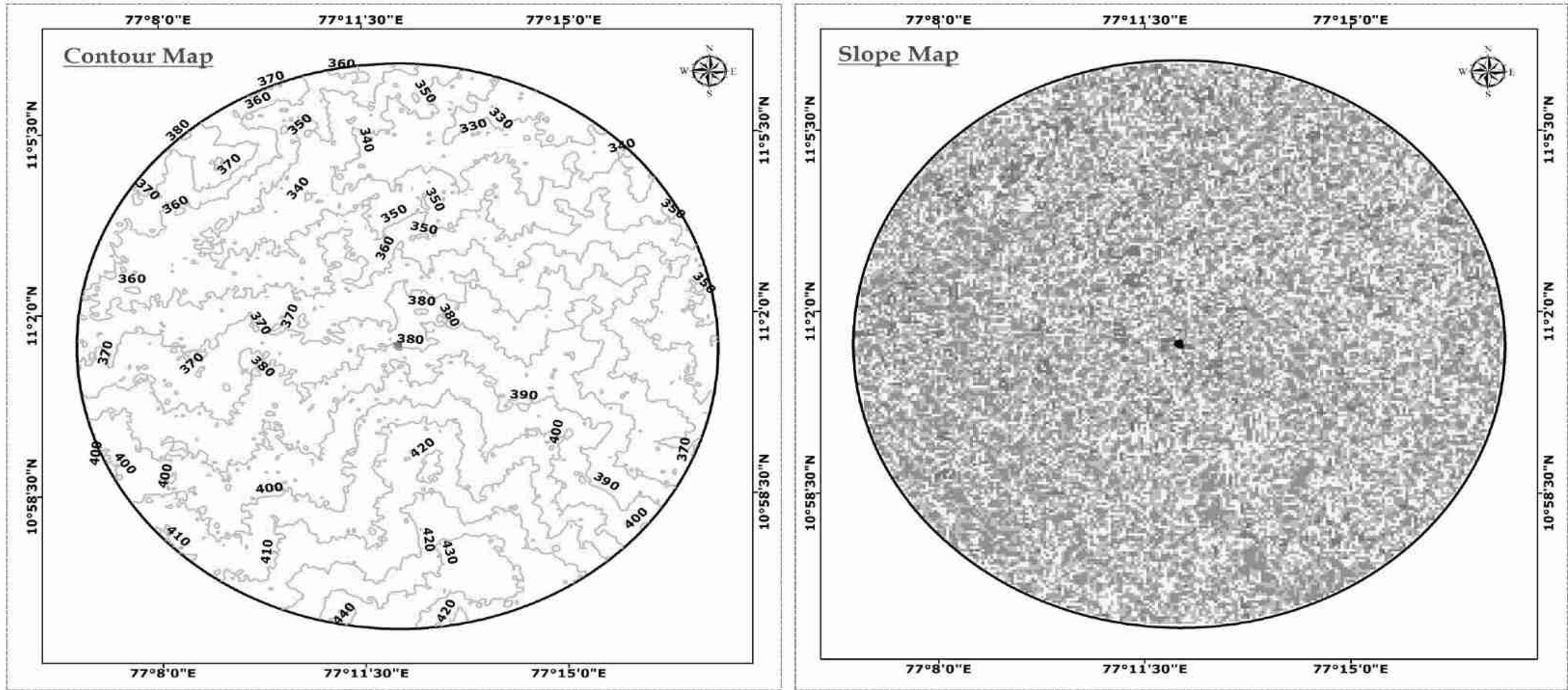
Soil Environment soil quality of the study area is one of the important components of the land environment. The composite soil samples were collected from the study area and

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Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

analysed for different parameters. The locations of the monitoring sites are shown in Table 3.5 and Figure 3.4. The lease area soil characterization in and around 10km radius in four type such as Entisols, Inceptisols, Rockout Crop and Vertisols in fig.3.21.

Contour and Slope Map analysis around 10km Radius



- LEGEND**
- Contour 10m Interval
Min 340m to Max 420m
 - Lease Boundary
 - Buffer Zone 10km Radius

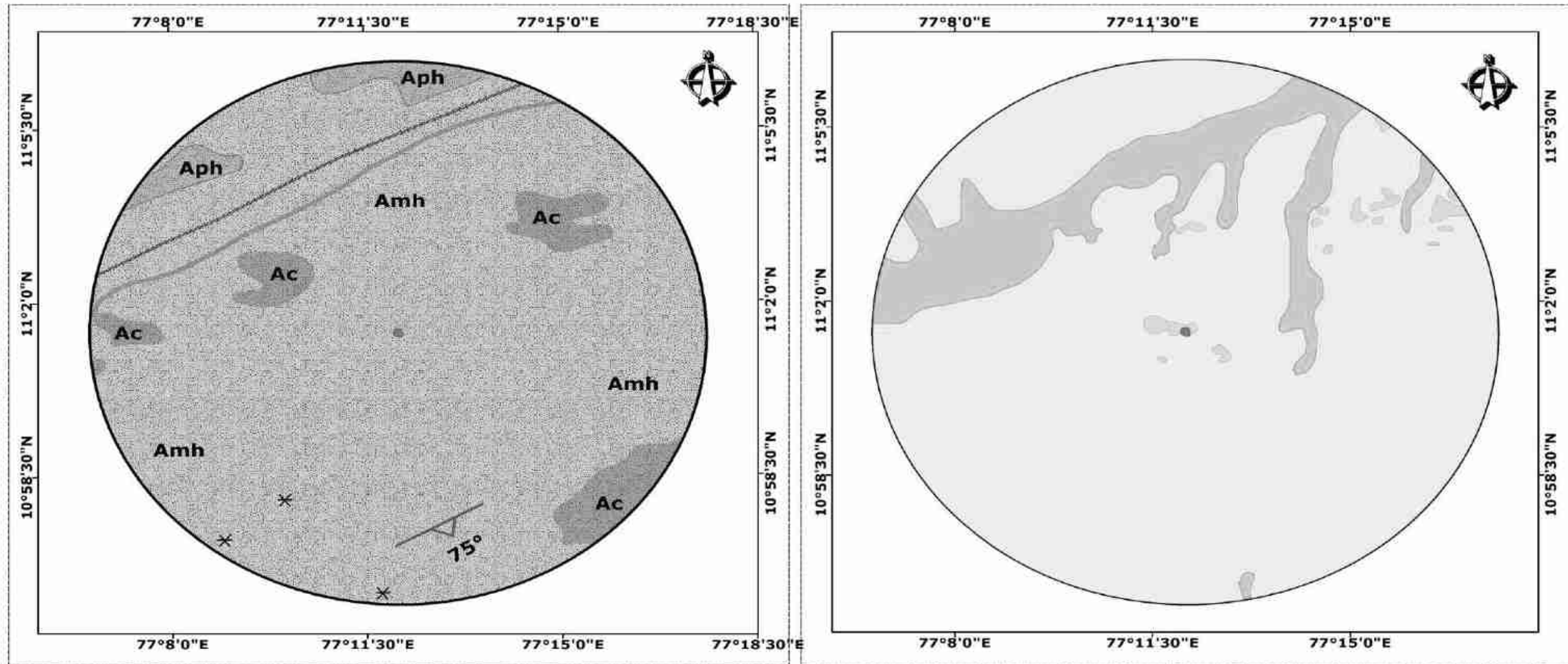


- Slope**
- 0 - 0.508541629
 - 0.508541629 - 0.866404257
 - 0.866404257 - 1.24310176
 - 1.243101761 - 1.751643388
 - 1.751643389 - 4.802893162

Prepared by
 Aadhi Boomi Mining & Enviro Tech (P) Ltd.
 (Aadhi Boomi Mining & Enviro Tech (P) Ltd.)
 Aadhi Boomi Mining & Enviro Tech (P) Ltd.

Fig No 3.19: Image Showing Contour and Slope of the lease area around 10km radius

Geology and Geomorphology Features map of Lease area around 10km radius



LEGEND

- Lease Boundary
- Buffer Zone 10km Radius
- Strike dip of Foliation
- Gypsum
- Railway Line
- Noyyal River
- Fissile-hornblende biotite gneiss(Aph)
- Hornblende biotite gneiss(Amh)
- Charnockite(Ac)

Level Three Landforms

- Moderately weathered/moderately buried Pediplain
- Pediment/ Valley Floor
- Shallow weathered/shallow buried Pediplain

SCALE



Source: Geological Survey of India, 1995

Prepared by

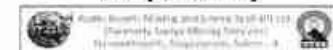


Fig No 3.20: Geology and Geomorphology of 10km Radius

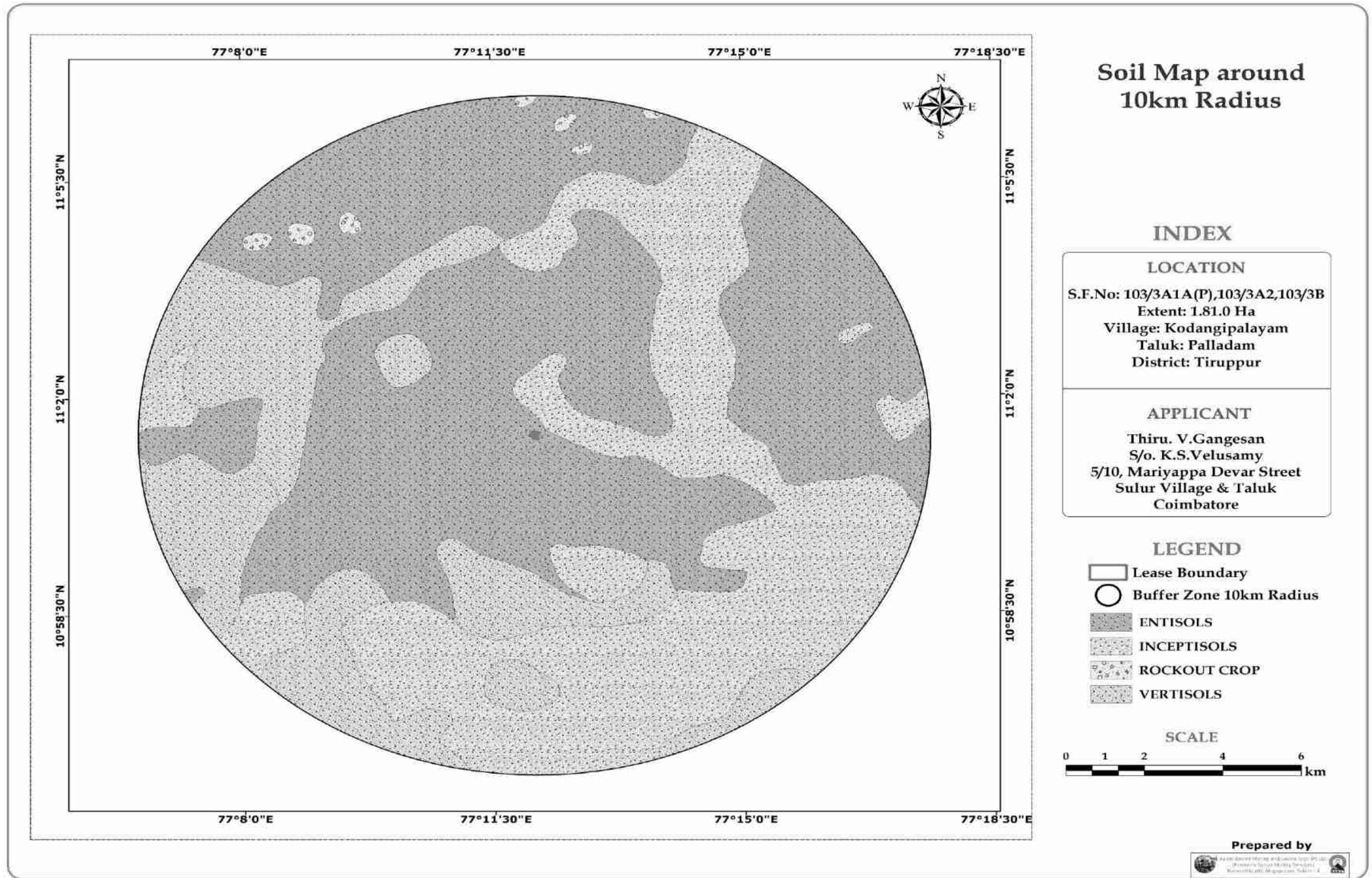


Fig No. 3.21 Image Representing the Soil Characteristics around 10km of the Lease area

3.10.9 CONCLUSION

The most of the land area in the agriculture and non-agriculture land entire quarried land will get replaced every year hence there will be no impact on the land use. It is an eco-friendly mining project land.

3.11 Hydrogeology of the District

Groundwater forms one of the vital components in the hydrological cycle. It is a major's source for agricultural, industrial and domestic uses, and often it may be only source of water supply for the people in the developing countries. In general, groundwater occurs in all types of unconsolidated geological formations. The formations will be designated as heterogeneous or anisotropic, when the hydrogeological properties, like porosity and permeability, are not uniform with reference to space and time. Determination of these properties for a given aquifer may be based on lithologic or geophysical observations, laboratory testing, or aquifer tests with varying degrees of accuracy.

3.11.1 Location

The geographical extent of the lease area is around 1.81.0 Hectare and located between north latitude 11° 1' 19.75"N to 11° 1'25.26"N and eastern longitude of 77° 12' 2.02"E to 77° 12'7.38"E. The study area Kodangipalayam Taluk is situated in north east part of the Tiruppur district. The study area falls in Survey of India Toposheet No.58 E/4.

3.11.2 Scope of the Studies:

- To prepare ground water Table contouring and flow direction
- To understand the aquifer characteristics by pumping test
- To delineate the fresh groundwater potential zone and sub surface lithology using electrical resistivity method.

3.11.3 Physiography and Drainage

The prominent geomorphic unit of the Taluk structural hill and denudated land forms. Physiographic of the area is almost even and plain slopping very gently towards the southwest direction. The major rivers draining in the district Noyyai River. The average annual rainfall of the District 134 mm according to the India Meteorological Department. A water-level contour map is a common tool to identify groundwater flow directions, in the 10km Buffer zone of the lease area, there are 5 ground water levels whereas measured in Bore well., ground water levels in major part of the buffer zone between 31.5 to 55m bgl. The water level contour map shown in fig. 3.22.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V. Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

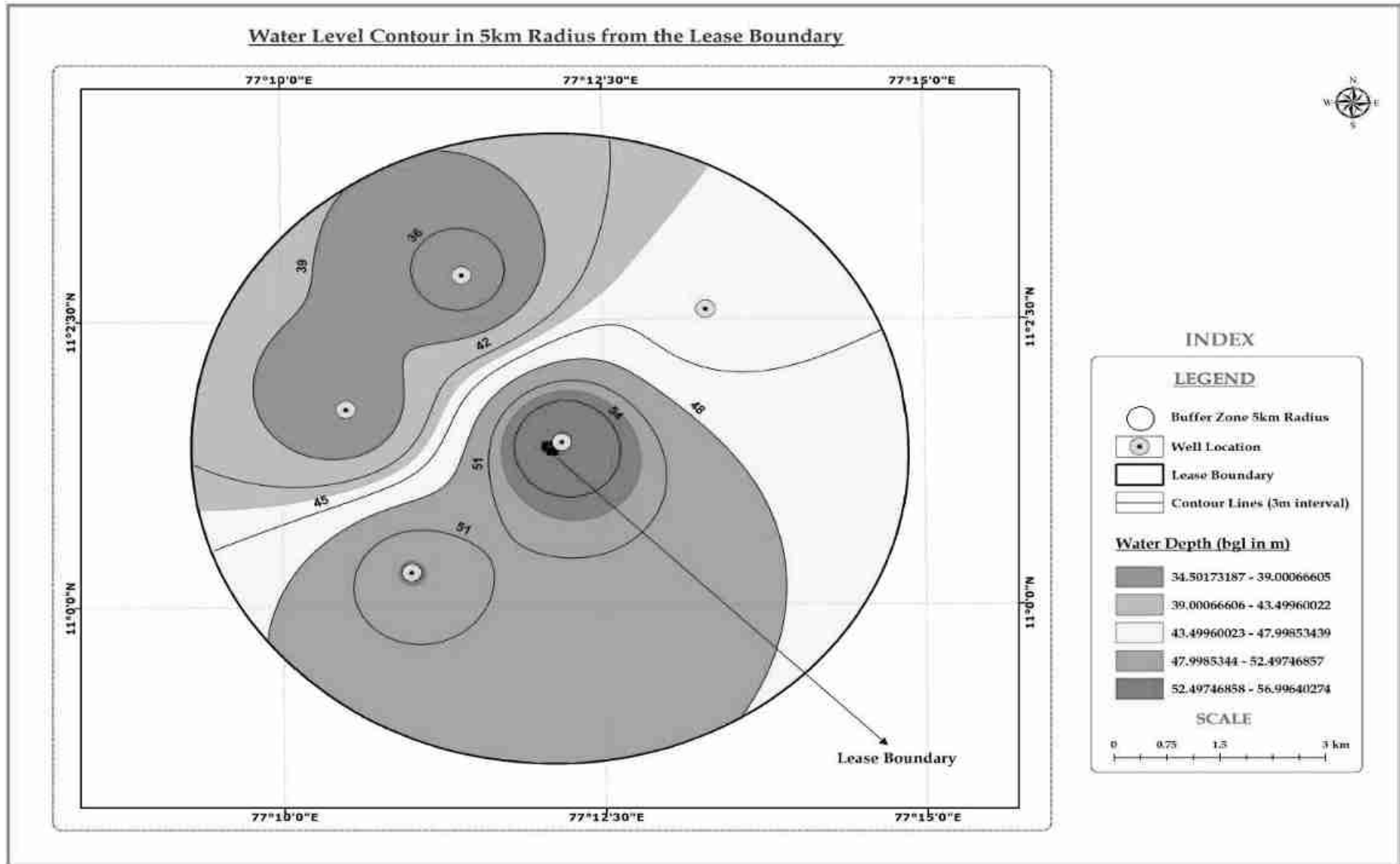


Fig 3.22: Drainage and Water Level Contour Map

3.11.4 Geology of the Area

Geologically, the entire district can be broadly classified hard rocks and Alluvial deposits such as sand, silt, clay, gravel, etc., which are transported sediments by the river are found on either side of Noyyai near Tiruppur. Geology of the Palladam Taluk comprised of Archaean peninsular gneisses such as Gneisses, and Charnockite.

3.11.5 Hydrogeology

Generally, the ground water occurs Unconsolidated & Semi-consolidated formations and weathered and fractured Archaean crystalline rocks and interconnected shallow fractures and under semi confined to confined condition the major aquifer systems in this district. The occurrence and movement of ground water are controlled by various factors such as physiography, Rainfall, climate, geology and structural features.

3.11.6 Geophysical Investigation by VES (Vertical electrical sounding) method:

Geophysical Electrical Resistivity survey conducted in Schlumberger Configuration (VES) method using IPI2win Software. The Schlumberger array is an array where four electrodes are placed in line around a common midpoint. The two outer electrodes, A and B, are current electrodes, and the two inner electrodes, M and N, are potential electrodes placed close together. With the Schlumberger array, for each measurement the current electrodes A and B are moved outward to a greater separation throughout the survey, while the potential electrodes M and N stay in the same position until the observed voltage becomes too small to measure (source). At this point, the potential electrodes M and N are moved outward to a new spacing. As a rule of the thumb, the reasonable distance between M and N should be equal or less than one-fifth of the distance between A and B at the beginning. This ratio goes about up to one-tenth or one-fifteenth depending on the signal strength. The Schlumberger array is commonly used for vertical electrical sounding (VES) for groundwater and aggregate minerals. Vertical electrical sounding (VES) using the Schlumberger array provides better resolution.

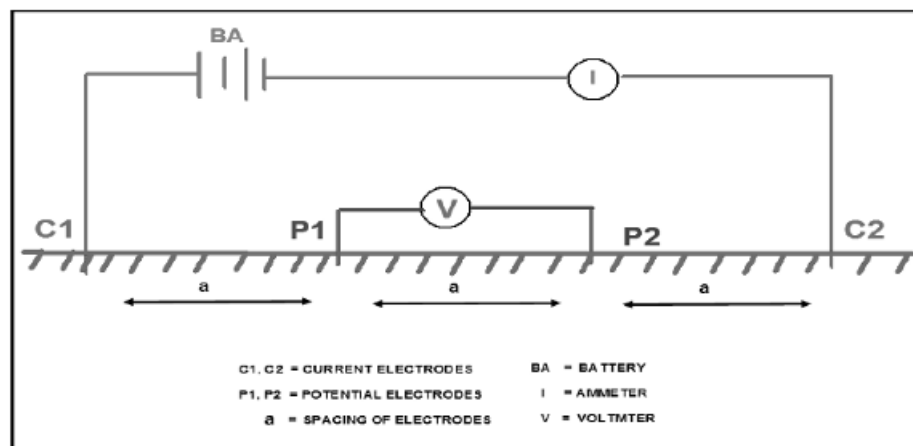


Fig No.3.23: Schlumberger Array



Fig.3.24: VES Location Map.



Fig No 3.25: Photos Showing Geophysical Survey conducted at the lease area

The resistivity surveys were carried by the consultants in the site at selected one point at Tested in the proposed Project site. The vertical electrical sounding (VES) using digital resistivity meter is carried out and the apparent resistivity curves are obtained. Ipi2win software is used and the data are interpreted. The computer output of geo-electric layers is given in fig 3.25 and 3.26 which gives the apparent resistivity curve, depth wise resistance and interpreted layers with corresponding resistivity.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V. Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

The study area lies in the Northern latitude of 11°01'22.32"N, Eastern longitude 77°12'06.68"E which is represented by Toposheet No. 58 E/4. The applied area is mostly plain, elevation of 191m above mean sea level.

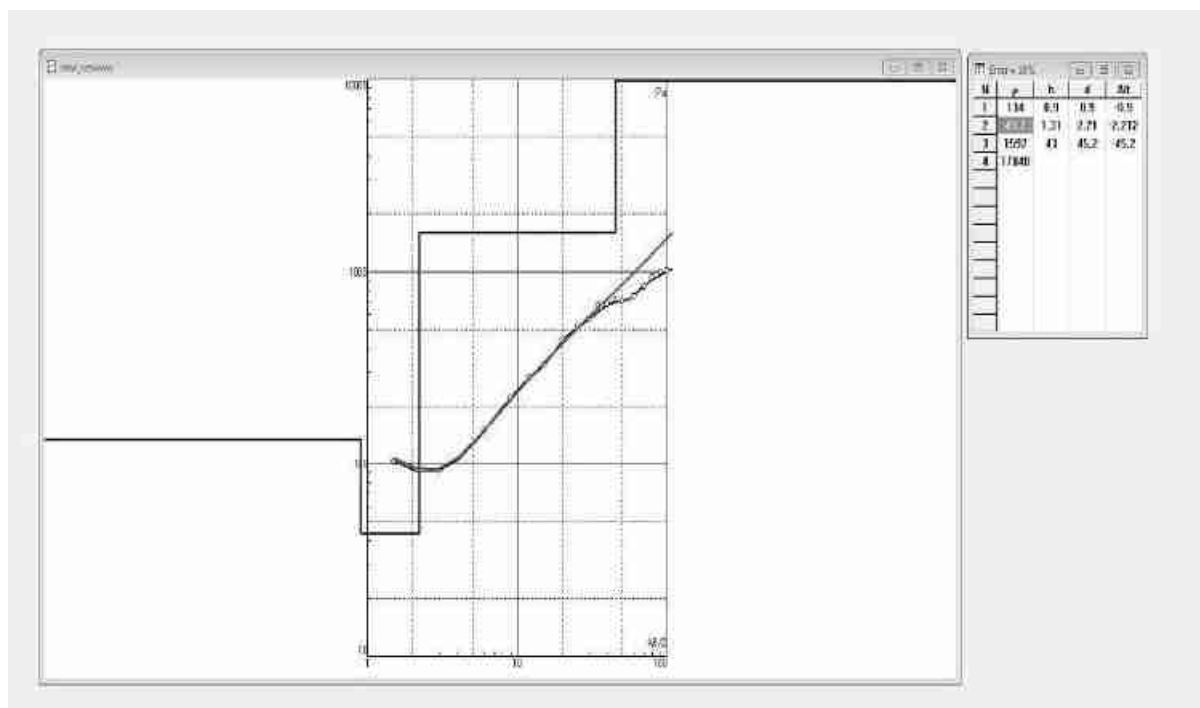


Fig No.3.26: Image showing Resistivity curve, depth data

VES- INFERRED STRATA

0-3m: Top soil & Gravel Low Resistivity Value

3-55m Massive charnockite formation with moderate Resistivity Value

55-57m: Water level fluctuations

Above 57m: hard rock massive charnockite formation

The presence of topsoil indicating low resistivity up to 0-3m is indicative of the poor water bearing aquifer. The shallow water table is having curve breaks around **55m** depth with possible water level. The hard rock shall not permit the groundwater to flow freely and also depth of quarrying is proposed above the water table. Therefore, no much impact of the proposed quarry to the surrounding wells, water bodies and Ground water table etc.,

3.11.7 AQUIFER PERFORMANCE TEST

The pumping test has been conducted at Thiru. V.Gangesan Rough Stone and gravel Quarry, over an Extent of 1.81.0 Hectares in 103/3A1A (P), 103/3A2 and 103/3B1 Patta land of Kodangipalayam Village, Palladam Taluk, Tiruppur District, Tamil Nadu to identified the ground water potential in the area. The site is located in flat terrain and small pit with massive rocks. There are few bore wells in the 10 km radius buffer zone. One of the bore well is located in the

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V. Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

Kodangipalayam village which is reported to be 1100 feet in depth and gives moderate yield. The bore well is fitted with 7.5 HP submergible pumps and water is pumped at intervals for M. Sand washing and dust suppression in roads.

The bore well recorded static water level of 57m and pumping level goes up to 110m in 2 hours pumping. In order to avoid dry run of bore and ensure sustainability of yield, the bore well is pumped at intervals. The discharge of the well is measured by volumetric method from the time taken to fill the ground level sump and the estimated discharge is 30 litres per minute (Lpm). The pumping test is conducted in the bore well on 18.12.2022 and the drawdown and recovery data are given

$$\text{Discharge Volume} = \frac{200 \text{ (barrel)} \times 60}{400 \text{ (seconds)}} = 30 \text{ Lpm}$$

The pumping head is more than 200m and the water level sounder with cable length of 105m were used for recording the fluctuation in water level during pumping and recovery period. The observed recovery data is used to get aquifer characteristics by applying the recovery formula. The semi-log plot is given in fig 3.27 and the estimated Transmissivity value of 0.26m²/day.

$$\text{Transmissivity} = \frac{2.303 \times Q}{4\pi\Delta S} = \frac{2.303 \times 30 \times 60 \times 8 / 1000 \text{m}^3}{4 \times 3.14 \times 10} = \frac{33.16}{125.6} = 0.26 \text{m}^2/\text{day}$$

Table No. 3.12: Aquifer Performance Test

Site name with coordinates	Kodangipalayam; N 10 ⁰ 51' 49.53", E 77 ⁰ 02' 2.73"			
Location details	V. Gangesan Rough Stone and Gravel Quarry, S.F.No: 103/3A1A(P),103/3A2 and 103/3B1, Kodangipalayam Village, Palladam Taluk, Tiruppur District, Tamil Nadu .			
Block	Palladam			
District & State	Tiruppur District & Tamil Nadu			
Type of well	Bore well: 1100 feet depth (335m)			
Date of test & start time	18.12.2022; 10.00 hours			
Diameter of well(mm)	165			
Distance from the observation well(mm)	No observation well			
Capacity of the pump	7.5 HP			
Discharge (Ipm)	30 LPM			
Measuring point (m)	Ground level			
SWL in m below measuring point	57 m			
Clock Time (HH/MM)	Time since pumping started (Mints)	Pumping Water Level (m bmp)	Draw down (m)	Remarks
10.00	0	57.00	0	Pump started

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V. Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

10.01	1	58.53	1.53	
10.02	2	60.28	3.28	
10.03	3	62.10	5.1	
10.04	4	63.95	6.95	
10.05	5	65.83	8.83	
10.06	6	67.93	10.93	
10.07	7	70.08	13.08	
10.08	8	72.28	15.28	
10.09	9	74.43	17.43	
10.10	10	76.68	19.68	
10.12	12	78.98	21.98	
10.14	14	81.54	24.54	
10.16	16	84.44	27.44	
10.18	18	87.54	30.54	
10.20	20	90.74	33.74	
10.25	25	94.04	37.04	
10.30	30	97.39	40.39	
10.35	35	98.1	41.1	
10.40	40	99.5	42.5	
10.45	45	100.8	43.8	
10.50	50	102.1	45.1	
10.55	55	103.45	46.45	
11.00	60	104.81	47.81	
11.10	70	106.20	49.2	
11.20	80	107.56	50.56	
11.30	90	108.94	51.94	
11.40	100	110.33	53.33	Pump stopped

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Proponent: V. Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

Table -2

Time in Hours	Time since pump stopped (min) (t')	Time since starting of pumping (min) (t)	Water Level (m bmp)	Residual Drawdown RDD (m)	t/t'
11.40	0	100	110.33	53.33	0
11.41	1	101	107.48	50.48	101.00
11.42	2	102	106.88	49.88	51.00
11.43	3	103	106.39	49.39	34.33
11.44	4	104	105.85	48.85	26.00
11.45	5	105	105.32	48.32	21.00
11.46	6	106	104.31	47.31	17.67
11.47	7	107	104.11	47.11	15.29
11.48	8	108	103.88	46.88	13.50
11.49	9	109	103.75	46.75	12.11
11.50	10	110	103.2	46.2	11.00
11.52	12	112	102.66	45.66	9.33
11.54	14	114	102.13	45.13	8.14
11.56	16	116	101.78	44.78	7.25
11.58	18	118	101.03	44.03	6.56
12.00	20	120	100.78	43.78	6.00
12.05	25	125	100.38	43.38	5.00
12.10	30	130	99.83	42.83	4.33
12.15	35	135	97.28	40.28	3.86
12.20	40	140	96.74	39.74	3.50
12.25	45	145	95.21	38.21	3.22
12.30	50	150	93.32	36.32	3.00
12.40	60	160	91.78	34.78	2.67
12.50	70	170	87.25	30.25	2.43
13.00	80	180	83.70	26.70	2.25

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V. Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

13.10	90	190	79.20	22.20	2.11
13.20	100	200	78.21	21.21	2.00
13.40	120	220	77.28	20.28	1.83
13.00	140	240	76.55	19.55	1.71
14.20	160	260	75.00	18.00	1.63
14.40	180	280	73.74	16.74	1.56

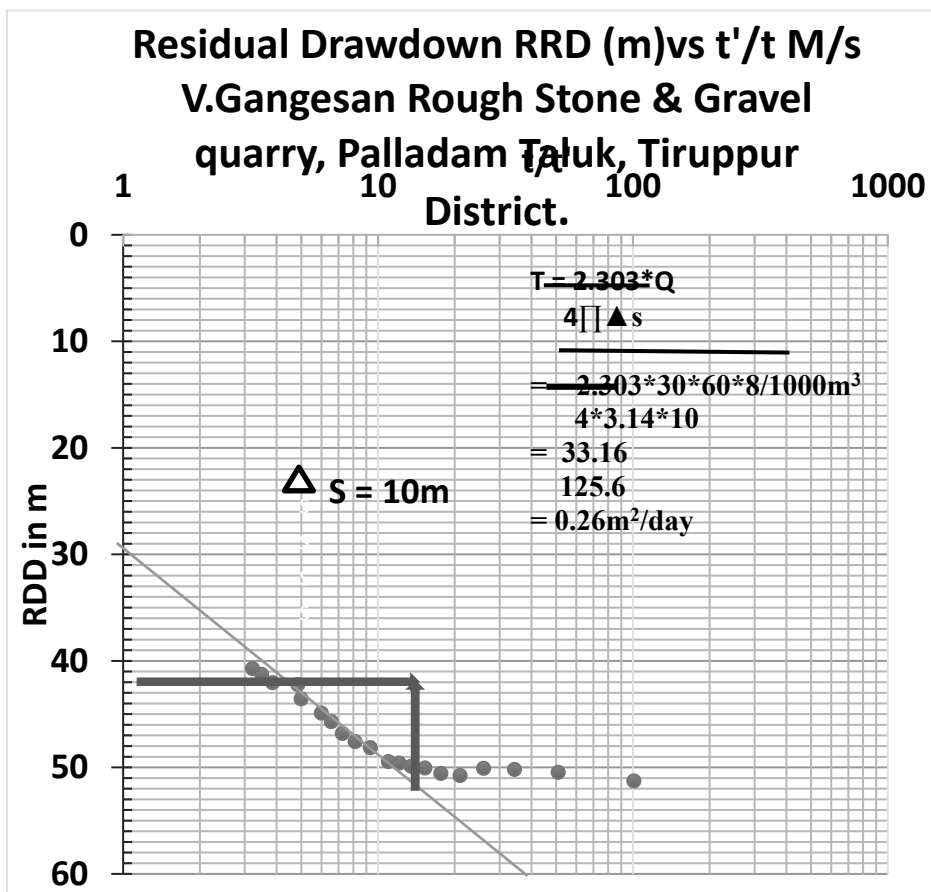


Fig. 3.27: Aquifer Performance Test - Time V/s Drawdown, & Residual Drawdown V/s t/t'

3.11.8 CONCLUSION

An integrated approach of pumping test and geophysical methods of survey including 2D resistivity method help us to assess the groundwater potential zones, ground water table, aquifer geometry and direction of groundwater movement and subsurface lithology variations. Present scenario no shallow aquifers Zone identified. Favorable aquifer potential zone encountered above 100m depth and the hydrological condition 10 km radius of buffer zone depth to the static water levels of the aquifer ranges from 55m bgl.

3.12 ECOLOGY AND BIOLOGICAL ENVIRONMENT

Ecology is a branch of science which dealing the relations and interactions between organisms and their environment. An ecological survey of the study area was conducted, particularly with reference to listing of species and assessment of the existing baseline ecological conditions in the study area. The main objective of biological study is to collect the baseline data regarding flora and fauna in the study area. Data has been collected through extensive survey of the area with reference to flora and fauna. Information is 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

3.12.1 Description of Tiruppur District Environment

Tiruppur popularly known as “Banian City” of the South India is located 60 km away from Coimbatore city. It has come a long way from a small cotton marketing centre with a few ginning factories to become a prominent cluster of small and medium manufacturing enterprises gainfully engaged in the production and export of a range of knitted apparels. This township started with the production of low valued cotton hosiery items, mainly under garments during the 1930’s.

Tiruppur is located at 11°06'27.3" N 77°20'23.3" E / 11.1075°N 77.3398°E Geographical area of Tiruppur district is 5186.34 square kilometers. Tiruppur district lies on the western part of Tamil Nadu bordering the Western Ghats and hence the district enjoys a moderate climate. The district is surrounded by Coimbatore district in the west, Erode district to the North 2 and northeast and Karur district in the east and Dindigul district in the south east. To the south the district is surrounded by Kerala State (Idukki district). The district has an area of 516.12 square kilometers.

The mean maximum and minimum temperatures for Tiruppur city during summer and winter vary between 35°C to 18°C. The average annual rainfall in the plains is around 700 mm with the North East and the South West monsoons contributing to 47% and 28% respectively to the total rainfall.

3.12.2 Agriculture activities in Tiruppur District

Tiruppur district though an industrial district plays important role in Agriculture also. The food production required to be enhanced to provide food and nutritional security do the growing district population. Tiruppur more than 80% of the farmers belongs to small and marginal category and they play a key role in overall development in Agriculture. The total area of cultivation is around 2,28,556 hectares, mainly food and commercial crops. The chief food

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

crops are paddy, millets and pulses. The nonfood or commercial crops in the district are cotton, oil seeds and coconut. The soil is predominantly black, which is suitable for cotton cultivation, but it also has some red loamy soil.

Table 3.13: Details of Important crops in Tiruppur District

Sl.No	Name	Scientific name	Family
1	Paddy	Oryza sativa	Poaceae
2	Cholam	Sorgham bicolor	Poaceae
3	kambu	Pennisetum glaucum	Poaceae
4	Ragi	Eleusine coracana	Poaceae
5	Groundnut	Arachis hypogaea	Fabaceae
6	Sugarcane	Saccharum officinarum	Poaceae
7	Black gram	Vigna mungo	Fabaceae
8	Cotton	Gossypium herbaceum	Malvaceae
9	Vargu	Paspalums crobiculatum	Poaceae
10	Maize	Zea mays	Poaceae
11	Green gram	Vigna radiata	Fabaceae
12	Red gram	Cajanus cajan	Fabaceae
13	Castor	Ricinus communis	Euphorbiaceae
14	Kuthiraivali	Echinochloa frumentacea	Poaceae
15	Horsegram	Macrotyloma uniflorum	Fabaceae

3.12.3 Forest resources

Indira Gandhi Wild Life Sanctuary is spread over at the altitude of 1400 meters in the Western Ghats area of Pollachi, Valparai and Udumalaipettai. The area of the sanctuary is 958 sq km of which only 387 sq km spreadover in Tiruppur district. Amaravthy Reserve Forest and part of Anaimalai Reserve Forest of Anaimalai wildlife Sanctuary falls within the Tiruppur district.

3.12.4 Water resources

The major rivers flowing through the district are Noyyal and Amaravathi, which come under the Cauvery basin. Chinnar and Tenar rivers are the main tributary of Amravati River, which is the main source of irrigation in the district. Nallar and Palar River are covered under the Parambikulam-Aliyar basin. Both Amaravathi dam and Thirumurthy dam are the prime source of irrigation in the district, whereas Upbaar dam is another dam which receives water from seasonal rains.

3.12.5 Study Area Ecology

A survey was conducted to study the flora around 10 km radius. Some of the information was gathered from the local habitants. All the collected data were classified to interpret the impact of pollution on the flora and fauna of that region. Survey of the mild plants as well as cultivated crop plants was made and all the available information was recorded. The primary data collected was compared with the Secondary data collected from Forest Department. There

are no ecologically sensitive areas such as Biosphere reserves, Wildlife Sanctuaries, national Parks and other protected areas in or around the project site in a radius of 10 km. Generate Baseline Data from field observations.

3.12.6 Methodology of Sampling

A methodology of Sampling Flora and fauna studies were carried out during the winter season to assess the list of terrestrial plant and animal species that occur in the core area and the buffer area up to 10 km radius from the project site. No damage is created to flora and fauna during the sampling. None of the specimens were collected as voucher specimens and for the herbarium. It is basically done through field observations only. The study of flora is conducted as per the guidelines of the Ministry of Environment Forest and Climate Change (MoEF&CC) and Botanical Survey of India (BSI).

The study involved in the collection of primary data by conducting a survey in the field, examination of flora and fauna records in previously published reports and records. Analysis of the information is the view of the possible alteration in the environment of the project site. For the survey of fauna, both direct and indirect observation methods were used

3.12.7 DATA COLLECTION

In order to understand the ecological status of different habitats and the status of biodiversity.

MACRO LEVEL APPROACH

3.12.7.1 Rapid Survey and Secondary data collection

Rapid survey of project area was carried out in initially to identify and understand the existing physical and biological environments, which include the core zone and the buffer zone (area of 10 km radius from the mine site).

Interaction and discussion with project proponents were made to understand and get the firsthand information about the project and associated activities.

Collection and compilation of project related information specific to project components (flora, fauna, habitats) from different stakeholders (State and division forest departments, Revenue etc.) and scientific information were collected that were available in the form of published papers, reports, books, State flora and CPCB etc.

3.12.7.2 Field Data Collection

Micro level approach involved mainly the field based primary data collection on different components of the project objectives/scope of works using well established and accepted ecological methods in different habitats identified within the study area. The field data collection mainly included biodiversity status assessment of different life forms (Habit) of floral elements such as Trees, Shrubs, Climbers, Herbs and Grass. Faunal diversity was assessed by inventorying

the major taxonomical groups like Herpes to fauna (amphibian and reptiles), birds (both aquatic and terrestrial) and mammal

3.12.7.3. Flora

- Status of floral species was assessed in the representative habitat types (Forest, Agriculture and Wetland habitats) existing in the study area.
- Quantitative data were collected using standard Quadrature methods using circular plots followed by Mueller-Dombois and Ellenberg (1967) and Kershaw (1973).
- Status of tree, shrub and annuals (grass and herb) were quantified using circular plots of different sizes, 15m, 8m radius and 1 x 1m two plots respectively. Other habits like climbers and creepers found within the 8m radius plots were also identified and enumerated.

3.12.7.4 Analytical Aspects

Simpsons Diversity

It is often used to quantify the biodiversity of a habitat. As species richness and evenness increase, so diversity increases.

The range is from 0 to 1, where:

- High scores (close to 1) indicate high diversity
- Low scores (close to 0) indicate low diversity

To understand species variation in community, diversity Index was calculated by using the following formula

$$D=1 - \sum n(n-1) / N(N-1)$$

Where,

D = Simpson's Diversity Index

N = total number of individuals of all species.

n = number of individuals of each species.

d = Shannon Wiener Diversity Index.

Relative Density

Density is the measure of dense in the distribution of an individual species within a given area. Density of a species is defined as the average number of the species per quadrant and calculated as follows:

$$\text{Relative Density} = \frac{\text{Total no. of individuals species}}{\text{Total no. of individuals of all species}} \times 100$$

Relative Frequency:

The frequency of individual species is the number of times the species occurs in the sampling quadrant. It is actually represented as a percentage calculated as follows:

$$\text{Relative frequency} = \frac{\text{No. of quadrats in which the species occurred}}{\text{Total no. Of quadrats studied}} \times 100$$

Relative Value Index:

Relative important value index is nothing but the added value of only Relative Frequency and Relative Density estimated for RVI. This index was used for deriving the dominant status assessment of trees (>20 cm gbh) and woody shrub species.

Relative density and relative frequency and relative value indices were calculated following Curtis and Cottam (1962).

Trees: Trees were studied using the quadrat method as followed during vegetation survey. The size of each quadrat for tree survey was 10 m × 10 m. To study herbaceous and woody vegetation systematically, standard methods of analyzing vegetation were used for determination of vegetation composition and richness. Quadrat numbers depend upon the requirement in specific cases. Comparative analysis of the outcome of the Quadrat Sampling was done to understand the characteristics of species observed in the study area

Shrubs: Shrubs were studied using the quadrat method as followed during vegetation survey. The size of each quadrat for shrub survey was 5 m x 5 m for shrubs of 3 m height.

Herbs: Herbaceous plants were studied using the quadrat method as followed, during vegetation survey. The size of each quadrat for herb survey was 1 m x 1 m.

3.12.7.5 Flora

The present study on the floral assessment for the existing project activity is based on extensive field survey of the area. The plant species were identified with the help of plant taxonomy manual, literatures and Botanical Survey of India website (efloraindia.nic.in). In addition, besides the collection of plant species, information was also collected with vernacular names of plant species made by local inhabitants.

3.12.7.6 Flora in Core Zone

Taxonomically a total of 36 species distributed in 21 families have been recorded from the core mining lease area. Based on habitat classification of the enumerated plants the majority of species were tree 19 (52%) followed by shrubs 8(22%), herbs 8(22%) and creeper.1 (1%) Details of flora with the scientific name were mentioned in table 3.14 and fig 3.28. No ecologically sensitive plant species has been reported from this area.

3.12.7.7. Flora in Buffer Zone

Taxonomically a total of 60 species distributed among 33 families have been recorded from the buffer area. Based on habitat classification of the enumerated plants the majority of species were tree 31 (52%) followed by shrubs 14 (23%), herbs 11(18%) and rest 4 (2%) is a climber. Details of flora with the scientific name were mentioned in table 3.14 and fig 3.28.

3.12.7.8 Crop Pattern in Buffer Zone

The buffer area of mining lease area mostly cultivated for varieties of flowers such as, jasmine, firecracker flower, marigold and crops area mango and groundnut. Details crops with name mentioned in table 3.14.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

Table 3.14: Floral Diversity in Core and Buffer area (Thiru V. Gangesan, Rough Stone and Gravel Quarry, Tiruppur District)

S. No.	Common Name	Local Name	Family	Scientific Name	Core	Buffer
TREES						
1.	Egyptian Pea Tree	Sethakathi Maram	Fabaceae	<i>Sesbania sesban</i>	+	+
2.	Pithraj Tree	Pithraj Maram	Meliaceae	<i>Aphanamixis polystachya</i>	+	+
3.	Cat-thorn Tree	Chimati Maram	Rhamnaceae	<i>Scutia buxifolia</i>	+	+
4.	Mesquite Tree	Mullu Maram	Fabaceae	<i>Prosopis juliflora</i>	+	+
5.	Neem Tree	Vempa Maram	Meliaceae	<i>Azadirachta india</i>	+	+
6.	Khejri Tree	Vanni Maram	Fabaceae	<i>Prosopis spicigera</i>	-	+
7.	Ceylon olive Tree	Ularga karai Maram	Elaeocarpaceae	<i>Elaeocarpus serratus</i>	+	+
8.	Palmyra palm Tree	Panai Maram	Arecaceae	<i>Borassus flabellifer</i>	+	+
9.	Mango Tree	Maa Maram	Anacardiaceae	<i>Mangifera indica</i>	+	+
10.	Papaya Tree	Papali Maram	Caricaceae	<i>Carica Papaya</i>	-	+
11.	Teak Tree	Tekku Maram	Lamiaceae	<i>Tectona grandis</i>	+	+
12.	Sandal wood Tree	Santhana Maram	Santalaceae	<i>Santalum album</i>	-	+
13.	Chebolicmyrobalan	Kudukkai Maram	Combretaceae	<i>Terminalia chebula</i>	+	+
14.	Pungamin Tree	Pungai Maram	Fabaceae	<i>Pongamia pinnata</i>	+	+
15.	Lemon-Scented Gum Tree	Thaila Maram	Myrtaceae	<i>Eucalyptus citriodora</i>	+	+
16.	Black plum Tree	Naval Maram	Myrtaceae	<i>Syzygium cumini Sps.</i>	+	+
17.	Banana Tree	Vaazhai Maram	Musaceae	<i>Musa paradisiaca</i>	-	+
18.	Thorn mimosa Tree	Karuvelam Maram	Mimosaceae	<i>Acacia nilotica</i>	+	+
19.	Coconut Tree	Tennai Maram	Arecaceae	<i>Coccus nucifera</i>	+	+
20.	Guava Tree	Koiya Maram	Myrtaceae	<i>Psidium guajava</i>	-	+
21.	Indian date Tree	Elandhai Maram	Rhamnaceae	<i>Ziziphus jujuba</i>	+	+
22.	Sweet acacia Tree	Kastuurivel Maram	Fabaceae	<i>Vachellia farnesiana</i>	-	+
23.	Iron wood Tree	Savukku Maram	Casuarinaceae	<i>Casuarina equisetifolia</i>	+	+
24.	Broome rain Tree	Vagai Maram	Fabaceae	<i>Albizia lebbeck</i>	-	+
25.	Custard apple Tree	Seethe pazham Maram	Annonaceae	<i>Annona squamosa</i>	+	+

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

26.	Cannonbal Tree	Nagalinga Maram	Lecythidaceae	<i>Couroupita guianensis</i>	-	+
27.	Tanner's cassia Tree	Avaram poo Maram	Fabaceae	<i>Senna auriculata</i>	-	+
28.	Blackboard Tree	Aezhilai Paalai Maram	Apocynaceae	<i>Alstonia scholaris</i>	-	+
29.	Drumstick Tree	Murungai Maram	Moringaceae	<i>Moringa oleifera</i>	-	+
30.	Banyan Tree	Ala Maram	Moraceae	<i>Ficus benghalensis</i>	-	+
31.	Tamarind Tree	Puliya Maram	Fabaceae	<i>Tamarindus indica</i>	+	+
SHRUBS						
1.	Rough cocklebur	Marul umattai	Asteraceae	<i>Xanthium strumarium</i>	+	+
2.	yellow lucerne	Kutirai macal	Fabaceae	<i>Medicago falcata</i>	+	+
3.	Gwar patha	Katrazai	Liliaceae	<i>Aloe vera (or) Aloe barbadensis miller</i>	+	+
4.	Spiral cactus	Thirugu kalli	Euphorbiaceae	<i>Euphorbi tortilis</i>	+	+
5.	Indian Abutilon	Thuthi keerai	Meliaceae	<i>Abutilon indicum</i>	+	+
6.	Peacock flower	Mayil kontai	Fabaceae	<i>Caesalpinia pulcherrima</i>	+	+
7.	Marigold	Samanthi cheedi	Asteraceae	<i>Tagetes erecta</i>	-	+
8.	Jasmine	Mali cheedi	Oleaceae	<i>Jasminum officinale</i>	-	+
9.	Firecracker flower	Kanakambaram	Acanthaceae	<i>Crossandra infundibuliformis</i>	-	+
10.	Hibiscus	Cembarutti	Malvaceae	<i>Hibiscus rosanaceae</i>	-	+
11.	Crown flower	Erukku cheedi	Apocynaceae	<i>Calotropis gigantean</i>	+	+
12.	Jimson weed	Ummathai cheedi	Solanaceae	<i>Datura stramonium</i>	+	+
13.	Coat buttons	Veddukaiya cheedi	Asteraceae	<i>Tridax porcumbens</i>	-	+
14.	Rose	Rosa	Rosaceae	<i>Rosa rubiginosa</i>	-	+
HERBS & GRASS						
1.	Mountain knotgrass	Pulappoo	Amaranthaceae	<i>Aerva lanata</i>	+	+
2.	Weeping alkaligrass	Mara uri	Poaceae	<i>Puccinellia distans</i>	+	+
3.	Hair fescue	Vatra pul	Poaceae	<i>Festuca filiformis</i>	+	+
4.	Indian Copper leaf	Kuppaimeni	Euphorbiaceae	<i>Acalypha indica</i>	-	+
5.	Devil bean	Kilukiluppai	Fabaceae	<i>Crotalaria retusa</i>	+	+
6.	Indian comet grass	Narival	Poaceae	<i>Perotis indica</i>	-	+
7.	Villosa	Kavali	Fabaceae	<i>Tephrosia villosa</i>	-	+
8.	Sickle senna	Thagarai	Fabaceae	<i>Senna tora</i>	+	+

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

9.	Indian doab	Arugampul	Poaceae	<i>Cynodon dactylon</i>	+	+
10.	Carrot grass	Mookkuthi poo	Asteraceae	<i>Parthenium hysterophorus</i>	+	+
11.	Black nightshade	Manathakkali	Solanaceae	<i>Solanum nigrum</i>	+	+
CREEPERS/CLIMBERS						
1.	Veldt grape	Perandai	Vitaceae	<i>Cissusqua dranquularis</i>	+	+
2.	Bitter cucumber	Petikari	Cucurbitaceae	<i>Citrullus colocynthis</i>	-	+
3.	Bitter melon	Pavakkai	Cucurbitaceae	<i>Momordica charantia</i>	-	+
4.	Ivy gourd	Kovakkai	Cucurbitaceae	<i>Coccinia grandis</i>	-	+

Table No: 3.15: Crops pattern in Thiru V. Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

Sl. No	Common Name	Scientific Name	Family
1.	Jasmine flower	<i>Jasminum officinale</i>	Asteraceae
2.	Marigold plant	<i>Tagetes erecta</i>	Asteraceae
3.	Firecracker flower	<i>Crossandra infundibuliformis</i>	Acanthaceae
4.	Mango plant	<i>Mangifera indica</i>	Anacardiaceae
5.	Groundnut plant	<i>Arachis hypogaea</i>	Fabaceae



Xanthium strumarium



Sesbania sesban



Medicago falcata



Scutia buxifolia



Cissus quadrangularis



Festuca filiformis



Azadirachta indica



Aphanamixis polystachya

Fig No 3.28: Photos of Flora in Core and Buffer Area

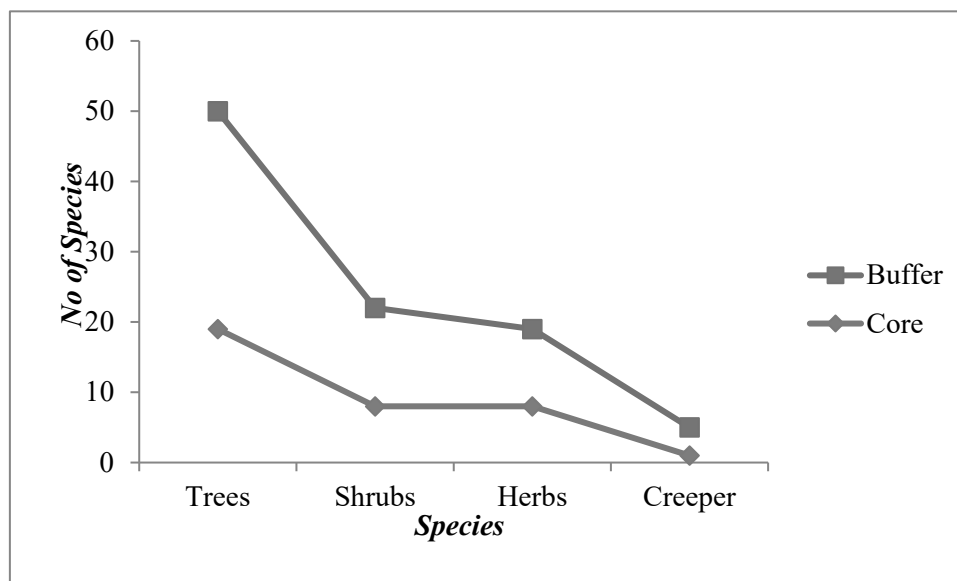


Fig No 3.29: Floral diversity in Core and Buffer Zone

3.12.8. Fauna

The fauna survey has been carried out as per the methodology cited and listed out Mammals, birds, Reptiles, Amphibians, and Butterflies. All the listed species were compared with Red Data Book and Indian Wildlife Protection Act, 1972.

The study of fauna takes a substantial amount of time to understand the specific fauna characteristics of the area. The assessment of fauna has been done on the bases of primary data collected from the lease sites. The presence was also confirmed from the local inhabitants depending on the animal sightings and the frequency of their visits in the project area. In addition officials, local peoples were another source of information for studying the fauna of the area. Field activities are physical/active search, covering rocks, burrows, hollow inspection and location of nesting sites and habitat assessment etc. Taxonomical identification was done by the field guide book and wildlife envis database (wiienvis.nic.in/Database/Schedule Species Database) and Zoological Survey of India (ZSI).

Table 3.16: Methodology applied during survey of fauna

S. No	Taxa	Method of Sampling	References
1	Insects	Random walk, Opportunistic observations	Pollard (1977); Kunte (2000)
2	Reptiles	Visual encounter survey (Direct Search)	Daniel J.C (2002)
3	Amphibians	Visual encounter survey (Direct Search)	
4	Mammals	Tracks and Signs	Menon V (2014)
5	Avian	Random walk, Opportunistic observations	Ali S (1941); Grimmett R (2011); Collins 2015

3.12.8.1. Fauna in Core Zone

Varieties of species were observed in the core zone (0-2km radius) of the Quarry. Number of species decreases towards the mining area this might be due the lack of vegetation and forest cover in mining lease area. None of these species are threatened or endemic. Taxonomically a total of 26 species belonging to 16 families have been recorded from the core mining lease area. Based on habitat classification the majority of species were birds 10 (38 %) followed by insects 11 (42%), reptiles 3 (12%) and mammals 2 (9%). Dominant species were mostly birds and insects no amphibians were observed during the extensive field visit. Details of fauna with the scientific name were mentioned in table 3.15 and fig 3.29.

There are no critically endangered, endangered, vulnerable and endemic species were observed.

3.12.8.2. Fauna in Buffer Zone

Taxonomically a total of 34 species belonging to 20 families have been recorded from the buffer mining lease area. Based on habitat classification the majority of species were birds 15 (44%) followed by insects 15 (44%), reptiles 4 (12%) and mammals 4 (12%). There were no critically endangered, endangered, vulnerable and endemic species were observed. Details of fauna with the scientific name were mentioned in table 3.15.and fig 3.30.

There were no critically endangered, endangered, vulnerable and endemic species were observed.

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Table 3.17: Faunal in Core and Buffer area (Thiru. V. Gangesan, Rough Stone and Gravel Quarry, Tiruppur District)

Sl. No	Common Name	Family Name	Scientific Name	Core Area	Buffer Area	Schedule list wildlife protection act 1972	IUCN Red list data
MAMMALS							
1.	House mouse	Muridae	<i>Musmus culus</i>	+	+	NL	LC
2.	Common mongoose	Herpestidae	<i>Herestes edwardsii</i>	-	+	NL	NL
3.	Bat	Pteropodidae	<i>Pteropus medius</i>	+	+	NL	NL
4.	Palm squirrel	Sciuridae	<i>Funambulus pennantii</i>	-	+	NL	NL
INSECTS							
1.	Eight-spotted forester	Noctuidae	<i>Alypia octomaculata</i>	+	+	Schedule IV	LC
2.	Mottled emigrant	Pieridae	<i>Catopsilia pyranthe</i>	+	+	Schedule IV	LC
3.	Yellow Albatross	Pieridae	<i>Appias paulina</i>	+	+	Schedule IV	LC
4.	Jezebel butterfly	Pieridae	<i>Delias aestiva</i>	+	+	Schedule IV	LC
5.	Common grass yellow	Pieridae	<i>Eurema brigitta</i>	-	+	Schedule IV	LC
6.	Marbled white	Nymphalidae	<i>Melanargia galathea</i>	-	+	Schedule IV	LC
7.	Banded hairstreak	Lycaenidae	<i>Satyrium calanus</i>	+	+	Schedule IV	NE
8.	Blue basher	Libellulidae	<i>Pachydiplax longipennis</i>	+	+	NL	LC
9.	Slaty skimmer	Libellulidae	<i>Libellula incesta</i>	-	+	NL	LC
10.	White butterfly	Pieridae	<i>Pieris rapae</i>	-	+	Schedule IV	LC
11.	Baronet	Nymphalidae	<i>Euthalia nais</i>	+	+	Schedule IV	NE
12.	Milkweed butterfly	Nymphalidae	<i>Danaus plexippus</i>	+	+	NL	LC
13.	Red-veined darter	Libellulidae	<i>Sympetrum fonscolombii</i>	+	+	NL	LC
14.	Common Tiger	Nymphalidae	<i>Dananus genutia</i>	+	+	NL	NE

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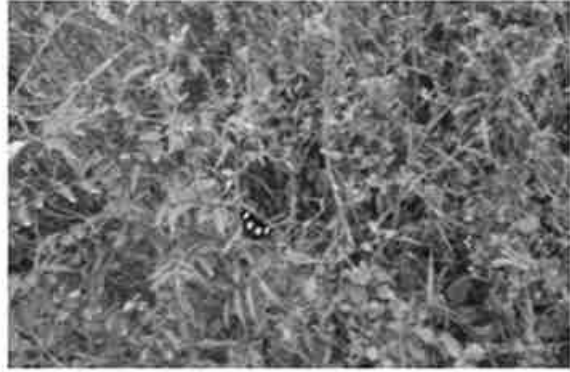
Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

15.	Plain Tiger	Nymphalidae	<i>Dananus chrysippus</i>	+	+	NL	NE
REPTILES							
1.	House gecko	Gekkonidae	<i>Hemidactylus platyurus</i>	+	+	NL	NL
2.	Peninsular rock agama	Agamidae	<i>Psammophilus dorsalis</i>	+	+	NL	NL
3.	Common house gecko	Gekkonidae	<i>Hemidactylus frenatus</i>	-	+	NL	NL
4.	Fan-Throated Lizard	Agamidae	<i>Sitana ponticeriana</i>	+	+	NL	LC
BIRDS							
1.	Fan tailed cuckoo	Cucalidae	<i>Cacomantis flabelliformis</i>	-	+	NL	LC
2.	Yellow billed cuckoo	Cucalidae	<i>Coccyzus americanus</i>	-	+	NL	LC
3.	White browed coucal	Cucalidae	<i>Centropus superciliosus</i>	-	+	NL	LC
4.	Common cuckoo	Cucalidae	<i>Cuculuscanorus</i>	+	+	NL	LC
5.	Cattle egret	Ardeidae	<i>Bubulcus ibis</i>	-	+	NL	LC
6.	Japanese quail	Phasianidae	<i>Coturnix japonica</i>	-	+	NL	LC
7.	House crow	Corvidae	<i>Corvus splendens</i>	+	+	NL	LC
8.	White-breasted waterhen	Rallidae	<i>Amaurornis phoenicurus</i>	+	+	NL	LC
9.	Rose-ringed parakeet	Psittacidae	<i>Psittacula krameri</i>	+	+	NL	LC
10.	Common myna	Sturnidae	<i>Acridotheres tristis</i>	+	+	NL	LC
11.	Black drongo	Dicruridae	<i>Dicrurus macrocercus</i>	+	+	NL	LC
12.	Crow Pheasant	Cucalidae	<i>Centropus sinensis</i>	+	+	Schedule IV	LC
13.	Koel	Cucalidae	<i>Eudynamys scolopaceus</i>	+	+	Schedule IV	LC
14.	House sparrow	Passeridae	<i>Passer domesticus</i>	+	+	Schedule IV	LC
15.	White throated king fisher	Alcedinidae	<i>Halcyon smyrnensis</i>	+	+	Schedule IV	LC

((+)) Symbol indicate presence of Species, (-) Symbol indicate absence of Species, *NL- Not listed, NE- Not evaluated, LC- Least concern



Eudynamys scolopaceus



Alypia octomaculata



Hemidactylus platyurus



Dicrurus macrocerus



Passer domesticus



Eurema brigitta



Herastes edwardsii



Bubulcus ibis

Fig No 3.30: Photos of Fauna in Core Area

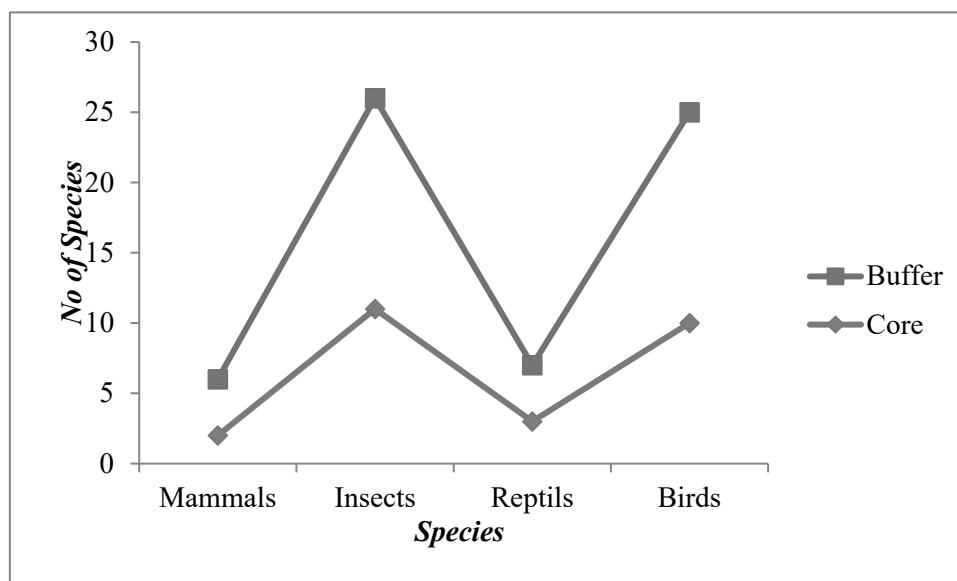


Fig No. 3.31: Faunal diversity in Core and buffer Zone

3.13 SOCIO-ECONOMIC ENVIRONMENT

3.13.1 Introduction

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.

3.13.2 Objectives of the Study

The report deals with the Socio-Economic Impact Assessment of the multi-color granite quarry promoted by proponent of 1.81.0 Ha in S.F. Nos. 103/3A1A(P), 103/3A2, 103/3B1, Kodangipalayam Village, Palladam Taluk, Tiruppur District, Tamil Nadu.

The objectives of the socio-economic study are as follows:

- To study the socio-economic status of the people living in the study area of the proposed mining project.
- To assess the impact of the projection Quality of life of the people in the study area.

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- To recommend Community Development measures needs to be taken up in the study Area.

3.13.3 Scope of Work

- To study the Socio-economic Environment of the area from the secondary sources;
- Data Collection & Analysis
- Prediction of project impact
- Mitigation Measure

3.13.4 Study Area – Kodangipalayam village

Gram Panchayat name of the Kodangipalayam village is Palladam taluk. Selection of one village from the list of census villages based on the following criteria: • The population size of the village should be between 200 to 350 • The distance of the village from the main road should be more than 1.07 Kms • Existence of Government schools (Primary, Lower/ Middle/ Higher Secondary Schools) • Existence of Local level Institutions • Diversity of land use and ownership of land. Kodangipalayam village is in Palladam Taluk of Tiruppur district in Tamil Nadu, India. It is situated 4.50 km away from sub-district headquarter Palladam (Tahsildar office) and 17.05 km away from district headquarter Tiruppur district. As per 2009 states, Kodangipalayam village is also a gram panchayat.

Table 3.18 – Kodangipalayam Village Census 2011 Data

S.No	Description	Census 2011 Data
1	Village Name	Kodangipalayam
2	Tehsil Name	Palladam
3	District Name	Tiruppur
4	State Name	Tamil Nadu
5	Total Population	6987
6	Total Area	1.81.0 Ha

3.13.5 Population Characteristics – Kodangipalayam Village, Palladam Taluk, Tiruppur District (2001-2011)

Kodangipalayam village had a total household 417 in 2001, which is increased to 1961 in according to census 2011. Village had a total person of 1452 in 2001 census previous census 6987 persons in 2011. There were about 717 men (49.38%) according to 2001 census and 3494 men (50.01%) in 2011 census marking increase of about 199 men over the previous census. During 2001 there were about 735 women (50.62%), which is an increase to 3493 (49.99%) in 2011 census.

In Kodangipalayam village had a literate accounted for 791 persons (54.48%) in 2001 and increased to 4614 persons (66.04%) in 2011. There were about 466 males (32.09%)

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percent in 2001 and 2568 males (36.75%) percent in 2011. There were about 325 females (22.38) percent increased to 2046 females (29.28) percent classes as literates in 2011. There are different methods that can be employed to study the rural realities and functioning of different institutions such as observation, interviews with village residents, conducting meetings and Focus group discussions (FGDs) with village residents, participating in the events taking place in the village, etc.

Sex composition is the most important demographic characteristics that affect the incidence of birth and death. The average sex ratio in Palladam Taluk, Kodangipalayam village was 973.36 during 2001 and increased to 992.149 the year of 2011. The highest sex ratio may be either due to the migrants for educational purpose and employment opportunities and due to infant birth of female is high. The population characteristics of Kodangipalayam Village (2001-2011) are shown in table 3.17 and fig 3.31. This is mainly used for generating qualitative data as well as for checking/ verifying and confirming information (time taken for an activity, behavioral pattern of a person i.e. how a person responds to the situation, how a person interacts with others, etc.) from the field. It helps in creating systematic information on events and behaviour of the respondents or the persons/groups under the study as well as to verify certain facts/matters under study. It documents non-verbal expressions, such as, feelings/emotions. Prior to establishing rapport with persons in the field, the observation as a method helps in identifying informants as collaborators. The 'descriptive observation' takes place when it follows pattern of 'what is to be observed, at what time and from which place'. Similarly, 'focused observation' took place when a particular detail needs to be confirmed. When we're participates in some of the activities to observe, it is called as 'participant observation'. All the information—primary and secondary data—are inter-connected.

Table 3.19: Kodangipalayam Village Population Facts

S. no	Characteristics	2001	%	2011	%
1	Total Household	417	28.72	1961	28.07
2	Rural population	1452	-	6987	-
3	Male Population	717	49.38	3494	50.01
4	Female Population	735	50.62	3493	49.99
5	Rural Literacy	791	54.48	4614	66.04
6	Male Literacy	466	32.09	2568	36.75
7	Female Literacy	325	22.38	2046	29.28
8	Sex Ratio	-	973.36	-	992.149

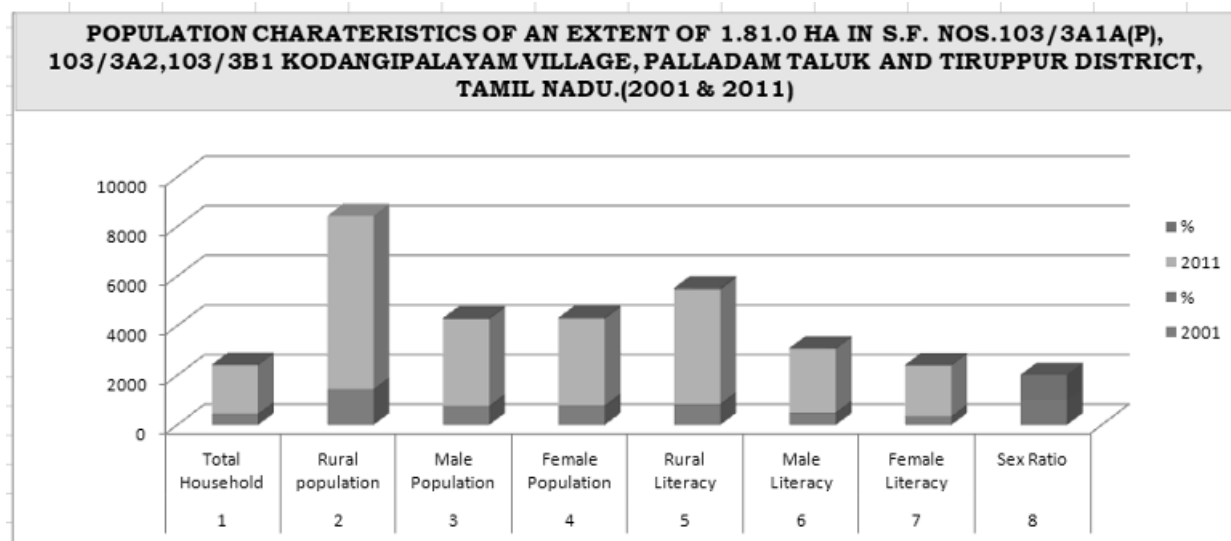


Fig No 3.32: Population Characteristics of Kodangipalayam village Tiruppur District (2001-2011).

3.13.6 Occupational profile of Mettupatti Village

The term workers denote the population engaged in primary, secondary and tertiary activities classified in the census reports of Indian government. During the year 2001 Kodangipalayam Village, Palladam Taluk, Tiruppur District, Tamil Nadu.

The Occupational structure in terms of analyzing the geographical, economic and technological development of various factors among these in this Kodangipalayam village denote the workers population are classified in the census reports in Indian government. To facilitate collection of necessary data/information schedules are provided beforehand. Schedules are prepared in such a way that you will be able to prepare a pen picture at the end of each section/sector related questions. Some questions are close-ended i.e. with options given such as (i) 'yes' or 'no'; (ii) type of soils with 'alluvial' or Loamy and clayey types of soil etc. From such close-ended questions, you have to select appropriate answers and tick them. There are some open-ended questions. The answers to these questions will be descriptive. In some cases, and in order to elicit necessary information, you may need to conduct an interview or a meeting or Focus Group Discussion (FGD). It is at your discretion as to which method is selected for gathering necessary information/primary data. Different tools are to be used such as interview schedules, check-list/guideline questions, tabular formats, etc.; and the responses of the respondents could be used for analysis, interpretations, and report writing. There are some questions which are self-explanatory and you would be able to collect information directly; some questions will facilitate you to conduct Focus Group Discussion (FGD) for data collection. Some questions will lead to table generation after first level of data collection. While using these schedules you are encouraged to develop

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critical understanding on village level institutions and their functioning, government programmed and their outcome and components of rural economy. Based on the social economic survey primary and secondary data collected from the EIA team likely impacts on the socio-economic scenario from the mining site in 10 km buffer zone implemented in this surrounding villages where its monitoring and analyzing the social consequences in this mine site area.

In Kodangipalayam village had a total main workers accounted of 894 (61.57%) persons during 2001 census which is a decrease to 3595 (51.45%) persons during 2011. There were about 385 (26.52%) women in 2001 and 1273(18.22) women according to the census 2011 marking a decreases 444 women over the previous census.

The study area has experienced a change in the occupational structure in the form of a decline in the proportion of cultivators, agricultural laborers and an increase in the proportion of Non workers. In Kodangipalayam village had non workers population accounted of 704 (48.48%) according to census 2011. Which decreased from census 2001 had population 3146 (45.03%). Compare to 2011 census has and increased previous census is 2442 persons. Because of a greater number of people are educated most of people living the village had mining and household industries like tobacco, coolie etc., earn our daily life.

There are three phases of occupational distributions and economic development and growth rate of populations in census of Indian government. In First phase the agriculture proportions of people are working in this site, the second phase where the populations are continuing in this agro-based industries and as well as migrating one place to another place for manufacturing or employ engaged, the third phase the distributions of the occupational characteristics growth rate of working population become greater than or differentiates in the secondary census data wise.

As per the occupational pattern differentiated in 2001 and 2011 census the workers are classified main workers, marginal workers, non-workers, cultivators and agricultural workers, marginal house hold workers. More opportunities nearby villages for giving employing the local people for getting income and not for searching coolie job far away. It will increase their household income. From the data it was observed that occupational population decreased where the government and private entrepreneurs should give an opportunity to develop an occupational pattern is restructure itself. Data for presentation and to prepare a report, which includes a prototype reporting format and also tables as an output as part of this manual. You are encouraged to use photographs, maps, charts, graphs and other visuals for effective presentation of the report. Use of some anecdotes and quotes,

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complying mainly in methods for primary data collection that pass the test of objectivity, reliability, validity and authenticity of data (authentic sources of information). The methods are: (i) Interview (ii) Survey Method (iii) Focus Group Discussion (iv) Participatory Learning and Action (v) Observation and make the presentation more effective and interesting.

Before closing the discussion, you need to quickly summaries and then ask the participants whether they want to tell or ask or clarify anything. Thank them for their time and cooperation. After discussion, expand the field notes and identify necessary information to be collected from other sources as well as information that needs to be supplemented or checked through secondary data.

Table 3.20: Kodangipalayam village Working Population-Census 2011

S.No	Census Parameters	2001	%	2011	%
1	Total Population	1452		6987	
2	Male Population	717	49.38	3494	50.01
3	Female Population	735	50.62	3493	49.99
4	Total Literacy	791	54.48	4614	66.04
5	Male Literacy	466	32.09	2568	36.75
6	Female Literacy	325	22.38	2046	29.28
7	Total Workers	894	61.57	3595	51.45
8	Male Workers	509	35.06	2322	33.23
9	Female Workers	385	26.52	1273	18.22
10	Total Main non-workers	704	48.48	3146	45.03
11	Male Main non-workers	427	29.41	2109	30.18
12	Female Mainnon- Workers	277	19.08	1037	14.84
13	Total Cultivators	312	21.49	354	5.07
14	Male Cultivators	184	12.67	222	3.18
15	Female Cultivators	128	8.82	132	1.89
16	Total Main Agricultural Labourers	190	13.09	463	6.63
17	Male Agri.Labourers	92	6.34	202	2.89
18	Female Agri.Labourers	98	6.75	261	3.74
19	Total Main HHI	18	1.24	217	3.11
20	Male HHI	11	0.76	141	2.02
21	Female HHI	7	0.48	76	1.09
22	Total Main Other Tertiary workers	184	12.67	2112	30.23
23	Male OT	140	9.64	1544	22.10

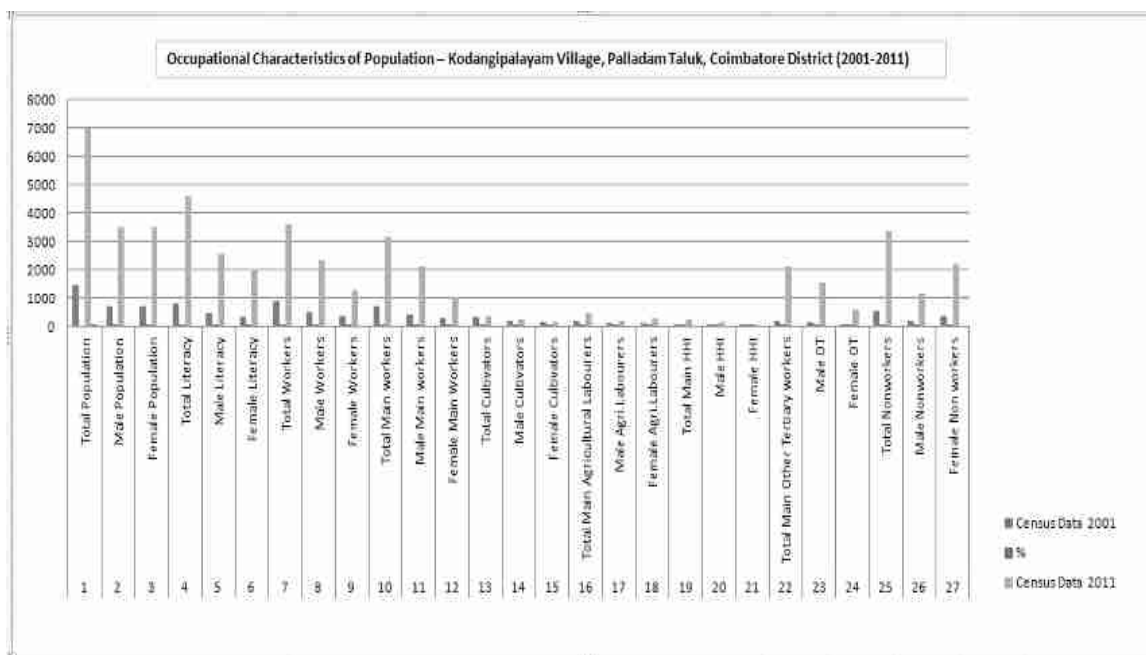


Fig No 3.33: Occupational Characteristics – Kodangipalayam Village, Tiruppur District (2001-2011)

3.13.7 Socio economic studies in buffer area

It is mining project covering an extent of 1.81.0Ha and comes under B1 category. The impact of proposed project will be up to the distance of 10km surrounding the project site. The socio - economic benefits of proposed project is given below.

1. The proposed project will generate employment within 10km radius
2. As the workers and tippers from various villages move to and for projects site, shops such as mechanic, welding, tea and hotels will be developed around the project site. It will generate indirect employment to the village people.
3. The surrounding village people will get benefits under CER and CSR Scheme. CER is 2.0% of project cost whereas CSR is 2.5% of the project profit.
4. When people get employment, it will upgrade the living standard of the people.
5. As the people getting employment in their native places, migration towards developed cities in search of employment may be prevented. Thereby, agricultural activities will not be affected.

The list of revenue villages and its details within 10km radius are given as follows

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Table 3.21: List and Details of Revenue villages within 10km radius

S. No	Village	Population
1	Ichipatti	9527
2	Kodangipalayam	6987
3	Karadibavi	3647
4	Samalapuram	20691
5	Naranapuram	14018
6	Pallapalayam	4787
7	Velampalayam	3943
8	Kangayampalayam	1328
9	Palladam	245522
10	Paruvai	3778
	Total	295669

Source: www.censusindia.gov.in-Tamilnadu Census of India –2011

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Table 3.22 Population Data of Study Area

Village Name	No. of House Holds	Total Population	Male	Female	Total Literate Population	Male Literate	Female Literate	Total Illiterate Population	Male Illiterate	Female Illiterate
Ichipatti	2754	9527	4892	4635	6315	3577	2738	3212	1315	1897
Kodangipalayam	1961	6987	3494	3493	4614	2568	2046	2373	926	1447
Karadibavi	1040	3647	1809	1838	2479	1327	1152	1168	482	686
Samalapuram	5938	20691	10404	10287	14332	7879	6453	6359	2525	3834
Naranapuram	3862	14018	7047	6971	10117	5456	4661	3901	1591	2310
Pallapalayam	1281	4787	2320	2467	2986	1624	1362	1801	696	1105
Velampalayam	1206	3943	1941	2002	2634	1470	1164	1309	471	838
Kangayampalayam	427	1328	680	648	690	401	289	638	279	359
Paruvai	1098	3778	1909	1869	2682	1470	1212	1096	439	657
Palladam	70223	245522	123576	121946	169092	92375	76717	76430	31201	45229

Source: www.census india.gov.in-Tamilnadu Census of India –2011

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Table 3.23: Communication & Transport Facilities in the Study Area

S.No	Village Name	PO	SPO	PTO	T	PCF	BS	PBS	RS	SH	MDR	BTR	GR	FP
1.	Ichipatti	1	0	0	0	0	1	1	0	0	1	1	1	1
2.	Kodangipalayam	1	0	0	0	0	1	1	0	0	1	1	1	1
3.	Karadibavi	0	0	0	0	0	1	1	0	0	1	1	1	1
4.	Samalapuram	1	0	0	0	0	1	1	0	0	1	1	1	1
5.	Naranapuram	1	1	1	0	6	1	1	0	2	2	1	1	1
6.	Pallapalayam	1	0	0	0	1	1	1	0	1	1	1	1	1
7.	Velampalayam	0	0	0	0	0	1	1	0	0	1	1	1	1
8.	Kangayampalayam	0	0	0	0	0	1	1	0	0	1	1	2	1
9.	Paruvai	0	0	0	0	0	1	1	0	0	1	1	1	1
10.	Palladam	2	1	0	0	1	1	1	0	0	1	1	1	1

Abbreviations: **PO** - Post Office; **RS** - Railway Station; **GR** - Gravel Roads; **SPO** - Sub Post Office; **PTO** - Post & Telegraph office; **PCF** - Private Courier Facility; **SH** - State Highways; **FP** - Foot path; **T**- Telephone (Landline); **BS** -Public Bus Service; **MDR** - Major District Road; **PBS** - Private Bus Service; **BTR** - Black Topped (Pucca Road).

Note: 1 - Available within the village; 2 -Not available

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Table 3.24: Water & Drainage Facilities in the Study Area

S. No	Village Name	TP	CW	UCW	HP	TW/BH	S	R/C	T/P/L	CD	OD	CT
1.	Ichipatti	1	1	1	1	1	2	2	1	1	1	2
2.	Kodangipalayam	1	2	1	1	1	2	2	2	1	1	2
3.	Karadibavi	1	2	1	1	1	2	2	2	1	1	2
4.	Samalapuram	1	1	1	2	1	1	2	2	1	1	2
5.	Naranapuram	1	1	1	2	2	2	2	2	1	1	2
6.	Pallapalayam	1	1	1	1	1	1	2	1	1	1	2
7.	Velampalayam	1	1	1	1	1	2	2	2	1	1	1
8.	Kangayampalayam	1	1	1	2	1	1	2	2	1	1	2
9.	Paruvai	1	1	1	1	1	2	2	2	1	1	2
10.	Palladam	1	1	1	1	1	2	2	2	1	1	2

Abbreviations: TP-Tap Water; R/C-River/Canal; CW-Covered Well; T/P/L-Tank/Pond/Lake; UCW-Uncovered Well; CD-Covered Drainage; HP-Hand Pump; OD-Open Drainage; TW/BH-Tube/Bore Well; CT-Community Toilet Complex for General public; S- Spring

Note- 1-Available within the village 2-Not available

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Table 3.25: Other Facilities in the Study Area

S.No	Village Name	ATM	CB	COB	ACS	SHG	PDS	AMS	NC	NC-AC	CC	SF	PL	NPS	APS	BDRO	PS
1.	Ichipatti	2	1	1	2	2	1	2	2	1	2	2	1	1	2	1	1
2.	Kodangipalayam	2	2	2	2	2	1	2	2	1	2	1	1	1	1	1	1
3.	Karadibavi	2	2	2	2	2	1	2	2	1	1	1	1	1	1	1	1
4.	Samalapuram	2	2	2	2	2	1	2	2	1	2	2	1	1	1	1	1
5.	Naranapuram	9	8	2	2	2	1	2	2	1	2	2	2	1	1	1	1
6.	Pallapalayam	2	1	1	2	2	1	2	2	1	2	2	2	1	1	1	1
7.	Velampalayam	2	1	2	2	2	1	2	2	1	1	1	1	1	1	1	1
8.	Kangayampalayam	2	2	2	2	2	1	2	2	1	1	1	1	1	1	1	1
9.	Paruvai	2	2	2	2	2	1	2	2	1	1	1	2	1	1	1	1
10.	Palladam	3	2	1	2	2	1	2	1	1	1	1	2	1	1	1	1

Abbreviations: ATM - Automatic Teller Machine; PDS - Public Distribution System (Shop); CB - Commercial Bank; COB - Co-operative Bank; AMS - Agricultural Market Society; ACS –Agricultural Credit Societies; NC- Nutritional Centre; SHG-Self Help Group; NC-AC- Nutritional Centre – Anganwadi Centre; BDRO-Birth & Death Registration Office; PS-Power Supply; CC- Community Centre (without TV); SF – Sports field; PL- Public library, NPS – Newspaper supply; APS – Assembly polling station.

Note: 1-Available within the village; 2- Not available

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Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

Table 3.26: Educational Facilities in the Study Area

S.No	Village Name	PPS		PS		MS		SS		SSS		DC		EC		MC		MI		PT		VTS		SSD	
		G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P
1.	Ichipatti	1	2	1	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
2.	Kodangipalayam	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3.	Karadibavi	1	2	1	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4.	Samalapuram	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
5.	Naranapuram	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
6.	Pallapalayam	1	2	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
7.	Velampalayam	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
8.	Kangayampalayam	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
9.	Paruvai	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
10.	Palladam	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

Abbreviations: PPS-Pre-Primary School; SSS-Senior Secondary School; DC-Degree School; PT-Polytechnic; PS-Primary School; G-Government; EC-Engineering College; VTS-Vocational School /ITI; MS-Middle School; P-Private; MC-Medical College; SSD-Special School for Disabled; SS-Secondary School; MI-Management College/Institute;

Note –1-Available within the village; 2-Not available

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Table 3.27: Medical Facilities in the Study Area

Sl.No	Village Name	CHC	PHC	PHSC	MCW	TBC	HA	HAM	D	VH	MHC	FWC	NGM-I/O
1.	Ichipatti	2	1	1	2	2	2	2	2	1	2	2	a
2.	Kodangipalayam	2	1	1	2	2	2	2	2	1	2	2	b
3.	Karadibavi	2	2	1	2	2	2	2	2	2	2	2	b
4.	Samalapuram	2	2	1	2	2	2	2	2	1	2	2	b
5.	Naranapuram	2	2	1	2	2	2	2	2	1	2	2	b
6.	Pallapalayam	2	1	1	2	2	2	2	2	2	2	2	c
7.	Velampalayam	2	1	1	2	2	2	2	2	1	2	2	b
8.	Kangayampalayam	2	2	1	2	2	2	2	2	2	2	2	a
9.	Paruvai	2	2	1	2	2	1	2	2	1	2	2	b
10.	Palladam	2	1	2	2	2	2	2	2	2	2	2	b

Abbreviations: CHC-Community Health Centre; TBC- TB Clinic; VH- Veterinary Hospital; PHC-Primary Health Centre; HA-Allopathic Hospital; FWC-Family Welfare Centre; PHSC-Primary Health Sub Centre; HAM-Alternative Medicine Hospital; MHC-Mobile Health Clinic; MCW-Maternity and Child Welfare Centre; D-Dispensary; NGM-I/O-Non-Government Medical Facilities In & Out Patient

Note-1-Available within the village; 2 –Not available; a- Facility available at<5kms; b- Facility available at>10kms

3.13.8 Primary survey conducted by FAE- SE

Primary survey conducted 10 villages total population is 295669. Kodangipalayam village has approximately 1 percent of total population of the village area. This calculation is total sample size has 250 around 10km radius core and buffer zone from mine lease boundary.

3.13.8.1 Primary survey methodology

The study was carried out with a participatory approach by involving the stakeholders, particularly the project beneficiaries and probable affected persons through a series of consultative process. The population groups that were consulted include beneficiary group of people in the project influence area, particularly the shopkeepers, farmers, Gram Panchayat members, village elders etc. Proportionate and purposive sampling methods were used for selecting respondents for household survey. Male and female respondents, both were selected for household survey. Structured questioners were used for survey.

3.13.8.2 Data structures

The data collected with the help of questionnaire survey for list of villages of Palladam Taluk were suitably converted into uni-variate, bi-variate and multivariate tables. The selection of these blocks was meaningfully done in order to get complete details of the surveyed population, their living environment, socio economic and socio-cultural and healthcare practices so as to conceptualize the findings with the help of interrelationships between Occupation and income status. the surveyed population were examined and interpreted with reference to socioeconomic living area, family structure and Educational, Sanitation etc.,

The survey was conducted by SE expert Mrs. S.Santhi (FAE) along with her team.



Fig No 3.35: Primary Survey Photographs of village wise, Tiruppur District

3.13.9 Summary and Conclusion

From the primary survey, it is found that the basic facilities such as water road, PHSC, schools are available within the surveyed villages. The people stated that they did not get benefits under CER and CSR activities. Also, they suggested that to operate the truck at minimum speed while crossing villages, schools, hospitals. The strongly asked to provide the employment opportunities only to the village people and registered their complaint on employment opportunities to other state people.

The proponent assured that he will improve facilities in government schools and hospitals under CER and CSR Schemes.

The socio-economic wellbeing of the area and its people is represented by the infrastructure and the social assets available in the area. The study area constituted of various infrastructures related to education, health care, communication, transportation, drinking waters etc.

CHAPTER – 4: ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Open cast mining is carried out by using excavators and dumpers combination. Scientific mining with proper benches with width and slope will be enabled as per MMR, 1961. Jackhammers with compressors will be deployed for drilling. Manual labors will be engaged for jack hammer drilling, sorting of waste and excavator will be used for loading the rough stone into trucks. Primary Blasting will be carried out Nonel blasting techniques with minimum vibration or detonating card with electric detonator initiation system. Sizing of materials shall be done by rock breakers or muffle blasting or pop shooting to the required size for better loading into trucks.

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.

4.1 Air Environment

The air borne particulate matter is the main air pollutant by opencast mining. The mining operation will be carried out by jack hammer drilling, blasting, excavation, loading and transportation.

4.1.1. Anticipated Impact

The air borne particulate matter generated by handling, operations and transportation of rough stone are the main air pollutant. The emissions of Sulphur dioxide (SO₂), Oxides of Nitrogen (NO_x) contributed by diesel operated excavation/loading equipment and vehicles plying on haul roads are marginal. Prediction of impacts on air environment has been carried out taking into consideration of proposed volume of rough stone -100539m³ for five years and Gravel – 2116m³ for one year on air environment and net increase in emissions on air environment.

4.1.2 Emissions Details

Drilling, Blasting, Loading, unloading and transportation of rough stone and wind erosion of the exposed area and movement of light vehicles will be the main polluting source in the mining activities that releasing Particulate Matter (PM₁₀) affecting Ambient Air of the area. Emission during Blasting, Loading and unloading was calculated as the area sources. Transportation of the rough stone by 2 nos of trucks operated on the haul road was calculated

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

as the line sources. It was assumed that truck will carry 15 T of rough stone. Details of emission during loading/unloading and transportation on the haul road, wind erosion of the exposed area and road maintenance were discussed and combined impact was predicted in the worst-case scenario under worst meteorological condition given as follows:

4.1.2.1 Drilling

Drilling is the process of making holes in rough stone to carry out smooth blasting. The drilling is most representative for point source. The rate of emission from the drilling process will be very high when compared to loading, unloading, transporting and blasting. So wet drilling will be proposed for the rough stone quarry which completely suppresses the dust emitted during drilling process. Also, dust extractor will be used over the wet drilling for the effective emission control system.

4.1.2.2. Loading of Rough stone

Chakraborty et al. (2002) was used to calculate emission of particulate matter released into the atmosphere during loading of Mineral.

$$E = \{[(100 - m) (m)^{-1}]^{0.1} \{s (100 - S)^{-1}\}^{0.3} h^{0.2} \{u (0.2 + 1.05)^{-1}\} \{xl (15.4 + 0.87xl)^{-1}\}]$$

Table 4.1: Source Parameters (Loading of Rough stone)

S.No	Description	Symbol	Quantity
1	Moisture content (%)	m	0.9%
2	Silt content (%)	s	0.1(approx)
3	Wind speed (m s ⁻¹)	u	2.4
4	Drop height (m)	h	1m above the tipper body
5	Size of loader (m ³)	l	1.20
6	Frequency of loading(no.h ⁻¹)	x	10 times
7	Quarry area (m ²)	a	18100
8	Uncontrolled emission rate (g s ⁻¹)	UE	0.61
9	Control efficiency (%)	c	90
10	Controlled emission rate (g s ⁻¹)	CE	0.061

Totally 2 tippers and 1 hydraulic excavator will be proposed for proposed Rough stone quarry. The maximum rate of production per hour is estimated at 12 m³. The loading capacity of excavator is 1.20 m³.

$x = \text{frequency of loading (no. h}^{-1}\text{)} = 12/1.20 = 10 \text{ times.}$

Emission of PM₁₀ during Roughs stone loading was calculated and found to be 0.061 g/s based on moisture content 90% and average wind speed was 2.4 m/s as observed with site data.

4.1.2.3 Loading of Overburden (Gravel)

Chakraborty et al. (2002) was used to calculate emission of particulate matter released into the atmosphere during loading of Gravel.

$$E = [0.018\{(100-m) (m)^{-1}\}^{1.4}\{s (100-s)^{-1}\}^{1.4}(uhxl)^{0.1}]$$

Table 4.2: Source Parameters

S.No	Description	Symbol	Quantity
1	Moisture content (%)	m	30
2	Silt content (%)	s	12
3	Wind speed (m s ⁻¹)	u	2.4
4	Drop height (m)	h	1m above the tipper body
5	Size of loader (m ³)	l	1.20
6	Frequency of loading(no.h ⁻¹)	x	4 times (maximum)
7	Quarry area (m ²)	a	18100
8	Uncontrolled emission rate (g s ⁻¹)	UE	0.023
9	Control efficiency (%)	c	90
10	Controlled emission rate (g s ⁻¹)	CE	0.0023

The maximum rate of production of gravel per hour is estimated at 5 m³. The loading capacity of excavator is 1.20 m³.

$$x = \text{frequency of loading (no. h}^{-1}\text{)} = 5/1.20 = 4 \text{ times}$$

4.1.2.4 Haul Road

Chaulya (2006) was used to calculate emission of particulate matter released into the atmosphere during transportation of rough stone by truck operated per hour on haul road.

$$E = [\{ (100-m) (m)^{-1} \}^{0.35} \{ (us) (100-s)^{-1} \}^{0.7} \{ 0.5 + 0.1(f + 0.42v) \} 10^{-3}]$$

Table 4.3: Source Parameters (During Vehicle Movement on Haul Road)

S.No	Description	Symbol	Quantity
1	Moisture content (%)	m	30
2	Silt content (%)	s	12
3	Wind speed (ms ⁻¹)	u	2.4
4	Frequency of transporting (no. h ⁻¹)	f	10 times (maximum)
5	Average vehicle speed(ms ⁻¹)	v	4.1
6	Haul road area (m ²)	a	110
7	Uncontrolled emission rate (g s ⁻¹)	UE	0.006
8	Control efficiency (%)	c	90
9	Controlled emission rate (g s ⁻¹)	CE	0.0006

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

Emission of PM₁₀ due to transportation of Rough Stone on haul road was 0.0006 g/s based on assumption that silt content spread on road surface was 12% and average wind speed of 2.4 m/s as observed with site data. Based on the above consideration there was low emission of PM₁₀ during transportation of Rough Stone and Gravel.

4.1.2.5 Blasting

In another scenario when controlled blasting is carried out at the mine site and all the other activities are brought to halt. Significant amount of PM₁₀ is released during blasting at mining site for very short-term.

$$E = E_f \times Q$$

Table 4.4: Source Parameters (During Blasting)

S.No	Description	Symbol	Quantity
1	Uncontrolled Particulate matter emissions rate in pounds per year	UE	54
2	Emission factor in unit of pounds of particulate per ton shifted by blasting	E _f	TSP E _f = 0.0001 pounds/ton PM ₁₀ E _f = 0.0008 pounds/ton PM _{2.5} E _f = 0.0008 pounds/ton
3	Amount of material of all types shifted by blasting during the year in tons	Q	100539

(Reference: Mojave Desert Air Quality Management District, 1403 Park Avenue, Victoria, CA 92392 -2310).

Loading and unloading of Rough Stone, overburden, movement of trucks on haul roads and open pit source were considered as combined action. So the emission during loading, unloading and transportation were taken combined and US EPA based Dispersion AERMOD model was used for prediction of impact with 1-h meteorological data of the study period for the assessment of incremental GLC. Then blasting was considered as separate action and US EPA based Dispersion AERMOD model was used for prediction of impact separately.

4.1.2.6 Summary of calculated Emission Rates

Table 4.5: Emissions Rates of PM₁₀

Source type	Controlled Emission Rate (g/s/m ²)
Rough stone loading	4.3 x 10 ⁻⁶
Overburden Loading	2.2 x 10 ⁻⁷
Haul Road	4.2 x 10 ⁻⁶
Blasting	2.5 x 10 ⁻⁷

Table 4.6: Emissions Rates of SO₂

Source type	Average Emission rate for HDDV as per EPA	Emission rate (Proposed Project)
Tippers	0.012 g/mile	1.1 x 10 ⁻⁷ g/s/m ²
Excavators	0.012 g/mile	3.4 x 10 ⁻⁸ g/s/m ²
Total Emission Rate		3.4 x 10 ⁻⁸ g/s/m ²

Table 4.7: Emissions Rates of NO₂

Source type	Average Emission rate for HDDV as per EPA	Emission rate (Proposed Project)
Tippers	0.725 g/mile	6.1 x 10 ⁻⁸ g/s/m ²
Excavators	0.725 g/mile	2.0 x 10 ⁻⁷ g/s/m ²
Total Emission Rate		2.0 x 10 ⁻⁷ g/s/m ²

4.1.3 Frame work of Computation & Model details

By using the above-mentioned inputs, ground level concentrations due to the mining activities have been estimated to know the incremental rise in ambient air quality and impact in the study area. The effect of air pollutants upon receptors are influenced by concentration of pollutants and their dispersion in the atmosphere. Air quality modeling is an important tool for prediction, planning and evaluation of air pollution control activities besides identifying the requirements for emission control to meet the regulatory standards and to apply mitigation measures to reduce impact caused by mining activities.

4.1.3.1 Model Input data

The air pollution modeling carried out represents the normal operating scenarios. As the proposed activity is mining the major source of pollution is particulate matter and gaseous emission. The following data has required as input data for dispersion pattern.

- 1) Baseline data of PM_{2.5}, PM₁₀, SO_x and NO₂ is needed along with meteorological data. Meteorological data preprocessor (AERMET) needs meteorological data which calculates atmospheric turbulence characteristics, mixing heights, surface heat flux for finding the atmospheric dispersion. Site specific data recorded during summer season (December 2022 to February 2023) at project site for executing modeling studies.
- 2) The emission rates of PM_{2.5}, PM₁₀, SO_x and NO_x from the various sources was taken.
- 3) Location of the project.

4.1.3.2 Model Results

The Air Quality Impact Prediction has been done by using AERMOD of USEPA". The main sources of air pollution with regard to the proposed project for the purpose of estimation of increase in PM₁₀, SO_x and NO₂ are identified due to

1. Scenario 1 – PM₁₀

- (i) Loading/unloading of rough stone and overburden
- (ii) Transportation of Rough stone, overburden by trucks on the Haul roads from mining benches.

2. Scenario 2 - PM₁₀

- (i) Due to blasting

3. Scenario 3 – SO_x and NO₂

- i. From Operation of Excavator and movement of transporting vehicle

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

Scenario1:

Table 4.8: Total predicted GLC of PM₁₀ in core and buffer zone due to combined action of loading, unloading and Transportation of Rough stone by trucks on the haul road, of the mining lease area.

Location	Location Code	Background value in $\mu\text{g}/\text{m}^3$	Incremental GLC in $\mu\text{g}/\text{m}^3$	Total Predicted GLC in $\mu\text{g}/\text{m}^3$
Mine site	AQ1 - Centre	48	19.06	67.09
Receptor 01	AQ2 - 860m - E	48	0.59	48.59
Receptor 02	AQ3- 940m – NW	48	5.24	53.24
Receptor 03	AQ4 - 1700m - SW	48	0.39	48.39
Receptor 04	AQ5- 1300m – N	48	0.03	48.03
National Ambient Air Quality Standards (NAAQS)				100

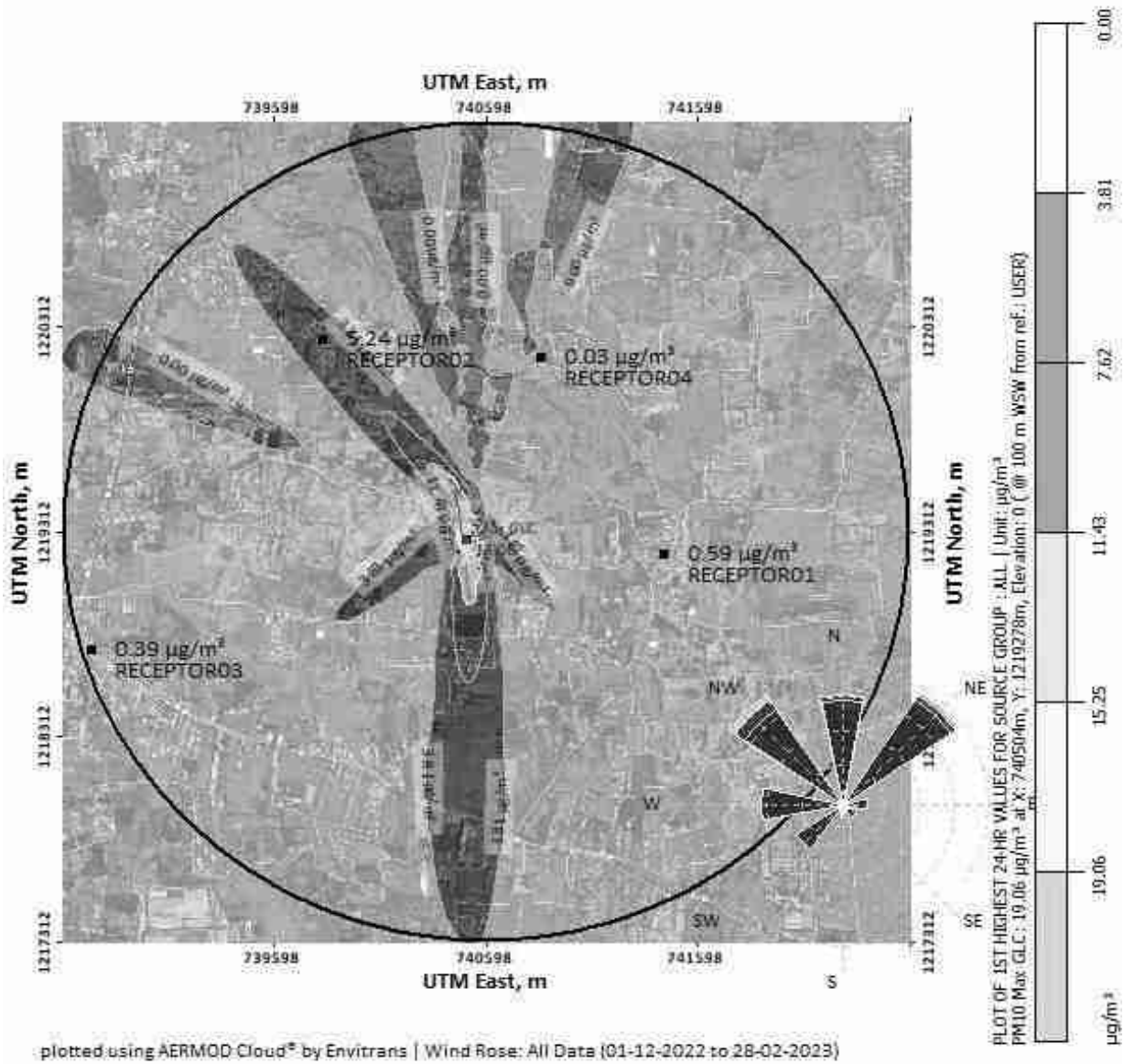


Fig 4.1: Isopleths of PM₁₀ is 19.06 $\mu\text{g}/\text{m}^3$ (Core) occurred at the project site during i) loading and unloading and ii) transportation of rough stone over the haul road

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

Scenario 2:

Table 4.9: Total predicted GLC of PM₁₀ in core and buffer zone due to blasting activity in the mining lease area.

Location	Location Code	Background value in $\mu\text{g}/\text{m}^3$	Incremental GLC in $\mu\text{g}/\text{m}^3$	Total Predicted GLC in $\mu\text{g}/\text{m}^3$
Mine site	AQ1 - Centre	48	10.86	58.86
Receptor 01	AQ1 - 860m - E	48	0.01	48.01
Receptor 02	AQ2 - 980m NW	48	0.25	48.25
Receptor 03	AQ3-1400m – W	48	0.21	48.21
Receptor 04	AQ4 - 650m- SW	48	3.39	51.39
National Ambient Air Quality Standards (NAAQS)				100

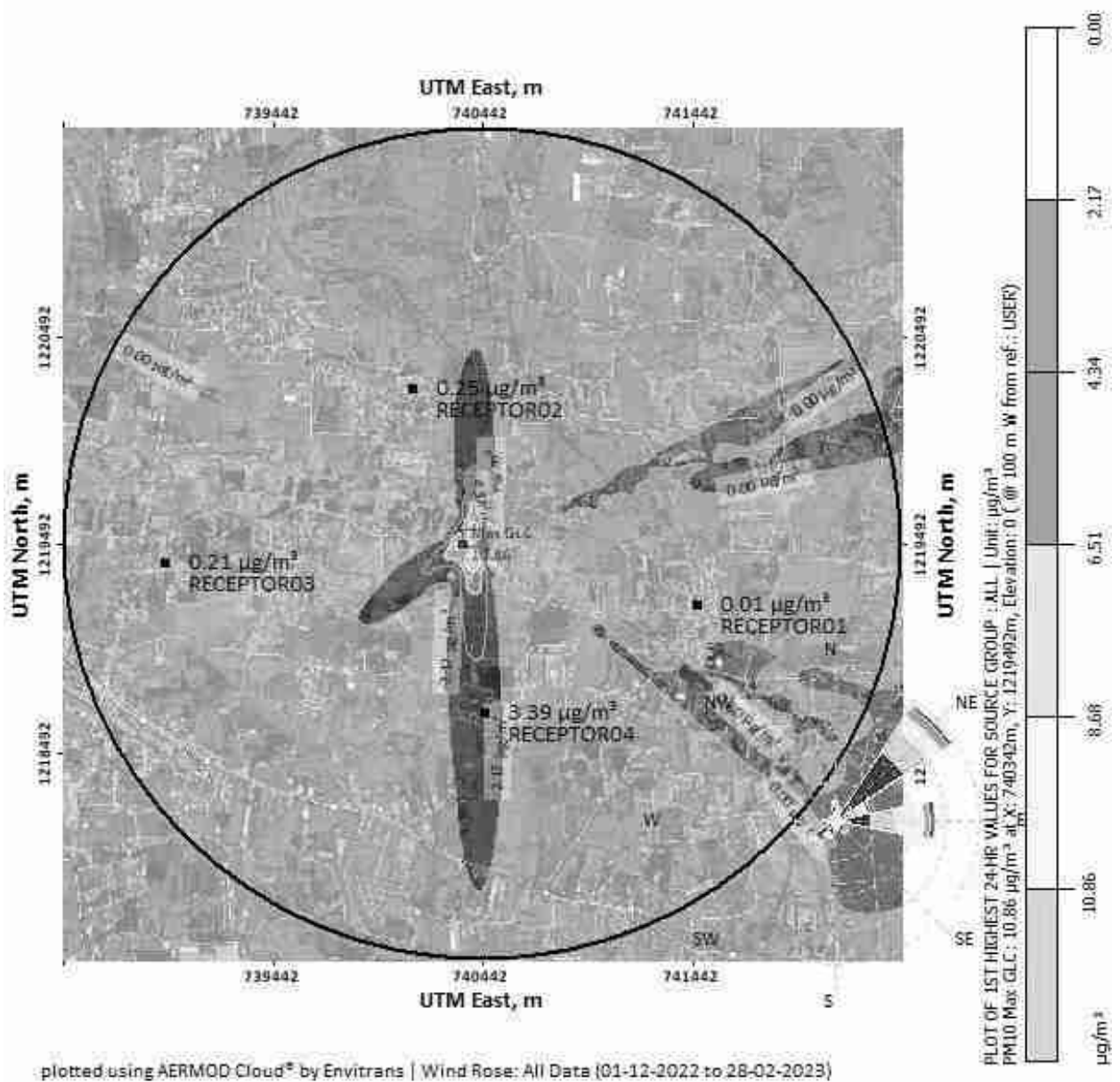


Fig 4.2: Isopleths of PM₁₀ is 10.86 $\mu\text{g}/\text{m}^3$ occurred near the project site during blasting in the mining area

Table 4.10: Impact of SO_x due to Operation of Excavator and Movement of Vehicle in the mining lease area

Location	Location Code	Background value in $\mu\text{g}/\text{m}^3$	Incremental GLC in $\mu\text{g}/\text{m}^3$	Total Predicted GLC in $\mu\text{g}/\text{m}^3$
Mine site	AQ1 - Centre	14	BDL	14
National Ambient Air Quality Standards (NAAQS)				80

Table 4.11: Impact of NO_x due to Operation of Excavator and Movement of Vehicle in the mining lease area

Location	Location Code	Background value in $\mu\text{g}/\text{m}^3$	Incremental GLC in $\mu\text{g}/\text{m}^3$	Total Predicted GLC in $\mu\text{g}/\text{m}^3$
Mine site	AQ1 - Centre	22	BDL	22
National Ambient Air Quality Standards (NAAQS)				80

Total predicted 24-h maximum GLC of PM₁₀ at project site for scenario 1 i.e. loading-unloading, transportation and scenario 2 i.e. Blasting was 58.86 $\mu\text{g}/\text{m}^3$ and 48.01 $\mu\text{g}/\text{m}^3$ respectively after superposition of base-line value 48 $\mu\text{g}/\text{m}^3$ over the incremental GLC 19.06 $\mu\text{g}/\text{m}^3$, 0.59 $\mu\text{g}/\text{m}^3$ scenario 1 and 10.86 $\mu\text{g}/\text{m}^3$ for scenario 2 respectively due to combined impact of loading, unloading, open pit and transportation over the haul road and due to blasting.

The predicted incremental GLC of SO_x and NO_x for under below the desirable limit. Maximum Impact of PM₁₀ was observed close to the source within the lease area due to moderate wind speeds.

4.1.4 Combined Impact on Air Environment due to proposed quarry and adjacent quarry within 500m radius.

There are four existing quarries namely Thiru. D.R. Karuppusamy, Thiru.M. Subbathal, Thiru.D.R. Karuppusamy, and Thiru.V.Prakash. There are five proposed quarries namely Thiru.K.M. Thiru.Chinnasamy, Thiru.R. Gunasekar, Thiru.V.Prakash, Thiru.P. Gowtham Rathinam, and Thiru.P.Subramaniam located within the 500m radius of Proposed Thiru.V. Gangesan, Rough stone and gravel quarry. The predicted incremental GLC of PM₁₀, PM_{2.5}, SO_x and NO_x due to the proposed mining activity is given in below table.

Table 4.12: Incremental GLC of PM₁₀, PM_{2.5}, SO_x and NO_x due to the proposed mining activity

S.No	Air Pollutants	Incremental GLC due to proposed quarry (Controlled) µg/m ³
1.	PM ₁₀	19.06
2	SO _x	0
3.	NO _x	0

Assume that emission rate from the various mining activity in adjacent 9 quarries are same as the proposed quarry. So, the incremental GLC will also be same as proposed quarry. Therefore, the when the proposed quarry and nine adjacent quarries are working together, the incremental GLC and total predicted GLC are given below table.

Table No.4.13 Total predicted GLC of PM₁₀, PM_{2.5}, SO_x and NO_x due to the combined activity in the cluster

S. No	Air Pollutants	Baseline Value	Incremental GLC due to proposed quarry and two quarries µg/m ³	Total Predicted GLC due to proposed quarry and two adjacent quarry µg/m ³
1.	PM ₁₀	48	70.57	118.75
2.	SO _x	14	0	0
3.	NO _x	22	0	0

From the above table it is found that, when the three quarries are working together the Total predicted GLC of PM₁₀ is slightly beyond the limits which shall be controlled by installation of a greater number of sprinklers in the lease area.

4.1.5. Air Quality Index

An air quality index is defined as an overall scheme that transforms the weighed values of individual air pollution related parameters (for example, pollutant concentrations) into a single number or set of numbers (Ott, 1978). Air quality standards are the basic foundation that provides a legal framework for air pollution control. The basis of development of standards is to provide a rational for protecting public health from adverse effects of air pollutants, to eliminate or reduce exposure to hazardous air pollutants, and to guide national/ local authorities for pollution control decisions.

The objective of an AQI is to quickly disseminate air quality information (almost in real-time) that entails the system to account for pollutants which have short-term impacts. To present status of the air quality and its effects on human health, the following description categories have been adopted for IND-AQI.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

AQI breakpoints for eight pollutant parameters considered for AQI and these are summarized below in Table with color scheme to represent the AQI bands.

Table 4.14: AQI and its associated Health Impacts

AQI	Associated Health Impacts
Good	Minimal Impact
Satisfactory	May cause minor breathing discomfort to sensitive people
Moderate	May cause breathing discomfort to the people with lung disease such as asthma and discomfort to people with heart disease, children and older adults
Poor	May cause breathing discomfort to the people on prolonged exposure and discomfort to people with heart disease with short exposure
Very Poor	May cause respiratory illness to the people on prolonged exposure. Effect may be more pronounced in people with lung and heart diseases
Severe	May cause respiratory effects even on healthy people and serious health impacts on people with lung/heart diseases. The health impacts may be experienced even during light physical activity

**Table 4.15: Proposed Breakpoints for AQI Scale 0-500
(Units: $\mu\text{g}/\text{m}^3$ unless mentioned otherwise)**

AQI Category (Range)	PM ₁₀ 24-hr	PM _{2.5} 24-hr	NO ₂ 24-hr	O ₃ 8-hr	CO 8-hr (mg/m ³)	SO ₂ 24-hr	NH ₃ 24-hr	Pb 24-hr
Good (0-50)	0-50	0-30	0-40	0-50	0-1.0	0-40	0-200	0-0.5
Satisfactory (51-100)	51-100	31-60	41-80	51-100	1.1-2.0	41-80	201-400	0.5-1.0
Moderately polluted (101-200)	101-250	61-90	81-180	101-168	2.1- 10	81-380	401-800	1.1-2.0
Poor (201-300)	251-350	91-120	181-280	169-208	10-17	381-800	801-1200	2.1-3.0
Very poor (301-400)	351-430	121-250	281-400	209-748*	17-34	801-1600	1200-1800	3.1-3.5
Severe (401-500)	430+	250+	400+	748+*	34+	1600+	1800+	3.5+

*One hourly monitoring (for mathematical calculation only)

4.1.5.1. Interpretation of Air quality using IND-AQI:**Table 4.16: Computation of AQI with Baseline data**

Air pollutants	Total Predicted GLC due to proposed quarry $\mu\text{g}/\text{m}^3$	AQI	Associated Health Impacts
PM ₁₀	118.75	Moderately Polluted (101-200)	May cause minor breathing discomfort to sensitive people
SO _x	-	Good (0-50)	Minimal Impact
NO _x	-	Good (0-50)	Minimal Impact

The above table shows the AQI quality due to total predicted GLC of quarry in core area. PM₁₀ is between 51-100 of AQI which is satisfactory and may cause minor breathing discomfort to sensitive people. It is found that the value of PM₁₀ high which will be controlled by installing a greater number of sprinklers to combat the increase and to maintain the parameters within the limits of NAAQS.

4.1.6. Mitigation Measures

The pollutants from nearby ongoing mining activities, residential and commercial activities are the primary sources of air pollution. However, in the study area adequate control measures will be implemented in future at the time of mining operation. Mitigate measures suggested for air pollution controls are based on the baseline ambient air quality of the area. From the point of view of maintenance of an acceptable ambient air quality in the region, it is desirable that air quality is monitored on a regular basis to check compliance of standards as prescribed by regulatory authorities. However, to further minimize the pollutant concentration especially PM₁₀, the following control measure should be adopted by the project proponent.

- ❖ Regular water sprinkling on haul roads, blasted heaps, service roads and overburden dumps at regular intervals will help in reducing considerable dust pollution
- ❖ 0.5 KLD will be used for dust suppression.
- ❖ Use of Sharp drill bits for drilling holes and charging the holes by using optimum charge and using time delay detonator.
- ❖ Conventional low explosives are being used.
- ❖ The scale of blasting is however very less considering the rate of production.
- ❖ Covering of material when transport through trucks/dumper
- ❖ The drilling and blasting are being carried out as per the proposals laid down in the approved plan.
- ❖ Proposed to follow up muffle blasting so as to prevent fly rock fragments

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

- ❖ Avoiding blasting during high windy periods and temperature inversion periods
- ❖ Delay blasting under unfavorable wind and atmospheric conditions
- ❖ Use of appropriate explosives for blasting and avoiding overcharging of blast holes
- ❖ The vehicles and machinery will be kept in well maintained condition so that emissions will minimize
- ❖ Provision of green belt all along the periphery of the lease area for control of dust
- ❖ Information on wind direction and meteorology will be considered while planning, so that pollutants, which cannot be fully suppressed by engineering technique, will be prevented from reaching the residential areas
- ❖ Cabins for shovel and dumpers and dust masks to workmen will be provided
- ❖ The dust respirators should be provided to all workers working in dusty environment
- ❖ Regular health check-up of workers and nearby villagers in the impacted area should be carried out and also regular occupational health assessment of employees should be carried out as per the Factories Act
- ❖ Ambient Air Quality Monitoring will be conducted on regular basis to assess the quality of ambient air.

As discussed above under each activity, there will be increase in terms of dust load and gaseous emissions. However, it can be stated that these incremental contributions will remain within the prescribed limits/norms. Further, the mitigation measures will further bring down these concentrations making the mining activities more eco-friendly.

4.2 Carbon emission and carbon sinks due to proposed mining activity

4.2.1 Carbon emissions

There are both natural and human sources of carbon dioxide emissions. Natural sources include decomposition, ocean release and respiration. Human sources come from industrial activities such as cement production, deforestation as well as the burning of fossil fuels like coal, oil and natural gas.

4.2.1.1 Carbon emission due to natural activity in project site and carbon sinks

a) Carbon from decomposition

As the proposed mining activity is carried out in existing mining pit, there will be no need of cutting of any trees or plants. So, the process of decomposition will not take place which emits carbon dioxide into the atmosphere.

b) Carbon from ocean release

The project site is located 186km away from the Arabian Sea. Hence the carbon release by ocean to the project site is not possible

c) Carbon from respiration

The carbon dioxide we exhale does not contribute to global warming for the simple reason. Since all the carbon dioxide we exhale captured by plants during photosynthesis, we are not disturbing the carbon dioxide content of the atmosphere by breathing.

4.2.1.2 Carbon emission due to human activity in project site and carbon sinks

a) Carbon from Vehicles

The proposed method of mining is semi mechanized which involves activity of excavator and tippers. The burning of fossil fuels used for the tippers and excavators' releases carbon monoxide, carbon dioxide and nitrogen oxide into the atmosphere. When those gases are emitted into the atmosphere it affects the amount of greenhouse gases, which are linked to climate change and global warming. In average based on the production per day, two tippers can travel 25 miles within the lease area for transporting the rough stone. Plants not only absorb carbon dioxide but also absorb other gases and remove the impurities from it.

Table 4.17: Emission of carbon monoxide from vehicle

Source type	Average Emission rate of CO for HDDV as per EPA	Emission rate of CO
Tippers	2.311 g/mile	0.0092 kg/day
Excavators	2.311 g/mile	0.574 kg day
Total Emission Rate		0.583 kg/day

Average emission rate – 2.311 g/mile or 1.436 g/km or 1.436 g/200ml of diesel

For one liter of diesel consumption by HDDV, ER – 7.18g

Tippers

Travel distance – 4 mile/day

Emission rate by tipper per day – 4 x 2.311 – 9.24g/day or 0.0092kg/day

Excavators

Diesel requirement per day – 80 liters

Emission rate by excavators per day – 80 x 7.18 – 574g/day or 0.574kg/day

Remediation

The project proponent proposed to plant 100 numbers of one-year taller tree sapling along the safety zone of mining lease area to overcome the emission of carbon gases and other gases by vehicles in the quarry. Moreover, they will plant trees along the village road and government schools under CER and CSR schemes. BS–VI model of tippers are proposed to use in the quarry for the controlled emission of gases.

4.3 Soil Carbon stock

Soil carbon sequestration is a process in which CO₂ is removed from the atmosphere and stored in the soil carbon pool. This process is primarily mediated by plants through photosynthesis, with carbon stored in the form of SOC. Carbon is the main component of soil organic matter and helps give soil its water-retention capacity, its structure, and its fertility. The dense carbon stocks below and above the soil are mostly seen in dense forest where more process of photosynthesis takes place and tons of leaves, branches get decomposed. The agricultural activity in field can degrade and deplete the SOC levels during the process of tillage in paddy, sugarcane turmeric crop field.

There is no reserve forest located within 10km radius. Hence the proposed project does not have any impact on soil carbon stock.

4.4 Noise Environment

Noise survey has been conducted in the study area to assess the background noise levels in different zones. In order to assess the baseline noise levels, impact of noise assessment around the mine site due to mining machineries on its workers and on the nearby settlements and movements of vehicles during transportation have been carried out exclusively and objectively in the core and buffer zone covering 10km radius in 5 locations. Following sources of noise in the proposed open cast rough stone quarry project are being observed:

- Drilling;
- Blasting;
- Vehicular Movement.

The drilling operation is being carried out by Jack hammer operated by compressor mounted with tractor. The noise levels in the working environment are being and will be maintained within the standards prescribed by Occupational Safety and Health Administration (OSHA). These standards were established with the emphasis on reducing the hearing loss. The permissible limits, as laid down by CPCB, are presented in below table 4.18.

Noise generated from blasting is always instantaneous. The noise produced by blasting is for extremely short duration of around 0.5 seconds, though with a high intensity. Blasting time is generally fixed at lunch interval or after the working shift taking. Noise of blast is site specific and depends on type, quantity of explosives, dimensions of drill holes, degree of compaction of explosive in the hole and rock. Blasting, in addition to easing the hard strata, generates ground vibrations and instantaneous noise. The noise levels in many

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

situations will be above Threshold Limit Value. Exposure to noise levels, above Threshold Limit Value may have detrimental effect on the workers' health. The adverse effects of high noise levels on exposed workers may result in Annoyance, Fatigue, Temporary shift of threshold limit of hearing, Permanent loss of hearing and Hypertension and high blood cholesterol, etc.

Noise pollution poses a major health risk to the mine workers. When noise in the form of waves impinges the eardrum, it begins to vibrate, stimulating other delicate tissues and organs in the ear. If the magnitude of noise exceeds the tolerance limits, it is manifested in the form of discomfort leading to annoyance and in extreme cases to loss of hearing. Detrimental effects of noise pollution are not only related to sound pressure level and frequency, but also on the total duration of exposure and the age of the person.

Table 4.18: Permissible Exposures in Cases of Continuous Noise (CPCB)

Sound Level (dB A)	Continuous Duration (Hours)
85	8
88	4
91	2
94	1
97	0.5
100	0.25

Table 4.19: Noise Exposure Levels & Its Effects

Noise Levels dB(A)	Exposure Time	Effects
85	Continuous	Safe
85-90	Continuous	Annoyance and Irritation
90-100	Short term	Temporary shift in hearing threshold, generally with complete recovery
Above 100	Continuous	Permanent loss of hearing
100-110	Several years	Permanent deafness
110-120	Few months	Permanent deafness
120	Short term	Extreme discomfort
140	Short term	Discomfort with actual pain
150 and above	Single exposure	Mechanical damage to the ear

Source: Hand Book of EIA, Rao & Wooten

4.4.1 Anticipated Impacts due to Noise in Core Zone

During the operation phase of mining, movement of HEMM also add some noise level whose impact is being minimized by continuous maintenance of vehicle. The likely generations of noise levels due to operation of HEMM are given in Table 4.20.

Table 4.20: Expected Noise Levels

Equipment's	Expected Noise Levels dB(A)
Mining	
Drilling	90-100
Shovel	75-80
Tipper	75-80
Dozers	85-90
Crusher	85-95

The mine site where heavy earth moving machinery will operate, noise level will be within the stipulated 90 dB (A) norm of DGMS. The protection measures for the operators of this equipment will reduce the impact/exposure.

Predicted noise levels due to mining operations using Mathematical Equations

$L_2 = L_1 - 20 \log_{10} (R_2/R_1)$ Where L_1 dB (A) = Noise level at a distance R_1 (m)

L_2 dB (A) = Noise level at a distance R_2 (m) &

$L = 10 \log_{10} (10^{L_1/10} + 10^{L_2/10} + \dots + 10^{L_n/10})$

Where L_1 , L_2 and L_n are noise level dB (A)

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

Table 4.21: Predicted Noise levels in Core zone and buffer zone

Location Code	Distance, km	Source Noise Level, dB(A)	L(Day) dB(A)	L(Night) dB(A)	Noise level at Receptor from Mining sources, dB(A)	Resultant noise level, dB(A) day time	Resultant noise level, dB(A) Night time
Core Zone	--	100	41.3	36.4	100	100	36.4
Pillar -1	0.1	100	37.4	30.2	70	70	30.2
Pillar -2	0.1	100	36.9	29.7	70	70	29.7
Pillar -3	0.1	100	42.1	35.6	70	70	35.6
Pillar - 4	0.1	100	39.8	31.5	70	70	31.5
Kombakkadu Puthur-N	3.8	100	49.4	37.7	43.4	47.2	37.7
Ichipatti-E	2.1	100	45.6	36.5	48.5	45.8	36.5
Kadampadi-W	4.0	100	46.8	35.6	42.9	41.5	35.6
Paruvai-S	3.7	100	37.0	31.1	43.6	44.7	31.1

Green colour- Baseline Value, Red Colour – Noise level due to mining,**Blue colour- Baseline + Noise level due to mining**

Although the noise level due to the operation of various mining machineries is 100 dB(A), the noise level at different receptors is lower due to the distance involved and other topographical features adding to the noise attenuation. The calculated values at the receptors and resultant noise level are based on the mathematical formula as mentioned above. From the above table, it can be seen that the ambient noise levels at all the locations will remain within permissible limits even when the project will be in operation phase after getting EC.

Within a 500-meter radius of the proposed lease area, there are four quarries that are currently operational and five that are proposed. When all ten quarries are operating together, the noise level slightly exceeds the permissible limits. Thus, add more number of greenbelt developments to the lease area as mitigation measures to lower the noise level.

4.4.2 Mitigation measures for Control of Noise

The following noise mitigation measures are proposed for control of Noise.

- ❖ Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas.
- ❖ Limiting time exposure of workers to excessive noise.
- ❖ Proper and regular maintenance of vehicles, machinery and other equipments.
- ❖ The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipments.
- ❖ Speed of trucks entering or leaving the mine will be limited to moderate speed to prevent undue noise from empty vehicles.
- ❖ Carrying out blasting only during day time and not on cloudy days.
- ❖ Noise levels will be controlled by using optimum explosive charge, proper delay detonators and proper stemming to prevent blow out of holes.
- ❖ Providing proper noise proof enclosure for the workers separated from the noise source and noise prone equipment
- ❖ Provision of Quiet areas, where employees can get relief from workplace noise.
- ❖ The development of green belts around the periphery of the mine to attenuate noise.
- ❖ Regular medical check-up and proper training to personnel to create awareness about adverse noise level effects.

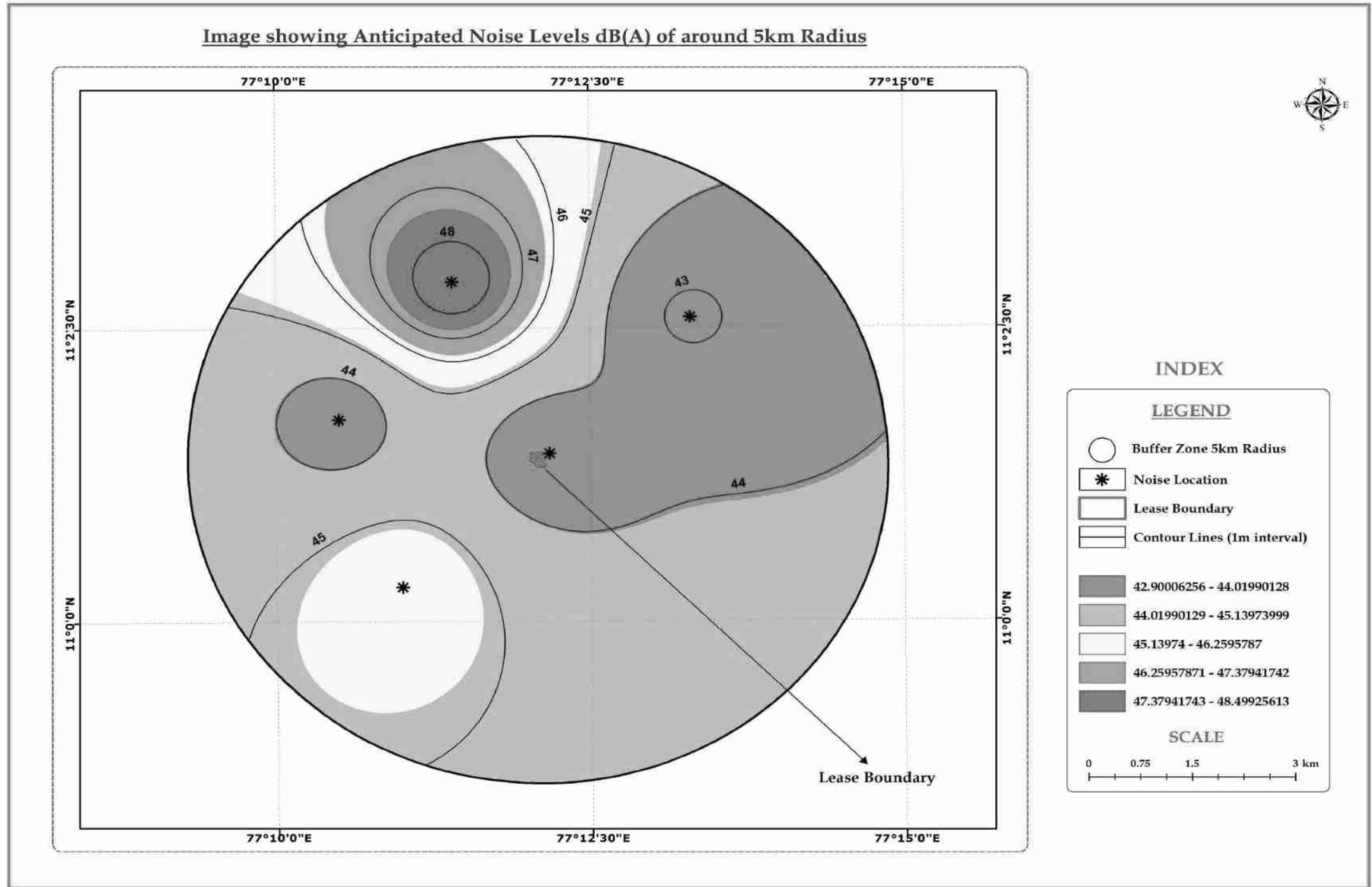


Fig 4.3: Noise dispersion in Buffer zone due to proposed mining activity

4.5 Ground Vibrations

Ground vibration due to mining activities in the area are anticipated due to operation of mining machines like excavators, wheel loaders, drilling and blasting, transportation vehicles, etc. However, the major source of ground vibration from this mine is blasting. Another impact due to blasting activities is fly rocks. These may fall on the houses or agriculture fields nearby the mining lease area and may cause injury to persons or damage to the structures. Nearest habitation from the mine lease area is located in northeast side and nearest village is located on southwest side. The study area does not involve any mining activity so anticipated impact has been assessed using the empirical equation. The empirical equation used for assessment of peak particle velocity (PPV) is:

$$V = 417.8 \{D / (Q^{0.5})\}^{-1.265}$$

Where,

V= Peak particle velocity in mm/s

D= Distance between location of blast and gauge point in m

Q=Quantity of explosive per blasting in kg.

The standards for safe limit of PPV are established by Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997. Permissible standards of Ground vibration due to blasting as per guidelines of Director General of Mines Safety (DGMS), Dhanbad are given in table 4.24.

Table 4.22: Estimated Peak Particle velocities for different Explosive Charges

Nearest Habitation	Quantity of Explosive/Blast, Kg	PPV, mm/s
860m -N	6	0.25
860m -N	12	0.39
860m -N	4	0.19
860m-N	20	0.53
940m -NW	6	2.6
940m-NW	12	4.0
940m -NW	4	2.0
940m-NW	20	5.5

Note: The empirical formula does not take into account the delay factor in blasting due to use of Delay Detonators.

Quantity of broken rock per hole = 0.45 x 2.6 = 1.17m³

Blasting efficiency @ 90% = 1.17 x 90% = 1.05 m³ / hole

Charge per hole = 140gm of 25 mm dia. Cartridge

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

Quantity of rock broken per day (ROM)	=	15.2m ³ or 38MT
Requirement of explosives per day	=	5.4kg @ 7 MT per kg of exp.
No. of holes to be drilled per day	=	15.2/1.05 = 14 holes

Table 4.23: Permissible Peak Particle Velocities (mm/s)

S. No	Type of Structure	Dominant excitation Frequency		
		< 8 Hz	8 – 25 Hz	> 25 Hz
A)	Buildings/structures not belonging to the owner			
1	Domestic houses/structures (Kuchcha brick and cement)	5	10	15
2	Industrial Buildings (RCC and framed structures)	10	20	25
3	Objects of historical importance and sensitive structure	2	5	10
B)	Buildings belonging to the owner with limited life span			
1	Domestic houses/structures (Kuchcha brick and cement)	10	15	25
2	Industrial buildings (RCC & framed structures)	15	25	50

Source: DGMS Circular No. 7 dated 29/08/1997

From the above results (Table 4.22), it can be seen that the charge per blast of 12 kg is well below the Peak Particle Velocity of 5mm/s. But the proponent proposes to use only 6 kg of explosives per day. According to the DGMS circular, blasting the ground vibration has no effect within the Peak Particle Velocity of 5mm/s. However, as per statutory requirement additional control measures needs to be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting. Thus, ground vibrations due to blasting activities will not cause any impact to the nearest habitations.

4.5.1 Mitigation measures for Control of Vibration

Blasting is the major source of vibration and fly rocks. The following mitigation measures are proposed for control of vibration and fly rocks.

- ❖ Specific charge pattern has to be designed by proper trial vibration studies with varying charge ratios.
- ❖ Milli second detonators shall be used preferably 25–50ms per delay to control vibrations.
- ❖ Inclined holes shall minimize back brake and intensive shocks.
- ❖ In case of development work if any, cushion blasting and Deck loading system shall be adopted to minimize throw of fragments and ground vibration.
- ❖ Air blast due to usage of Detonating Cord with 10gm/m shall be reduced to 5gms/m to minimize air reverberation.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

- ❖ If the vibration still exceeds the limit a long Trench to a depth of 6m may cut in the direction of wave's movement to break longitudinal waves which travel close to surface, preferably near mine buffer zone.
- ❖ No deep hole blasting shall be practiced.
- ❖ Heavy machineries with high ground pressure shall not be used in the mines.
- ❖ Proper warning signals should be used.
- ❖ In spite of all measures periodical testing of vibration and noise using approved seismograph by DGMS has to be followed as a part of Environmental monitoring.

Though all mitigation measures are pointed out, as such no adverse effects on human life, wild life and other biotic system.

4.6 Water Environment

Mining operations can affect groundwater quality in several ways. The most obvious occurs in mining below the water table, either in underground workings or open pits. This provides a direct conduit to aquifers. Groundwater quality is also affected when waters (natural or process waters or wastewater) infiltrate through surface materials (including overlying waste or other material) into ground water.

Whereas Impacts on surface water include the build-up of sediments or other toxic products, short and long-term reductions in pH levels (particularly for lakes and reservoirs), destruction or degradation of aquatic habitat, and contamination of drinking water supplies and other human health issues. The water balance for the project is presented in fig 4.5.

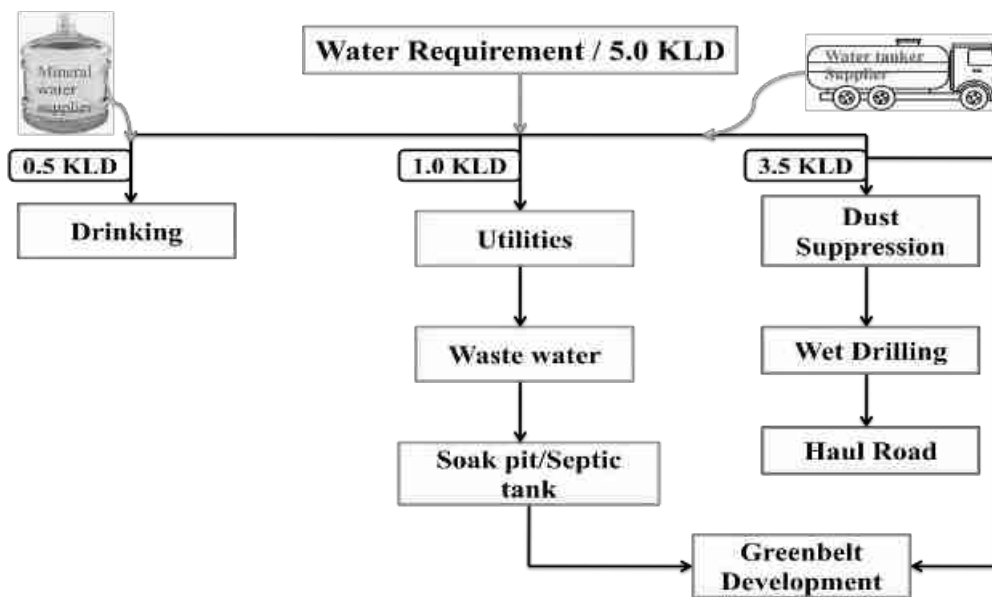


Fig. No. 4.4: Water Balance Chart

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

Drinking & Utilities	= 1.5 KLD
Water required for Dust Suppression, Green Belt	= 3.0 KLD
Wet drilling	= 0.5 KLD
Total Water Requirement	= 5.0 KLD

There are no probable sources of liquid effluents in this project. The 0.75 KLD of domestic effluent/ wastewater generated from office will be discharged into soak pit via septic tank.

4.6.1. Anticipated Impact on Surface Water body due to proposed project

There are no major river or water bodies, odai track, nallah and ponds found within 500m radius. One check dam namely (Sendevipalayam) located within the 6 km radius of the proposed project site. From the proposed mining project, 5% of rejects will be generated which is planned to dump within the mining lease area. Even though the streams order not connecting with the nearest dam, there will be chance of siltation of river bed during raining season due to mining activity. To over such siltation in the river the following mitigation measure will be followed.

4.6.1.1 Mitigation Measures:

- i. The garland drainage will be provided around the dump (Top soil and rejects) to prevent the escape of runoff from the dump.
- ii. The repair works of the machineries are strictly prohibited within the lease area to prevent the spillage of grease, oil etc.

4.6.2 Anticipated Impact on Ground water due to proposed project

The water table in this region is about 49-57 m bgl. The proposed depth of mining is 44m bgl for five years. Thus, the mining activity will not intersect ground water table. 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. The schematic representation of depth of mining and water table is given in fig 4.5. The lease area is deposited with rough stone and safety distance of 7.5m is planned to left on north, east and west side of the lease area and safety distance of 10m is planned to left on the southern side. The minerals locked under the safety zone will act as barrier to prevent the seepage of aquifer into the quarry pit if any.

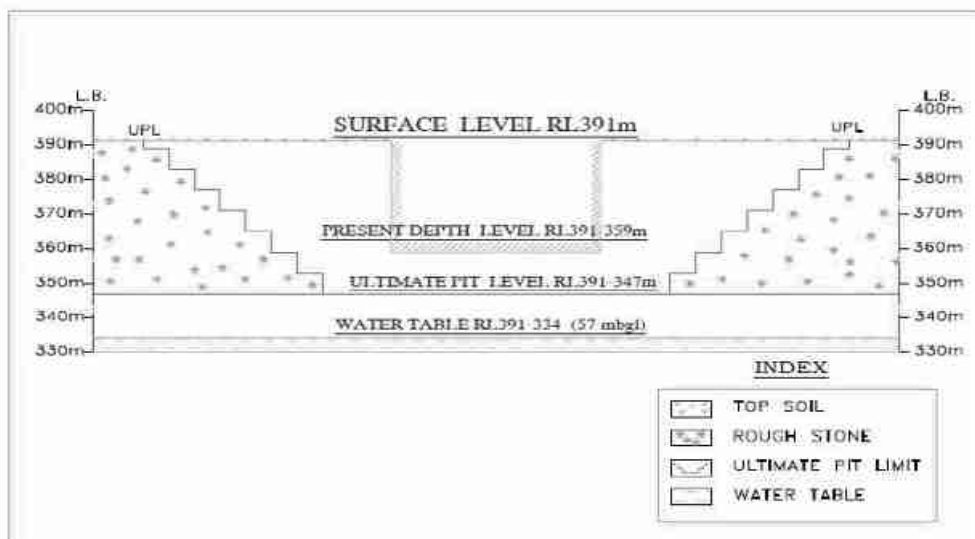


Fig. No. 4.5: Schematic representation of depth of mining and water level

4.6.3 Management of rain water in the pit during Monsoon Season

During monsoon season, the rain water gets stored in the quarried-out pit. For the working purpose, rain water will be pumped and allowed to store in the surface setting tank constructed outside the lease area to remove suspended solids if any. After the sedimentation process, the water from the settling tank will be used for dust suppression, and green belt development within the lease area.

4.6.4 Water Quality Index

Water Quality Index value has been calculated for the observed values and compared with drinking water specification as per IS 10500:2012 and results were discussed. The WQI has been calculated by using the standards of drinking water quality recommended by the World Health Organization (WHO), Bureau of Indian Standards (BIS) and Indian Council for Medical Research (ICMR). The weighted arithmetic index method (Brown et. al.,) has been used for the calculation of WQI of the water body.

$$\text{Water Quality Index} = \frac{\sum q_n W_n}{\sum W_n}$$

Further quality rating or sub-index (q_n) was calculated using the following expression.

$$q_n = 100 * [V_n - V_{io}] / [S_n - V_{io}] \text{ Where,}$$

q_n = Quality rating for the nth water quality parameter.

V_n = Estimated value of the nth parameter at a given sampling station.

S_n = Standard permissible value of the nth parameter.

V_{io} = Ideal value of nth parameter in a pure water.

Ideal value in most cases $V_{io} = 0$ except in certain parameters like PH and dissolved oxygen. V_{io} for PH = 7 and V_{io} for DO = 14.6

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

W_n = Unit weight for the nth parameter.

The overall Water Quality Index (W.Q.I.) was calculated by aggregating the quality rating with the unit weight linearly.

Table 4.24. Unit weight of the water quality parameters

Parameters	Water quality standard (WHO/BIS)	Assigned weight (AW)	Unit weight (UW)
pH	6.5-8.5 (8)	3.66	0.1628
EC (μ S/cm)	250	2.50	0.1112
TDS (mg/l)	500	3.33	0.1481
TH (mg/l)	200	3.33	0.1481
Ca ²⁺ (mg/l)	75	3.0	0.1334
Mg ²⁺ (mg/l)	30	2.66	0.1183
Cl ⁻ (mg/l)	250	4.0	0.1779
Total	-	22.48	1.0

Table 4.25: Water quality index of water samples

Sampling Site Name	Water Quality Index Value	Water Quality Index Status
Core Zone	140.0 mg/l	Unsuitable
Kombakkadu Puthur	34.41 mg/l	Good
Ichipatti	19.49 mg/l	Excellent
Kadampadi	40.85 mg/l	Good
Paruvai	31.0 mg/l	

Note: Water Quality is calculated only for Physical and Chemical

Table 4.26: Water quality scale

Water quality	WQI Yadav et al 2016	WQI Ramakrishnaiah 2004	WQI Mohanty 2001
Excellent	0–25	<50	<50
Good	26–50	50–100	50–100
Poor	51–75	100–200	100–200
Very Poor	76-100	100–200	200–300
Unsuitable	Above 100	<300	<300

The WQI of the samples collected from the study area are given in tables 4.24 and 4.25. It can be seen that the study area has water quality index value ranging from 19.49 to 140 mg/l which reflects the excellent to unsuitable for drinking status of the groundwater quality. The findings demonstrate the varying consistency of groundwater at different locations. All the groundwater samples under excellent to unfit for drinking category; it may be due to the absorption of fertilisers, geological condition, channel water, solid waste, sewer drainage, septic tanks, and agricultural waste. The water should be treated by reverse osmosis to reduce dissolved solids and total hardness to the required rate.

4.6.5 Impact on Hydrogeology

Generally, the ground water occurs Unconsolidated & Semi-consolidated formations and weathered and fractured Archaean crystalline rocks and interconnected shallow fractures and under semi confined to confined condition the major aquifer systems in this district. The occurrence and movement of ground water are controlled by various factors such as physiography, Rainfall, climate, geology and structural features.

Geophysical Investigation by VES (Vertical electrical sounding) method:

Geophysical methods are the irreplaceable tools to explore subsurface with an economical expense of energy, money and man power. A variety of methods are available to assist in the assessment of ground water table, aquifer geometry and sub-surface geological conditions. The main emphasis of the fieldwork undertaken was to determine the thickness and composition of the sub-surface formations and to identify water-bearing zones. This information was principally obtained in the field using vertical electrical soundings (VES), this method is described below.

If a material having a resistant of R, cross-sectional area of A, and length of L, then resistivity is given,

$$R = \frac{V}{I}$$

In resistivity method three quantities are to be measured at each observation point. One is mutual separation between the electrodes that is “geometric configuration”. The other two are the current (I) passed into the ground through the current electrodes and potential difference (V) developed between the potential electrodes. Thus, two pairs of electrodes are used, one pair for sending the current and the other for recording the voltage.

In the present study, to know the subsurface Lithology and layer thickness of groundwater potential zone were carried out vertical electrical soundings (VES). The resistivity signal dimensions were collected by using DDR-3 model resistivity meter. AB/2 electrode spacing

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

of 100m is used by Schlumberger configuration. The data were analyzed by curve matching techniques. From the apparent resistivity data, the interpreted resistivity curve obtained using the software it is observed that 3-layer curves shown in the fig.4.6. Interpreted Resistivity and layer thickness of various layers shown in table 4.26.

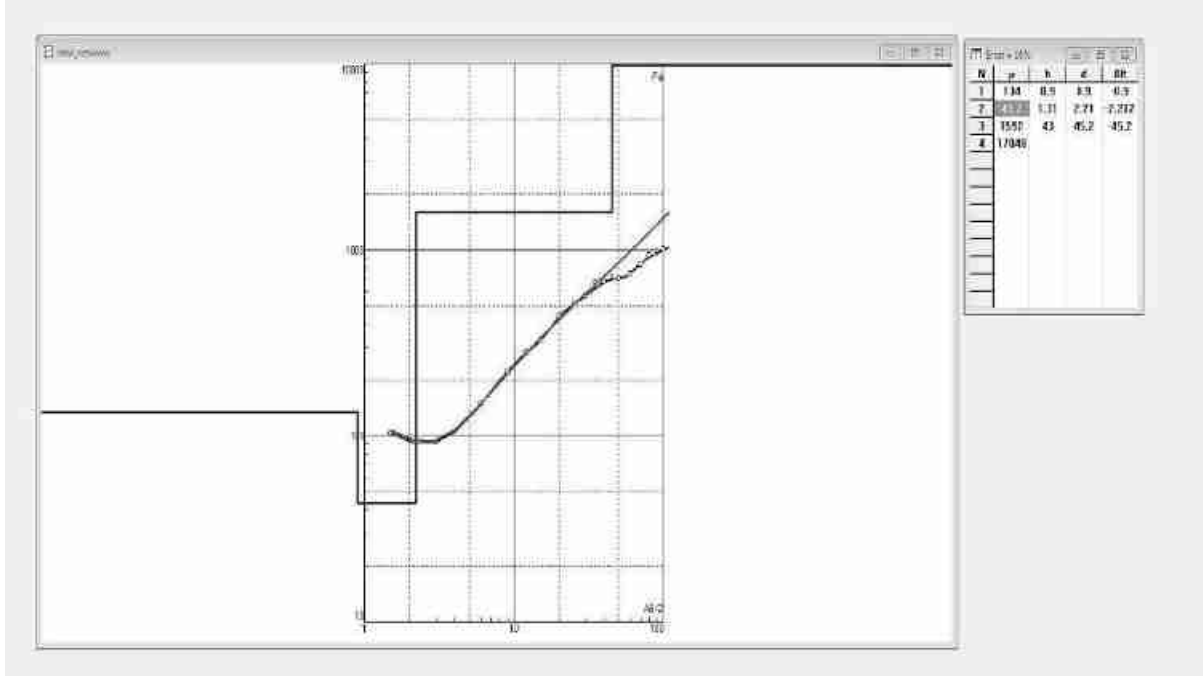


Fig.4.6: Interpreted resistivity curve matching technique Table

4.27: Resistivity Survey

Resistivity (Ωm)	Depth in m	Formation
134	0.75	Dry loose sand formation/Red soil
43.7	13.20	Weathered rock
1592	13.20 m-100m	Massive rock

From the results of Resistivity Survey, it is understood that the study area is composed of rough stone deposit, with little geological disturbances by folding. There is no any seepage in this lease area.

4.6.6 Rainwater Harvesting Potential in Core Zone at the end of project

- 1) Total Pit Area = 13315m²
- 2) Annual rainfall of the area = 0.700m
- 3) Total rainwater available to store in pit area = 9320 m³
- 4) Total volume of Quarried Pit = 585860 m³

4.7 Soil Environment

4.7.1 Impact on Soil Environment

The limited quantity of top soil generated will be dumped along 7.5m inner boundary of the lease area. The top soil will be used to develop greenbelt within the lease area. Part of top soil will be spread over the non-active dumps along the slope and edges to plant tree saplings to form vegetal cover over the dumps. No chemical or toxic elements will be used during mining activity. So, the health of soil in and around the quarry will not be affected.

4.7.2 Mitigation measures for Soil Conservation

- ❖ Garland drains will be provided around the dumps to arrest any soil carried away by the rain water. This will protect the adjacent agricultural land and surface water body from the deposition of soil.
- ❖ Toe drains with low height retaining wall will be provided all along the toe of dumps to arrest any soil from the dump slopes being carried away by the rain water
- ❖ Top soil should not be mixed with other waste or reject materials. It should be conserved by judicious utilization in the mine premises.

4.8 Waste Dump Management

4.8.1 Anticipated Impact

The proposed rate of production of rough stone for five years is about 100539m³ at the rate of 95% recovery up to permissible depth. The 5% reject of 5291m³ shall be dumped as per earmarked site in the approved mining plan.

4.8.2 Mitigation measures

The mineral rejects and waste shall be dumped systematically with proper repose angle and stabilization as given below,

- ❖ The rejects\ waste dump shall be properly terraced in to 1.5m benches with proper repose angle and then the top soil shall be spread over the dumps and slope to make them humus for some time, after the soil suitable for water retention trees will be planted at the top, slope and toe of the stabilized dumps to form vegetation.
- ❖ Gradation of dump shall be done automatically as coarser materials go to the bottom and finer at the top and therefore drain of rain water flow freely to the bottom without endangering the stability of dump,
- ❖ More over the dump height shall be less than 6m with natural repose angle and hence dump will be more stable.
- ❖ Garland drainage around dump shall prevent under wash of dump by hydrostatic pressure to be developed by surface water and control wash outs and collapse,

4.9 Municipal solid waste management

The human waste shall be treated by temporarily built septic tank and soak pit within the mine lease area. The municipal solid waste generated by workers will be properly segregated into biodegradable and non-biodegradable and disposed through garbage collector of Madurai Corporation.

4.10 Ecology and Biodiversity**4.10.1 Impact on Ecology and Biodiversity**

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 table 4.28 and 4.29.

Table 4.28: Ecological Impact Assessments and Its Mitigations -Part 1

Sl. No	Issues	Assessment	Mitigations
1	Proximity to national park/ wildlife sanctuary / reserve forest / mangroves / coastline/estuary/sea	No forests are situated within 10km radius. The proposed project does not attract Forest Conservation Act, 1980. There are no wildlife sanctuaries found around 10km radius. Quarry area is 136km (SE) away from the Arabian Sea. Hence the area does not attract Wildlife Protection Act, 1972 and C.R.Z. Notification, 1991.	-
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 developing green belt all along the lease boundary, regular maintenance of tippers, excavators, transporting the empty tipper within the speed the 20 km/hr.

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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 Wildlife 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.	Nil
6	Proposed mining project increase siltation that would affect nearby Biodiversity area.	Yes, the runoff from the dump which carries the solid materials may get silt in the adjacent agricultural land and affect the cropping pattern. Also, it may get silt in the adjacent river bed and reduce its water carrying capacity	Garland drainage will be excavated around the dump to arrest the runoff from dump. The drainage will be desilted after every precipitation.
7	Risk of fall/slip or cause death to wild animals due to project activities	'NO'. No Wild life sanctuary within 10km radius.	Nil
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	There is no any reserve forest are located within 10km of lease area. Hence the proposed mining activity will not affect the nearest forest.	-
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 flora having medicinal value found within the lease area	The flora such as neem having medicinal value found in the study area

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Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

			of buffer zone. Those floras will not be affected by the proposed mining activity as it will be carried out only within the lease area.
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)

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Table 4.29: Ecological Impact Assessments – Part 2

Ecological Criteria	Identified Impacts	Ecological significance of Impact	Magnitude	Duration /Timing/ Frequency	Reversibility	Mitigation	Cumulative Impact
Zone of Influence	Project site Habitat due to Site Clearance.	The proposed mining lease is located in Kodangipalayam Village. Since it is an existed area, some shrubs will be cleared before the commencement of the project. The fauna which depends on the shrubs for habitat will be disturbed. No clearance of vegetation in the buffer zone	Low Impact	-	Irreversible in quarry area	During the clearance, it will find the alternate habitat in the buffer zone. During the operation of quarry, the proponent will develop the green belt along the lease boundary. This afforestation will provide the habitant for the migrated fauna.	No Cumulative Impact
Zone of Influence	Ecological Impact 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	Temporary Impact	During the mining plan period	Reversible	Before loading the rough stone & gravel will be moisturized to minimize the emission. The sprinkling of water over the haul road	No Cumulative Impact

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Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

		and crop field in the buffer zone which affects growth and its productivity.				will be done. Then completely wet drilling will be take place. The transportation vehicles will be maintained and serviced Properly.	
Accessibility	Ecological Impact due to road construction	No Road construction is required to assess the project site. The existing village road connects the project site to the existing MDR road.	No Impact		-	-	No Impact
Zone of Influence	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. Human waste and municipal solid waste will be generated due to the workers.	No Impact	-	-	Human waste will be properly treated by septic tank and soak pit in the lease area and dispose periodically. The municipal solid waste generated by workers will be properly segregated into biodegradable and non-biodegradable	No Impact

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						and disposed through garbage collector of Madurai Corporation.	
Zone of Influence	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 empty tipper within 20km/hr speed also control the noise generations.	No Impact

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Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

<p>Zone of Influence</p>	<p>Ecological Impact On Surrounding/ Eco sensitive habitat due to Transportation</p>	<p>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.</p>	<p>Temporary impact</p>	<p>During Operation Phase</p>	<p>No</p>	<p>The truck driver will be advised to drive the vehicle within 20km/hr inside the lease area and 40km/hr outside the lease area. Before loading the rough stone will be moisturized to minimize the emission. The sprinkling of water over the haul road will be done. Then completely wet drilling will be taking place.</p>	<p>No Impact</p>
<p>Zone of Influence</p>	<p>Ecological Impact on Natural ecosystem, the soil micro flora and fauna and soil seed banks.</p>	<p>The Sendevipalayam Check Dam is located at the distance of 6km in east direction. During raining season, the runoff from the lease may affect the habitants.</p>	<p>Temporary Impact</p>	<p>Nil</p>	<p>--</p>	<p>The garland drainage will be around the quarry pit and dump to prevent the escape of runoff from the lease area to the river. The maintenance of</p>	<p>No Impact</p>

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						vehicle will be strictly prohibited in the lease area to prevent the spillages of oil, grease.	
Zone of Influence	Fish habitats and the Food web/food chain in the water body and Reservoir	The Sendevipalayam Check Dam is located at the distance of 6km from the lease area in east direction.	No Impact	Nil	--	The garland drainage will be around the quarry pit and dump. The maintenance of vehicle will be strictly prohibited in the lease area	No Impact

Table 4.30: Afforestation Plan of the Proposed Rough stone and gravel Quarry for the next five years

Year	Place	Type of Trees	Number	Spacing	Rate of survival
I	Lease Boundary & Dump	Pungai, Vagai, Vanni	50	5m X 5m	80%
II	Lease Boundary & Dump	Karungali, Puvarasu,	50	5m X 5m	80%
III	Lease Boundary & Dump	Pungai, Vagai, Vanni	50	5m X 5m	80%
IV	Lease Boundary & Dump	Karungali, Puvarasu	50	5m X 5m	80%
V	Lease Boundary & Dump	Pungai, Vagai, Vanni	50	5m X 5m	80%

Nearly 6430 Sq.m area is proposed to use under afforestation by planting 50 No's of Neem sampling etc., every year in the spacing interval of (5m x 5m) with an anticipated survival rate of 80%.

4.11 Socio Economic

4.11.1 Anticipated Impact

Employment generation (Direct and Indirect) due to the project has generated direct and indirect employment for more than 36 persons. Preference will be given to the local population for employment in all categories including semi-skilled and unskilled. The villages and their inhabitants in the buffer zone will not be disturbed from their settlements due to the mining operations.

It is obvious to assume that the activities of the mining operations will improve the socio-economic levels in the study area. The anticipated impact of this project on various aspects is described in the following sections

- **Impact on human settlement:** Overall, due to employment generation and economic progress, there will be positive changes in the socio-economic condition of the people residing in the vicinity of the project site. The local population will have preference to get an employment. No resettlement occurred due to mining activity. Built up land has been increased marginally.
- **Impact on Population Growth:** Population rate grows annually and demand of primary needs and employment will increase due to population growth. It will provide some direct and indirect employment to the people in and around the villages.

- **Impact on Vegetation:** No decline in agricultural land. It has been increased over a period of time by utilizing the water stored in the working pits. No deforestation will be happened.

Therefore, due to mining, per capita income of local people will be improved. The local people have been provided with either direct employments or indirect employment such as business, contract works and development work like roads, etc. and other welfare amenities such as Sanitary facilities, Solar Lighting to Govt school, Health Care to the villages in buffer zone, Maintenance of village road or Providing funds to local body or Prime minister's fund on Socio economic Development and relief measures. The job/business opportunities will improve the economic condition of the persons. They are in a position to utilize this money for purchase of tractors, trucks, etc. which may be put into use for business purposes. Many **positive impacts** can be resulted from a long-term mine unit. In this context, provision of job opportunities, business, transport and communication, laborer etc., are the major ones. Thus, this unit is highly favorable to poor and landless people.

4.11.2 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.
- Drilling, blasting etc., at specified location will be followed with proper schedule.
- Appropriate air pollution control measure will be taken so as 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 has been provided which meet 'BIS' (Bureau of Indian Standards).

Thus, no significant impact on health and safety will be occurred due to this project.

4.12 Land Environment

4.12.1 Anticipated Impact on Land Use / Land Cover

Rough stone and gravel quarry project will result in disturbance of the land use pattern of the mine lease area. The impact on the topography in the form of changed landscape is unavoidable during mining activities like excavation, overburden dumping, soil extraction etc. Land requirement for the project has been assessed considering functional needs. So, reclamation of mined out land will be given due importance as a step for sound land resource management. No release of toxic elements into the ground. No adverse impact

is anticipated on land use of buffer zone associated due to the mining activity, as all the activities will be confined within the project site. The mining operations will impact the land usage and land aesthetics of mine lease area.

The land use analyses show that the area is predominantly Agriculture followed by buffer zones of the study area, which clearly indicates that the development of agriculture land increases over a period of time. At the end of the project, the quarried pit will be act as water storage pond. The stored water will be used for developing agricultural activity around the mining lease area. It will improve the livelihood of village people. The evaporation rate of the water in the pit is given detail in the report.

4.12.2 Mitigation measures

- ❖ The restoration of the degraded land would cover backfilling and terracing with the overburden / wastes and surfacing the same with top soil.
- ❖ Provision of Garland drainage around the dumps
- ❖ Fast growing trees and other native shrubs would be planted to stabilize the reclaimed land
- ❖ Appropriate measures will be taken for green belt development.
- ❖ The rain water will be stored in the pit which will recharge the ground water as a part of rain water harvesting scheme for irrigating the nearby agricultural lands.

4.13 Occupational Health Risks

4.13.1 Anticipated Impact

- Occupational health and safety hazards occur during the operational phase of mining.
- Excessive dust, Noise and vibration are the chief health hazards.
- Exposure to fine particulates is associated with work in most of the dust generating stages of mining.
- Workers with long term exposure to fine particulate dust are at risk of pneumoconiosis, emphysema, bronchitis, silicosis and fibrosis.
- Physical injuries during project operation are related to near slips and falls: contact with falling/ moving objects and lifting/ over-exertion.
- Other injuries may be due to contact with or capture in, moving machinery like dump trucks, loaders etc.

4.13.2 Anticipated occupational and safety hazards

- ❖ Health Impact due to Physical activity, Extremes of age, poor physical condition, fatigue, Cardiovascular disease, Skin disorders
- ❖ Noise
- ❖ Burns and shocks due to electricity
- ❖ Respiratory hazards due to Dust exposure
- ❖ Physical hazards
- ❖ Explosives and Fire

4.13.3 Anticipated health impacts on people in nearby villages

- The quarry workers and nearby village people health affected the mining activity.
- The fugitive emission during the heavy wind period travel along the predominant wind direction and people in village located along predominant wind direction gets affected.

4.13.4 Mitigation measures

For the safety of workers at site, the following mitigation measures are proposed

- ❖ Excavators, dumpers, drills other automated equipment's will be enclosed
- ❖ Use of personal breathing protection will be made compulsory
- ❖ Spraying with water on all working faces & haul roads, by water-sprinkler
- ❖ Regular health monitoring of workers once in 6months for silicosis
- ❖ Random health checkup village people around the lease area for identify diseases if any due to mining activity
- ❖ No employee will be exposed to a noise level greater than 75 dB(A) for a duration of more than 8 hours per day without hearing protection
- ❖ Ear muffs provided will be capable of reducing sound levels at the ear to at least 75 dB(A).
- ❖ During mining operations, all the statutory provisions of the Indian Electricity Rules 1956, and Indian Standards for installation and maintenance of electrical equipment etc. will be observed.
- ❖ Care will be taken to evacuate the mining area completely at the time of blasting operations.
- ❖ A blasting SIREN will be used at the time of blasting for audio signal
- ❖ Before Blasting and after blasting, red and green flags will be displayed as visual signals.

- ❖ Warning notice boards indicating the time of blasting and NOT TO TRESSPASS are displayed prominently.
- ❖ First-aid facilities as per provisions under Rule (44) of Mines Rules 1955
- ❖ Initial and Periodical medical examination shall be conducted for the employees under Rule 29B & 45 (A).
- ❖ Insurance will be taken in the name of the labors working in the mines.

4.14 Agricultural Environment

4.14.1 General

The general impacts on agricultural lands will be dust pollution, as volume of dust is discharged into the air during the process of quarrying. Dust gets deposited on the leaves of plants, flowers and soil. This affects the photosynthetic and fruiting ability of the crops.

Silt from the excavation, screening process and reject during monsoon season gets washed and chokes the agricultural fields, rendering them useless for the growth of crops. Due to blasting, fly rocks may fall on agricultural fields making it difficult for the farmer to cultivate.

There is a need for dust control on haul road movements. Vehicles emit fugitive gases during transportation of materials. Those gases enter the plants through the stomata pores; it destructs chlorophyll and affects photosynthesis leading to stunted growth or death of crops.

The pumping of water from the ground for the mining activity will reduce the availability of water for the agricultural purposes.

4.14.2 Anticipated Impacts of Proposed project on Agriculture, Horticulture and livestock

The land use analyst sighted that the agricultural land is surrounded around the project site. The principal cereals crop of this district are Paddy, Millet, Pulses, and Cotton are the major crops and ragi. Among oil, seeds, groundnut, castor, and gingelly (sesame) occupy important places. Of the commercial crop, Sugarcane, cotton and tapioca are some of the important plants were cultivated in the study area. The field crop paddy is cultivated along the Sendevipalayam Check Dam which is located more 6km away from project site.

As the villages are located around the project site, the people in the villages are farming animals like goat, cow, and sheep for their livelihood. The above-mentioned impact may be observed on the nearest agricultural farm during the quarrying activity. So, the following mitigation measures will be suggested to protect the nearest farm. The requirement of water for the proposed project will be getting from water vendors. The ground water from the 2km radius of the project site will not be extracted for the proposed mining activity and

the proposed mining activity is 10m above ground water table. So, the proposed mining activity does affect the ground water resource.

4.14.3 Mitigation Measures

- Spraying of water on the haul roads will be done to suppress the dust in the source itself. Interval of sprinkling depends on the environmental factors such as temperature, rainfall and humidity of the proposed site.
- The trees having tolerance to different air pollutants will be planted along the boundary to prevent the escape of dust to the surroundings.
- Provision of Garland drainage will be provided around the lease area to prevent the leach of silt into the farm.
- Regular check and proper maintenance of Vehicles will be carried out to minimize the emission of pollutants.
- Adequate Blast shield or blast mats will be provided wherever necessary for fly rock protection during blasting, thus to prevent the accident on the nearest farms.
- During monsoon season the dust deposited on the surface of plant body is washed out naturally.
- Making two bore holes which have direct conduit with the water table in the lease area will help ground water recharge during monsoon seasons. It helps the agricultural activity in the buffer area of project site

4.15 Post COVID Health Management Plan

- The vaccinated persons only will be given employment.
- The labors and other skilled, semi-skilled employees will be given a new mask daily.
- The body temperature of the labors will be checked using the temperature monitoring gun while getting into the quarry and getting out from the quarry.
- The labors will be advised to maintain the social distance of at least 10m and also advised to sanitize the hand.
- The general awareness program will be conducted about the handling of COVID-19 in two weeks once.
- The board referring the “Wear mask” and “Maintain social distance” will be placed in two sides of entrance of the quarry in local language.



Fig 4.7: Maintain social distance of 2m in work place



Fig 4.8: Sanitizing Hand Frequently



Fig 4.9: Wear Mask at the work place

**CHAPTER – 5: ANALYSIS OF ALTERNATIVES
(TECHNOLOGY AND SITE)**

Consideration of alternatives to a project proposal is a requirement of the EIA process. During the scoping process, alternatives to a proposal can be considered or refined, either directly or by reference to the key issues identified. A comparison of alternatives helps to determine the best method of achieving the project objectives with minimum environmental impacts or indicates the most environment friendly and cost-effective options. Analysis of alternatives should be similar to the content of the approved mining plan.

The selection of the site is based on the following considerations which are feasible in terms of location, deposit characteristics, availability of reserves, percentage recovery, road facilities, labor availability, requirement of health and safety and environmental concerns, production scheduling, scope of mechanization/automation, land reclamation, and operating and capital cost estimates.

Geologically, Tiruppur district of Tamil Nadu forms a part of southern Granulitic terrain and is predominantly occupied by crystalline rocks of Archaean to late Proterozoic age. Regionally, the rocks can be grouped under five categories namely i. Charnockite Group represented by Charnockite, Pyroxene Granulite and Magnetite Quartzite, ii. Peninsular Gneissic Complex (II) comprising hornblende-biotite gneiss, iii. Basic intrusive include Pyroxinite/Dunite iv. Younger intrusive comprising, Nepheline-Syenite, Pink Granite, Pegmatite and Quartz veins and v. Quaternary sediments of Kankar and soil. Tiruppur District is predominantly occupied by hornblende Biotite gneisses of PGC (II) with enclaves of Magnetite Quartzite, Pyroxene Granulite and Charnockite. The area exposes several bands of Pyroxene Granulite which is medium grained, medium to dark grey in colour and stand out prominently in the gneissic country generally parallel to regional foliation. Charnockite is coarse grained, massive, many places it is foliated, grey coloured and greasy and exposed as bouldery outcrops and small knolls. It is well exposed in Central, Western and Southern parts of the Tiruppur District.

Hornblende-Biotite gneiss is well foliated, medium to coarse grained, pale grey and exposed as sheets and small knolls. Pink Granite gneiss occurs as thin bands and lensoidal bodies. It is a medium grained rock composed of alternating bands of mafic (mainly of biotite and hornblende) and felsic (Feldspar and Quartz) minerals. It is well recognized in Avinashi area.

CHAPTER – 6: ENVIRONMENTAL MONITORING PROGRAMME

Environmental Monitoring program is mandatory to check the impact of the mining activity in the core and buffer zone. Hence regular monitoring of various environmental parameters helps in maintaining sound operating practices of the mining in line with mining and environmental regulations. 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.

6.1 Measurement methodologies

The following instruments will be used for environment monitoring for various environmental parameters.

Table No: 6.1 Instruments used for Monitoring

S. No	Instruments	Purpose of Monitoring
1	Respirable Dust Sampler	Air Pollution
2	Fine Particulate Sampler	Air Pollution
3	Sound level meter	Noise level
4	Digital Seismograph	Vibration monitoring
5	Water level indicator	Water level
6	Geophysical Instruments (DDR3)	Water table
7	Camera, Binocular & Lens	Flora, Fauna
8	GPS & DGPS	For fixing the coordinates of sampling location
9.	Electronic Total station	Reduced level & topography monitoring

In addition to the above, Primary data on land use, socio economics will be collected by visiting the field and secondary data will be collected from Government Department and other sources.

6.2 Monitoring Schedule and Frequency

The sampling and analysis of the environmental attributes will be as per the guidelines of Central Pollution Control Board (CPCB). Monitoring program will be followed till the mining operation ceases as per the schedule below.

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Table 6.2: Monitoring Schedule

S. No.	Environment Attributes	Location	Monitoring		Remarks
			Duration	Frequency	
1	Meteorology and Air Quality	Continuous monitoring weather station in core zone/ nearest IMD station	24 hours	Monthly Once	Wind speed, direction, Temperature, Relative humidity and Rainfall.
2	Air Pollution Monitoring – PM _{2.5} , PM ₁₀ , SO ₂ and NO _x	5 locations (One station in the core zone and at least one in nearby residential, area, one in the upwind, two station on the downwind direction and one in cross wind direction).	8 hours	Six months once	Fine Dust Sampler and Respirable Dust Sampler
3	Water Pollution Monitoring	Mine effluents, Set of grab samples during pre and post monsoon for ground and surface water in the vicinity.	–	Six months once	Physico-chemical and Biological characteristics
4	Hydrogeology	Water level in open wells in buffer zone around 1km at specific wells	-	Six months once	Water level monitoring devices may be used.
5	Noise	Mine boundary, high noise generating areas within the lease and at the nearest residential area	24 hours	Monthly Once	Sound level meter
6	Vibration	At the nearest habitation (in case of reporting)	–	During blasting operation	Digital Seismograph
7	Soil	Core zone and Buffer zone (Grab samples)	–	Six months once	Physical and Chemical characteristics

6.3 Data Analysis

Data analysis will be done by MoEFCC/NABL approved laboratory as per CPCB guidelines & compliance reports shall be submitted to concerned authority (specified in Environment Clearance Letter issued by SEIAA, Tamil Nadu and Consent issued by TNPCB, Madurai) on regular basis.

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6.4 Emergency procedures

The mines manager monitors the emergencies that may occur in opencast mining operations and prepares an emergency plan to deal with emergency situations during the operation of the mine. Preparation of a preventive maintenance schedule program based on recommendations given and maintenance schedules for all equipment's and instruments as per recommendations of the manufacturer's user manuals.

6.5 Detailed Budget

Detailed budgetary provisions for monitoring program are detailed in the following table 6.3.

Table No 6.3 Environment monitoring budget

S. No	Environmental Monitoring Program	No. of samples per year	Cost per sample	Cost
1	Ambient Air Quality monitoring	8	Rs 5000	Rs 40,000
2	Water quality	2	Rs 7000	Rs 14,000
3	Soil quality	2	Rs 4200	Rs 8,400
4	Noise monitoring	2	Rs 3800	Rs 7,600
	Total			Rs 70,000

CHAPTER – 7: ADDITIONAL STUDIES

7.1. Public Consultation

The present draft EIA report is for public consultation only. The proceedings of the public consultation will be included in the final Environmental impact assessment report.

7.2 Risk assessment and Disaster Management Plan

Risk Assessment is all about prevention of accidents and to take necessary steps to prevent it from happening. The mining operation is carried out under the management control and direction of a qualified mines manager. The DGMS have been issuing a number of standing orders, model standing orders and circulars to be followed by the mine management in case of disaster, if any.

To overcome such risks, help/aid would be sought from emergency services providers like Police station, Fire station, Hospital, Ambulance services in the vicinity of the mine site. Their telephone numbers and communication facilities are to be provided and displayed on the board at the mine office as well as mine site. Responsibility of coordinating rescue activities is entrusted to quarry-in-charge at the quarry site in addition to quarry-in-charge is also looking after statutory obligatory under Mines Act,1952. Name and Address of Contact Person coordinating in case of Eventuality is stated below:

Name and Address of the Proponent	Thiru.V.Gangesan S/o.Thiru. K.S.Velusamy, No. 5/10, Mariyappa Devar Street, Sulur Taluk, Coimbatore District, Tamil Nadu-641402 Ph: 9944454602
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However, the following natural/industrial hazards may occur during normal operations.

- i. Operational Phase,
- ii. Inundation of mine pit due to flood/excessive rains,
- iii. Accident due to transport & other equipment's, Safety and Environmental aspects.

Table 7.1 Risk Assessment and Disaster Management Plan

S. No	Hazards	Mitigation measures
1	Surface Fire	➤ Fire Extinguishers ➤ Sand Buckets
2	Explosives/Blasting	➤ The applicant is directly purchasing explosives from an authorized dealer and they are blasting with help of certified blaster. Agreement is made with License holder in Form-22 for store, use and sale of explosives. ➤ Shot holes blasting using compressor and Jack Hammers

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

		combination are adopted to release the mineral.
3	Flooding of Rain water	<ul style="list-style-type: none">➤ Escape Routes will be provided to prevent inundation of storm water➤ Garland drains will be provided at the toe of dump
4	Radioactive hazard	<ul style="list-style-type: none">➤ Not Anticipated
5	Failure of Mine Benches and Pit Slope	<ul style="list-style-type: none">➤ Ultimate or over all pit slope shall be 45° and each bench height shall be 6m height equal to the boom height of excavator and vertical.➤ During working normally 3-6m will be maintained as per the plan.
6	Failure of Waste Dumps	<ul style="list-style-type: none">➤ Stabilization of dump with top soil and tree plantation shall make the dump more stable.➤ Garland drainage around dump shall prevent under wash of dump by hydrostatic pressure to be developed by surface water and control wash outs and collapse.
7	Dust	<ul style="list-style-type: none">➤ Periodical wetting of land by spraying solutions.➤ Regular water sprinkling on haulage roads➤ Provision of Dust mask to workers➤ Green Belt shall be carried out within the mine premises by planting trees, to improve the aesthetics of the area and also to reduce the pollution outside the activity area
8	Noise	<ul style="list-style-type: none">➤ Rotation of workers to minimize exposure time of noise➤ The equipment's and machineries shall be maintained properly➤ Provision of earmuffs to workers
9	Transportation	<ul style="list-style-type: none">➤ Convex mirrors should be kept at all corners➤ All vehicles should be fitted with reverse horn with one spotter at every tipping point➤ Loading according to the vehicle capacity➤ Regular checking of brakes to avoid failures➤ Periodical maintenance of vehicles
10	General measures	<ul style="list-style-type: none">➤ No entry for any unauthorized persons➤ S1 type fencing as per DGMS circulars➤ Quarrying as per Approved Plans only➤ Provision of Personal Protective Equipment's➤ In case of any closure of mine the compensation under Industrial Dispute Act will be paid as per law

7.2.1 Care and Maintenance during temporary discontinuance

Watch and ward are provided permanently in the mine premises to monitor the mine openings to prevent inadvertent entry. Top soil bund is made partly and Stone fencing is proposed all around lease boundary to safe guard the mine and the adjacent livings.

Temporary discontinuance will be minimal as there is good demand for this material in construction work.

7.2.2 Economic repercussions of closure of mine and manpower retrenchments

7.2.2.1 Number of local residents employed in the mine, status of continuation of family occupation and scope of joining occupation back

There are 18 people employed in the quarry. Most of labors are Agriculturist. In case of closure of mine, they may continue their own work.

7.2.2.2 Compensation given or to be given to the employees connecting with sustenance of himself and their family members

In case of any closure of mine the compensation under Industrial Dispute Act will be paid as per law. All workers shall get retrenchment benefits as per labour laws under enforcement.

7.2.2.3 Satellite occupations connected to the mining industry – number of persons engaged therein – continuance of such business after mine closes

The quarrying activity shall lead to development of several ancillary units and business, which are explained below:

- i. Other than mine employment, workshops, spare parts, hotels, tea shop and related several self-employment opportunities.
- ii. Several shops and service providers shall grow in the public adjacent to mines.
- iii. Schools and city development shall also be possible owing to the fact of economic growth in the village.

7.2.2.4 Continued engagement of employees in the rehabilitate status of mining lease area and any other remnant activities.

In the event of closure of mine, the mine worker shall get alternate work or business-like agriculture etc. No serious repercussions envisaged in the event of cessation of mining activity, as they will be provided employment in other mines belong to the company.

7.2.2.5 Envisaged repercussions on the expectation of the society around due to closure of mine

Persons on roll at the time of closure will get benefit as per State Govt. guidelines as applicable at the time of retrenchment

7.2.3 Time Scheduling for abandonment

The following works are scheduled before abandoning the mine,

- i. Parapet wall of 2m height will be constructed around the pit,
- ii. Planting and monitoring of Afforestation program.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

There is no proposal for closure of mine for the next 5 years. The parapet and plantations will be done during operation of mine. In case of any abandonment the following time is required,

Activities	Days for schedule
Time schedule for fencing	6 months
Time schedule for reclamation of mined out area	1 year

7.3 Social Impact Assessment, R&R Action Plans

The Rough Stone quarry project of Thiru.V.Gangesan does not involve any kind of displacement of the population since the mining will be concentrated only in the mining area only. Not much disturbance in respect of fauna, flora and human settlement of the villages. The impact of mining activity on the population will be insignificant. Hence, Rehabilitation of settlements is not anticipated under this project as it will not be required. Thus R&R Action Plans not proposed.

The project proponent will help in uplifting the poor section of the society as part of CSR activity by undertaking social welfare programs. The Project proponent contributes 2.5% of profit towards CSR activities. This project will have a positive impact on the socio economic as it will provide considerable employment to the families in the nearby villages. Improved health care facilities are expected to come-up in the area for catering to the health needs of the miners. The impact of mining on the civic amenities will be substantial after the commencement of mining activities. The local people who are currently depending on forest and agriculture will have new avenue from the mine.

7.4 Detail study of Rainwater harvesting after the completion of project.

- I. Total Pit Area = 13315m²
- II. Annual rainfall of the area = 0.700 m
- III. Total rainwater available to store in pit area = 9320m³
- IV. Total volume of quarried pit = 585860 m³

Since the rainwater directly getting stored in the quarried pit, the runoff will not take place. The Quarried Pit will be acting as Artificial Ground Water Recharge Pond. After the rainwater getting stored in quarried pit, the water slowly infiltrates into the ground and reaches the ground water table. This will greatly increase the ground water table around the lease area.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

By electrical resistivity survey it is found that there is massive rock formation at 20m bgl. So, the infiltration rate of rain water is very less. If the rain water stored in pit for long period the evaporation loss will take place.

Meyer's Formula (1915) is used to find the loss of water in pit due to natural evaporation process.

Meyer's Formula (1915)

$$E_L = K_M (e_w - e_a) (1 + u_9/16)$$

Where

- E_L = Evaporation Rate (mm/day)
- e_w = the saturation vapor pressure at the water temperature in mm of mercury
- e_a = the actual vapor pressure in the air in mm of mercury
- u_9 = monthly mean wind velocity in km/h at about 9 m above ground
- K_M = coefficient accounting for various other factors with a value of 0.36 for large deep and 0.50 for small shallow waters.

Here,

$e_w = 30.5$ mm of Hg (considered average temperature in Tiruppur district during February month of 2023)

$e_a = 0.59 \times 30.5 = 17.9$ mm of Hg.

$u_1 = 15.12$ km/hr

$u_9 = 20.69$ km/hr

Substitute the above parameters in Meyer's equation,

$$E_L = 0.36 (30.5 - 17.9) (1 + 20.69/16)$$

$$E_L = 6.17 \text{ mm/day}$$

$$\text{Evaporated Volume per day} = 13315 \times 0.00617 = 82 \text{ m}^3/\text{day} \text{ or } 82 \text{ KLD}$$

The total quantity of rain water to be stored in quarried pit is 9320 m^3 . The evaporation rate of water per day is 82 m^3 based on the maximum temperature in Tiruppur district. It takes nearly 5 months for the complete evaporation of water. Before that the stored water will be used to irrigate the crop around the quarry area.

Other benefits are that the water will be used for the domestic purposes after the water properly treated by Sedimentation-Filtration processes. A higher quantity of about 20 liters per capita per day should be assured to take care of basic hygiene needs and basic food hygiene.

Thereby the proposed quarry benefits the daily needs of water to so many families around the quarry area for every year. This is very important positive impact of the proposed Rough stone and gravel quarry of Thiru.V.Gangesan.

7.5 Plastic/Microplastic waste Management Plan

This is proposed rough stone and gravel quarry. So, the project does not need any plastic related material for quarry operations. The plastic materials will be used by the employee and labours in the form of carry bags, water bottles, etc. To avoid such situations the employees and labours will be strictly instructed to avoid the plastic materials in the lease area. Moreover, they will be advised to use cloth bags, jute bags and bring the food by Steel tiffin box.

Water will be provided by the project proponent for both drinking and domestic purposes. So, the dustbins will not be needed in the quarry. To manage the unavoidable situations, Dustbins will be placed in the quarry for both decompose and non-decompose waste separately of Municipal solid waste. The collected waste will be disposed periodically as instructed by TNPCB. The board with the instruction “**Avoid plastics**” is placed in the two sides of quarry and awareness program will be conducted to the labours monthly once.

Microplastics are small pieces of plastics less than 5mm. As usage of plastics is totally devoid in the quarry premise, the chance of Microplastic pollution is negligible inside the lease area.



CHAPTER – 8: PROJECT BENEFITS

Mining activity will help in improving the socio-economic benefits in areas like employment, communication and infrastructure development etc.

8.1 Physical Infrastructure

The rough stone and gravel project located in Kodangipalayam Village of Tiruppur District has well established roads, communications and other facilities. The impact on the civic amenities will be substantial after increasing the mining capacity.

The following physical infrastructure facilities will further improve due to mine.

- ❖ Afforestation
- ❖ Road Transport facilities
- ❖ Communications
- ❖ Housing facilities
- ❖ Water supply and sanitation
- ❖ Medical, Educational and social benefits will be made available to the nearby Civilian population in addition to the workmen employed in the mine.

Under plantation program, it is suggested to develop green belt further all along the boundary of mining lease area. The species to be grown in the areas will be dust tolerant and fast-growing species so that a permanent green belt is created. Apart from the green belts and aesthetic plantation for eliminating fugitive emission and noise control, all other massive plantation efforts will be executed with the assistance of experts and cooperation of the local community.

8.2. Social Infrastructure

The mining activity will create rural employment. It has been observed that local people mainly depend upon agricultural, where the income is irregular and low. The mining activity in the region will have positive impact on the social economic condition of the area by way of providing employment to the local in-habitants; wages paid to them will increase the per capita income, housing, education, medical and transportation facilities, economic status, health and agriculture by improving the life style of the people. A major part of the labour force will be mainly from local villagers who are expected to engage themselves both in agriculture and mining activities. Part of the royalty is given to local bodies by the State Govt. for the welfare and development of the village. District Mineral Fund @30% of the Royalty shall be given to the Dept. of Geology and Mining, Tiruppur District. The State Government will also benefit directly from the mine, through increased revenue from royalties, excise duty and etc.,

8.3 Employment Potential

The proponent employed about 14 persons for carrying out the mining operations of which 4 are skilled, 4 semi-skilled, 6 unskilled worker personnel. In addition, there will be indirect employment to many more people in the form of contractual jobs like construction of infrastructural facilities, transportation of rough stone to destinations, sanitation, supply of goods and services to the mine and other community services, etc., The local population will have preference to get an employment. The economic status of the local people will be enhanced due to mining project.

8.4 Other tangible benefits

8.4.1 Corporate Social Responsibility

Corporate Social Responsibility (CSR) refers to voluntary actions undertaken by the project proponent either to improve the living conditions (economic, social, environmental) of local communities or to reduce the negative impacts of mining activity. By definition, voluntary actions are those that go beyond legal obligations, contracts, and license agreements.

CSR programs usually invest in infrastructure (potable water, electricity, schools, roads, hospitals, hospital equipment, drainage repairs, etc.), building social capital (providing high-school and university education, providing information on HIV prevention, workshops on gender issues, information on family planning, improving hygiene, etc.), and building human capital (training local people to be employed by the mining enterprise or to provide outsourced services, promote and provide skills on micro business, aquaculture, crop cultivation, animal rearing, textile production, etc.)

8.4.2 CSR activities

The following activities which may be included by companies in their Corporate Social Responsibility Policies are notified as CSR activities under Schedule VII ((See section 135) of the Companies Act 2013:

- i. Eradicating extreme hunger and poverty;
- ii. Promotion of education;
- iii. Promoting gender equality and empowering women;
- iv. Reducing child mortality and improving maternal health;
- v. Combating human immunodeficiency virus, acquired immune deficiency Syndrome, malaria and other diseases;
- vi. Ensuring environmental sustainability;
- vii. Employment enhancing vocational skills;

- viii. Social business projects;
- ix. Contribution to the Prime Minister's National Relief Fund or any other fund set up by the Central Government or the State Governments for socio-economic development and relief and funds for the welfare of the Scheduled Castes, the Scheduled Tribes, other backward classes, minorities and women; and
- x. Such other matters as may be prescribed.

The Board of every company referred to in sub-section (1), shall ensure that the company spends, in every financial year, at least 2% of the average net profits of the company made during the three immediately preceding financial years, in pursuance of its Corporate Social Responsibility Policy. Provided that the company shall give preference to local area and areas around it, where it operates for spending the amount earmarked for Corporate Social Responsibility activities. Provided further that if the company fails to spend such amount, the Board shall report under clause (o) of sub-section (3) of section 134, specify the reasons for not spending the amount.

Explanation: For the purposes of this section “average net profit” shall be calculated in accordance with the provisions of section 198.

8.4.2.1 CSR Cost Estimation

CSR activities will be taken up in the nearby villages mainly contributing to education, health, training of women self-help groups and contribution to infrastructure etc., CSR budget is allocated as 2.5% of the profit. Under this programme, the project proponents will take-up following activities for social and economic development of villages through local panchayat.

- ✚ Employment to eligible persons during operational phase of the mine
- ✚ Conducting Medical Camps
- ✚ Infrastructure Development like repair of roads, renovation of ponds, rainwater harvesting schemes, etc.,
- ✚ Financial grant to the existing educational institutions for development of physical infrastructures
- ✚ Training for Self-Employment
- ✚ Plantation in villages and all along roads.
- ✚ Providing solar lamps to nearby schools and villages by going eco-friendly.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

8. 4.3 Corporate Environment Responsibility (CER)

CER Activity	Project Cost (Rs. In Lakhs)	CER Cost @ 2% of Project Cost (Rs. In Lakhs)
1. Developing Library Facilities to Government School in Kodangipalayam village	35	5
Total Cost Allocation	35	5

CHAPTER – 9: ENVIRONMENTAL COST BENEFIT ANALYSIS

9.0 PROJECT COST

After making exhaustive study, it is considered that the mining project may be implemented.

Project cost for the proposed Rough stone and gravel quarry namely “Rough Stone and Gravel Quarry of Thiru.V.Gangesan” over an area of 1.81.0 Ha falling in Village Kodangipalayam, District Tiruppur is Rs. 35,00,000 /- and EMP Cost is Rs. 7,15,000/-

- This project provides direct employment to 14 people and indirect employment to nearly 20 people. In a family 5 persons, totally 100 persons will get benefit because of the project.
- Surrounding people will get benefit as they get aggregate (Rough Stone) for construction purposes with less transportation cost.
- The Management will ensure good production and in turn there will be good revenue to the Government of Tamil Nadu and Government of India through taxes. The industry is an asset to the nation.
- At the end of the project the pit will act as rain water harvesting tank which is useful for agricultural purpose. Thereby it will increase the survival of people around the quarry.

CHAPTER - 10: ENVIRONMENTAL MANAGEMENT PLAN

The **Environment Management Plan (EMP)** is required to ensure sustainable development in the study area. Hence it needs to be a comprehensive plan for which the industry, Government, regulating agencies likes Pollution Control Board working in the region and more importantly the population of the area need to extend their co-operation and contribution.

It has been evaluated that the project area will not be affected significantly due to mining activity. Mitigation measures at the source level and an overall Management Plan at the site level are elicited so as to improve the surrounding environment.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

Table 10.1 Environmental Management Plan

S.No	Parameters	Mining Activity	Mitigation measures
1	Air Environment	Drilling	<ul style="list-style-type: none"> ○ Dust extractor or wet drilling to be followed to control dust at source of emission ○ Use of Sharp drill bits for drilling holes and charging the holes by using optimum charge and using time delay detonator
		Blasting	<ul style="list-style-type: none"> ○ Regular water sprinkling on blasted heaps at regular intervals will help in reducing considerable dust pollution
		Loading	<ul style="list-style-type: none"> ○ Water sprinkling be done before loading by making it moist
		Transportation	<ul style="list-style-type: none"> ○ Water sprinklers along the sides of haul road shall be fixed to control fly of dust while transporting minerals and waste ○ Overloading will be prevented ○ Trucks/Dumpers covered by tarpaulin covers
		DG Sets	<ul style="list-style-type: none"> ○ DG sets will be used only during power failure ○ Adequate stack height for DG sets will be provided as per CPCB norms
		General measures	<ul style="list-style-type: none"> ○ Avenue trees along roads around ML boundary shall be planted as per the norms of MoEF to control fly of dust. ○ Labours engaged in such dust prone areas should be provided with safety devices like ear muff, mask, goggles as per the MMR, 1961 amendments and circulars of DGMS. ○ Regular health check-up of workers and nearby villagers in the impacted area should be carried out and also regular occupational health assessment of employees should be carried out as per the Factories Act ○ Ambient Air Quality Monitoring will be conducted on regular basis to assess the quality of ambient air.
2	Water Environment	Surface water	<ul style="list-style-type: none"> ○ Wastewater discharge from mine if any will be treated in settling tanks before using for dust suppression and tree plantation purposes.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

		Ground water	<ul style="list-style-type: none"> ○ The mining activity will not intersect the ground water table ○ De silting will be carried out before and immediately after the monsoon season
		Storm water	<ul style="list-style-type: none"> ○ Pit will be used for Storage of rainwater ○ Rain water will be collected in sump in the mining pit and will be allowed to store and pumped out to surface setting tank of 15 m x 10m x 3m to remove suspended solids if any. This collected water will be judiciously used for dust suppression onwards and such sites where dust likely to be generated and for developing green belt. ○ The proponent will collect and judicially utilize the rainwater as part of rain water harvesting
		General measures	<ul style="list-style-type: none"> ○ Regular monitoring and analyzing the quality of water
		3	Noise Environment
		Blasting	<ul style="list-style-type: none"> ○ Carrying out blasting only during day time and not on cloudy days ○ Noise levels will be controlled by using optimum explosive charge, proper delay detonators and proper stemming to prevent blow out of holes. ○ Providing proper noise proof enclosure for the workers separated from the noise source and noise prone equipment
		Transportation	<ul style="list-style-type: none"> ○ Proper and regular maintenance of vehicles, machinery and other equipments. ○ The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipments. ○ Speed of trucks entering or leaving the mine will be limited to moderate speed to prevent undue noise from empty vehicles. ○ Adequate silencers will be provided in all the diesel engines of vehicles. ○ Minimum use of horns and speed limit of 10 km/hr in the village area. ○ It will be ensured that all transportation vehicles carry a valid PUC Certificates

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

		General measures	<ul style="list-style-type: none">○ Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas○ Provision of Quiet areas, where employees can get relief from workplace noise.○ The development of green belts around the periphery of the mine to attenuate noise.○ Regular medical check-up and proper training to personnel to create awareness about adverse noise level effects.
4	Vibration	Blasting	<ul style="list-style-type: none">○ No deep hole blasting envisaged.○ Small dia shot holes are used for breaking boulders.○ Specific charge pattern has to be designed by proper trial vibration studies with varying charge ratios.○ If the vibration still exceeds the limit a long Trench to a depth of 6m may cut in the direction of wave's movement to break longitudinal waves which travel close to surface, preferably near mine buffer zone○ In spite of all measures periodical testing of vibration and noise using approved seismograph by DGMS has to be followed as a part of Environmental monitoring
5	Soil Environment	Topsoil	<ul style="list-style-type: none">○ Humus top soil shall be preserved for reuse in afforestation and agriculture○ Top soil should not be mixed with other waste or reject materials. It should be conserved by judicious utilization in the mine premises○ Garland drains will be provided around the mine and dumps to arrest any soil from the mine area being carried away by the rain water. This will also avoid the soil erosion and siltation in the mining pits and maintaining the stability of the benches
6	Waste Dump	Stabilization of Dumps	<ul style="list-style-type: none">○ The rejects\ waste dump shall be properly terraced in to 1.5m benches with proper repose angle and then the top soil shall be spread over the dumps and slope to make them humus for some time, after the soil suitable for

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

			<p>water retention trees will be planted at the top, slope and toe of the stabilized dumps to form vegetation.</p> <ul style="list-style-type: none"> ○ Garland drainage around dump shall prevent under wash of dump by hydrostatic pressure to be developed by surface water and control wash outs and collapse ○ Dump should be terraced for every 5m height and stabilized
7	Plantation	Mine lease boundary and waste dump	<ul style="list-style-type: none"> ○ Provision of green belt all along the periphery of the lease area for control of dust and to attenuate noise ○ Stabilization of Dump with plantation ○ It is strongly recommended that the loss of plant in each year will be counted and again planted in subsequent plantation. ○ The plant should be planted taken from nursery, where the survival rate is high.
8	Land Environment		<ul style="list-style-type: none"> ○ The restoration of the degraded land would cover backfilling and terracing with the overburden / wastes and surfacing the same with top soil. ○ Provision of Garland drainage around the dumps ○ Fast growing trees and other native shrubs would be planted to stabilize the reclaimed land ○ Appropriate measures will be taken for Green belt development. ○ The rain water will be stored in the pit which will recharge the ground water as a part of rain water harvesting scheme for irrigating the nearby agricultural lands.
9	Socio Economic		<ul style="list-style-type: none"> ○ Good maintenance practices will be adopted for 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. ○ Drilling, blasting etc at specified location will be followed with proper schedule.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

		<ul style="list-style-type: none">○ Appropriate air pollution control measure will be taken so as to minimize the environmental impact within the core zone.○ An emergency preparedness plan will be prepared in advance, to deal with firefighting, evacuation and local communication.○ For the safety of workers, personal protective appliances like hand gloves, helmets, safety shoes, goggles, aprons, nose masks and ear protecting devices has been provided which meet 'BIS' (Bureau of Indian Standards).○ As a part of CSR activities, community welfare activities will be undertaken by the proponent which leads to socio economic development
10	Occupational Health	<ul style="list-style-type: none">○ First-aid facilities as per provisions under Rule (44) of Mines Rules 1955○ Initial and Periodical medical examination shall be conducted for the employees under Rule 29B & 45 (A).○ Insurance will be taken in the name of the labourers working in the mines○ Workers involved in mining work shall be provided protective equipments such as Thick Gloves, Goggles, ear plugs, safety boot wears, etc...

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

10.1 Description of the administrative aspects of ensuring that mitigative measures are implemented and their effectiveness monitored, after approval of the EIA

In order to maintain the environmental quality within the standards, regular monitoring network to maintain environmental quality will be implemented.

Table 10.2 EMP Budget for Plan period

S. No	Description	Budget (Rs.)
1.	Drinking water facility for the labourers	50,000
2.	Sanitary arrangement	50,000
3.	Safety kits	50,000
4.	Dust control	1,00,000
5.	Afforestation etc	50,000
	Total (Rs.)	3,00,000

Table 10.3 Budget Allocation for Mine Closure Plan as per ToR

S. No	Description	Budget (Rs.)
1.	Garland Drainage around Mines	1,00,000
2.	Earth Bund with Fencing around mines	1,00,000
3.	Making Pit for pond after the activity of mines	50,000
	Total (Rs.)	2,00,000 L

CHAPTER – 11: SUMMARY AND CONCLUSIONS

INTRODUCTION

Thiru. V.Gangesan Rough stone and gravel quarry over an extent of 1.81.0 Hectares is located in S.F.No: 103/3A1A, 103/3A2 and 103/3B1 patta land of Kodangipalayam Village, Palladam Taluk, Tiruppur District, Tamil Nadu. The area is marked in the survey of India Toposheet No.58E/4. The area lies between northern latitude of 11° 1' 19.75"N to 11° 1'25.26"N and eastern longitude of 77° 12' 2.02"E to 77°12'7.38"E. The precise area communication letter has been given by Assistant Director, Dept of Geology and Mining, Tiruppur Vide Rc No. 48/Kanimam/2023, dated 15.09.2023 for Thiru. V.Gangesan.

The proponent excavated 32m bgl during the duration of the mine's life in this quarry (2018 to 2023), which had been approved by the District level Impact Assessment Authority (DEIAA) at a depth of 44m bgl. In continuation, the Assistant Director of the Department of Geology and Mining, Tiruppur, issued the proponent a precise area communication letter with reference number Vide Rc No.48/Kanimam/2023, dated 15.09.2023. The Assistant Director of the Department of Geology and Mining, Tiruppur, approved the mining plan vide Rc No. 48/Mines/2023 dated 10.11.2023. About 100539 m³ of rough stone will be produced in five years (from the date of excavation) up to a depth of 44 m bgl, (with 12 m bgl remaining).

As per the cluster letter issued by Assistant Director, Department of Geology and Mining, Tiruppur vide Rc.No.48/Mines/2023, dated 05.12.2023 for Thiru. V.Gangesan (1.81.0 Ha) the lease area of above said 11 applicants comes in cluster of 500m radius. The total area of cluster is 17.36.5 Ha.

As per MoEF&CC OM: F.No.L IA3-22/11/2023-IA.III (E208230) dated 28.4.2023, the EIA/EMP report has to be prepared for the cluster area based on ToR recommended by SEIAA. Therefore, the applicant applied for ToR through PARIVESH website vide online proposal no. SIA/TN/MIN/454038/2023 dated 02.12.2023. The ToR proposal was placed in 441th SEAC meeting, dt 31.01.2024 and 698th SEIAA meeting, dated 19.02.2024. Then ToR has been issued by the SEIAA vide TOR Identification No. TO23B0108TN5824253N/File No: 10592 dated 03.04.2024. The EIA report has been prepared based on the recommended Standard ToR along with Specific ToR.

11.1 SCOPE OF THE PROJECT

The EIA report for Environmental Clearance of Rough stone and gravel quarry Thiru. V.Gangesan has been prepared based on the recommended Standard ToR and Specific ToR

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

issued by SEIAA vide TOR Identification No. TO23B0108TN5824253N/File No: 10592 dated 03.04.2024.

11.2 PROJECT DESCRIPTION**Table No 11. 1 Project Details**

Project Details				
Proponent	Thiru.V.Gangesan			
Total Mine Lease Area	1.81.0 Ha - Rough Stone and Gravel Quarry			
Survey No.	S.F. No: 103/3A1A, 103/3A2 and 103/3B1			
Site Location	Kodangipalayam Village, Palladam Taluk, Tiruppur District, Tamil Nadu			
Geographical Co-ordinates	Latitude: 11° 1' 19.75"N to 11° 1'25.26"N Longitude: 77° 12' 2.02"E to 77° 12'7.38"E			
Toposheet No.	58 E/4			
Elevation	Elevation of the area is 391m above MSL and Toposheet No. 58E/4.			
Accessibility				
Nearest Habitation	750m – SE			
Nearest Village	Kodangipalayam – 1.5km - SE			
Nearest Settlement	Name of Village	Direction	Distance from Mines (Approx.)	Population
	Ichipatti	N	2.13 km	9527
	Karanampettai	SW	2 km	6987
	Sukkampalayam	NE	3.64 km	4420
	Kadampadi	NW	4.24 km	8147
Nearest Town	Palladam – 7.19km - NE			
Nearest Roadway	NH-44- Coimbatore to Chidambaram - 2.13 km-SE SH 169- 2.6km-SW			
Nearest Railway station	Somanur Railway Station – 8km - N			
Nearest Airport	Coimbatore – 17.3 km - NW			
Environmental Sensitiveness				
Interstate Boundary	There is no interstate boundary within 15km radius. Tamil Nadu – Kerala Interstate Boundary – 44 km – W			
Coastal Zone	Arabian Sea -138 km – W			
Reserve Forest	There is no Reserve Forest found within 5km from the lease area. Nearest Reserve Forest Aliyar RF-65 km -SW.			
Wildlife sanctuary	Nil within 10km radius. The Proposed project site does not the Wildlife (Protection) Act, 1972.			
Water bodies	There are no major river or water bodies, odai track, nallah and ponds			

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

	found within 500m radius. 1. Sendevipalayam Check Dam – 6 km –NW 2. Noyyai River – 6 km - NW			
Defense Installations	Sulur Air force Runway 3.5km –SW within the lease area.			
Critically Polluted area	Nil within 10km radius			
Quarries around 500m radius (AD Letter furnished)	Four existing quarries, six present proposed quarries and one abandoned quarry located within the 500m radius from the lease boundary of the proposed project site. Total Cluster area: 17.36.5 Ha AD Cluster Letter: Rc.No: 48/Mines/2023, dated:05.12.2023			
Mining Details				
Particulars	Details			
Method of Mining	Open cast mechanized mining			
Geological resources	259467 m ³			
Mineable reserves	Rough stone -100539m ³ for five years and Gravel – 2116m ³ for three years.			
Production	Rough stone -100539 m ³ for five years 20107 m ³ per annum			
Top soil	-			
Ore: Waste ratio	1: 0.07			
Depth of Mining	44m bgl			
Water Table	57 m bgl			
Road design	1: 10 inside the pit and ramp 1:16 for transport			
Overall Pit Slope	45°			
Period of Lease	5 years from the date of execution			
Ultimate pit dimension	<i>Ultimate Pit Dimensions-PIT-I (m)</i>			
	Bench	Length(m)	Width(m)	Depth(m)
	I	146m	77m	2m
	II	144m	75m	6m
	III	137m	68m	6m
	IV	131m	59m	6m
	V	118m	58m	6m
	VI	106m	50m	6m
	VII	94m	38m	6m
	VIII	50m	26m	6m
	Total			44m

11.3 Description of the environment

11.3.1 Base line environmental study

Collection of base line data is an integral part of the preparation of environmental impact assessment reports. The baseline monitoring study has been carried out during December 2022 – February 2023 to assess the existing environmental scenario in the area. For the purpose of EIA studies, mine lease area was considered as the core zone and area outside the mine lease boundary up to 10km radius from the lease boundary was considered as buffer zone.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

Table No 11.2 Baseline Data

Particulars	Details	Standards
Meteorology (December 2022 – February 2023)		
Rainfall (Avg.)	134 mm	--
Temperature (Avg.)	19.7-33.4°C	--
Wind speed	2.4 m/s	--
Wind Direction	Predominantly from West to North East	
Ambient Air Quality (NAAQS)		
PM ₁₀	38-57 µg/m ³	100 µg/m ³
PM _{2.5}	15-32 µg/m ³	60 µg/m ³
SO ₂	9-22 µg/m ³	80 µg/m ³
NO _x	11-32 µg /m ³	80 µg/m ³
Noise Level (CPCB Standards)		
Day time (6:00 am - 10:00 pm)	Core zone – 41.3 dB (A) Buffer zone –37.0 - 49.4 dB (A)	Industrial Area Day Time - 75 dB (A) Residential Area Day Time – 55 dB (A)
Night time (10:00 pm - 06:00 am)	Core zone – 36.4 dB (A) Buffer zone – 31.1-37.7 dB(A)	Industrial Area Night Time – 70 dB(A) Residential Area Night Time – 45 dB (A)
Water Quality IS 10500:2012 (Desirable limits)		
pH	7.07-7.84	6.5 to 8.5
TDS	464-1260 mg/l	500 mg/l
Electrical conductivity at 25°C	758-2100 micromhos/cm	-
Total Hardness as CaCO ₃	190-460 mg/l	200 mg/l
Total suspended solids	1-6 mg/l	IS:3025:P.16:1984:R.2012
Chlorides Cl	220-430mg/l	250 mg/l
Total iron Fe	0.06-0.09mg/l	0.3mg/l
Sulfates SO ₄	43-93mg/l	200 mg/l
Soil Quality		
pH	7.5-8.3	Neutral to slightly alkaline
Bulk density	1.04-1.65 g/cc	Favorable physical condition for plant growth.
Hydro Geology		
Depth of Mining	44m bgl	
Water Table	57m bgl	

11.4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

11.4.1 Air Environment

The air borne particulate matter is the main air pollutant by opencast mining. The mining operation will be carried out by adopting mechanized methods which involves Jack Hammer drilling and blasting, excavation, loading and transportation.

AERMOD - Total predicted 24-h maximum GLC of PM₁₀ at project site for scenario 1 i.e. loading-unloading, transportation and scenario 2 i.e. Blasting was 58.86 µg/m³ and 48.01 µg/m³ respectively after superposition of base-line value 48µg/m³ over the incremental GLC 19.06 µg/m³, 0.59 µg/m³ scenario 1 and 10.86 µg/m³ for scenario 2 respectively due to combined impact of loading, unloading, open pit and transportation over the haul road and due to blasting.

The predicted incremental GLC of SO_x and NO_x for under below the desirable limit. Maximum Impact of PM₁₀ was observed close to the source within the lease area due to moderate wind speeds.

Maximum Impact of PM₁₀, SO_x and NO_x was observed close to the source within the lease area due to moderate wind speeds.

11.4.2 Noise Environment

Noise pollution poses a major health risk to the mine workers. Following are the sources of noise in the existing open cast mine project are being observed such as Drilling, Blasting. Loading and during movement of vehicles.

The noise generated by the mining activity is dissipated within the core zone. This is because of distance involved and other topographical features adding to the noise attenuation. From the results, it can be seen that the ambient noise levels (day time and night time) at all the locations will remain within permissible limits prescribed by CPCB and 90dB (A) norms of DGMS. At present there is no mining activity carried out. However, the expected noise levels are not likely to have any effect. Precaution will be made to keep down the noise exposure level of 85 dB (A) to the operating personnel for 8 hrs duration. The charge per blast of 6 kg is above the Peak Particle Velocity below 5mm/s. So, the proponent will be advised to use five delays to keep the ground vibration within 5mm/s. However, as per statutory requirement additional control measures needs to be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting.

11.4.3 Water Environment

Mining operations can affect groundwater quality in several ways. The most obvious occurs in the mining below the water table, either in underground workings or open pits. This provides a direct conduit to aquifers. Groundwater quality is also affected when waters (natural or process waters or wastewater) infiltrate through surface materials (including overlying waste or other material) into ground water. But this Rough stone mine is devoid of any such impacts.

The impact due to mining on the water quality is expected to be insignificant because of no use of chemicals or hazardous substances during mining process. The WQI of the samples collected from the study area are given in tables 4.25 and 4.26. It can be seen that the study area has water quality index value ranging from 19.49 to 140 mg/l which reflects the excellent to unsuitable for drinking status of the groundwater quality. The findings demonstrate the varying consistency of groundwater at different locations. All the groundwater samples under excellent to unfit for drinking category; it may be due to the absorption of fertilisers, geological condition, channel water, solid waste, sewer drainage, septic tanks, and agricultural waste. The water should be treated by reverse osmosis to reduce dissolved solids and total hardness to the required rate.

11.4.4 Soil Environment

The limited quantity of top soil generated will be dumped along 7.5m inner boundary of the lease area. The top soil will be used to develop greenbelt within the lease area. Part of top soil will be spread over the non-active dumps along the slope and edges to plant tree saplings to form vegetal cover over the dumps. No chemical or toxic elements will be used during mining activity. So, the health of soil in and around the quarry will not be affected.

11.4.5 Waste Dump

The proposed rate of production of rough stone for five years is about 100539m³ at the rate of 95% recovery up to permissible depth. The 5% reject of 5291m³ shall be dumped as per earmarked site in the approved mining plan.

11.4.6 Biological Environment

There are no notified endangered species in the area, which may be affected due to the mining activities; therefore, the biological environment will not have significant impact due to mining activity. The impact on the biological environment due to amount of dust generation is minimized by well-developed green belt in and around mining lease area.

11.4.7 Land Environment

The Rough stone quarry will result in disturbance of the land use pattern of the mine lease area. The land degradation is unavoidable during mining activities like excavation, overburden dumping, soil extraction etc. So, reclamation of mined out land and proper formation of benches will be given due importance. The land use analyses show that the area is of predominantly Agriculture followed by buffer zones of the study area, which clearly indicates that the development of agriculture land increases over a period of time. At the end of the project, the quarried pit will be act as water storage pond. The stored water will be used for developing agricultural activity around the mining lease area. It is generally agreed that as the total volume of production from year to year may increases. Some fallow land also increases due to seasonal crop production, which shows a positive impact due to mining activity.

11.4.8 Socio Economic Environment

The mining activity will definitely increase the employment opportunity (directly as well as indirectly) in the project area. Some of these impacts would be beneficial. The expectation of the people of the area is concerned towards employment, education, and health facilities.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

Table 11.3 Environmental Management Plan

S.No	Parameters	Mining Activity	Mitigation measures
1	Air Environment	Drilling	<ul style="list-style-type: none">○ Dust extractor or wet drilling to be followed to control dust at source of emission○ Use of Sharp drill bits for drilling holes and charging the holes by using optimum charge and using time delay detonator
		Blasting	<ul style="list-style-type: none">○ Regular water sprinkling on blasted heaps at regular intervals will help in reducing considerable dust pollution
		Loading	<ul style="list-style-type: none">○ Water sprinkling be done before loading by making it moist
		Transportation	<ul style="list-style-type: none">○ Water sprinklers along the sides of haul road shall be fixed to control fly of dust while transporting minerals and waste○ Overloading will be prevented○ Trucks/Dumpers covered by tarpaulin covers
		DG Sets	<ul style="list-style-type: none">○ DG sets will be used only during power failure○ Adequate stack height for DG sets will be provided as per CPCB norms
		General measures	<ul style="list-style-type: none">○ Avenue trees along roads around ML boundary shall be planted as per the norms of MoEF to control fly of dust.○ Labours engaged in such dust prone areas should be provided with safety devices like ear muff, mask, goggles as per the MMR, 1961 amendments and circulars of DGMS.○ Regular health check-up of workers and nearby villagers in the impacted area should be carried out and also regular occupational health assessment of employees should be carried out as per the Factories Act○ Ambient Air Quality Monitoring will be conducted on regular basis to assess the quality of ambient air.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

2	Water Environment	Surface water	<ul style="list-style-type: none"> ○ Wastewater discharge from mine will be treated in settling tanks before using for dust suppression and tree plantation purposes.
		Ground water	<ul style="list-style-type: none"> ○ The mining activity will not intersect the ground water table ○ Desilting will be carried out before and immediately after the monsoon season
		Storm water	<ul style="list-style-type: none"> ○ Pit will be used for Storage of rainwater ○ Rain water will be collected in sump in the mining pit and will be allowed to store and pumped out to surface setting tank of 15 m x 10m x 3m to remove suspended solids if any. This collected water will be judiciously used for dust suppression onwards and such sites where dust likely to be generated and for developing green belt. ○ The proponent will collect and judiciously utilize the rainwater as part of rain water harvesting
		General measures	<ul style="list-style-type: none"> ○ Regular monitoring and analyzing the quality of water
3	Noise Environment	Drilling	<ul style="list-style-type: none"> ○ Limiting time exposure of workers to excessive noise
		Blasting	<ul style="list-style-type: none"> ○ Carrying out blasting only during day time and not on cloudy days ○ Noise levels will be controlled by using optimum explosive charge, proper delay detonators and proper stemming to prevent blow out of holes. ○ Providing proper noise proof enclosure for the workers separated from the noise source and noise prone equipment
		Transportation	<ul style="list-style-type: none"> ○ Proper and regular maintenance of vehicles, machinery and other equipments. ○ The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipments. ○ Speed of trucks entering or leaving the mine will be limited to moderate

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

			<p>speed to prevent undue noise from empty vehicles.</p> <ul style="list-style-type: none"> ○ Adequate silencers will be provided in all the diesel engines of vehicles. ○ Minimum use of horns and speed limit of 10 km/hr in the village area. ○ It will be ensured that all transportation vehicles carry a valid PUC Certificates
		General measures	<ul style="list-style-type: none"> ○ Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas ○ Provision of Quiet areas, where employees can get relief from workplace noise. ○ The development of green belts around the periphery of the mine to attenuate noise. ○ Regular medical check-up and proper training to personnel to create awareness about adverse noise level effects.
4	Vibration	Blasting	<ul style="list-style-type: none"> ○ Specific charge pattern has to be designed by proper trial vibration studies with varying charge ratios. ○ Milli second detonators shall be used preferably 25–50ms per delay to control vibrations ○ If the vibration still exceeds the limit a long Trench to a depth of 6m may cut in the direction of wave's movement to break longitudinal waves which travel close to surface, preferably near mine buffer zone ○ In spite of all measures periodical testing of vibration and noise using approved seismograph by DGMS has to be followed as a part of Environmental monitoring
5	Soil Environment	Topsoil	<ul style="list-style-type: none"> ○ Humus top soil shall be preserved for reuse in afforestation and agriculture ○ Top soil should not be mixed with other waste or reject materials. It should be conserved by judicious utilization in the mine premises ○ Garland drains will be provided around the mine and dumps to arrest any

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

			soil from the mine area being carried away by the rain water. This will also avoid the soil erosion and siltation in the mining pits and maintaining the stability of the benches
6	Waste Dump	Stabilization of Dumps	<ul style="list-style-type: none">○ The rejects\ waste dump shall be properly terraced in to 1.5m benches with proper repose angle and then the top soil shall be spread over the dumps and slope to make them humus for some time, after the soil suitable for water retention trees will be planted at the top, slope and toe of the stabilized dumps to form vegetation○ Garland drainage around dump shall prevent under wash of dump by hydrostatic pressure to be developed by surface water and control wash outs and collapse
7	Plantation	Mine lease boundary and waste dump	<ul style="list-style-type: none">○ Provision of green belt all along the periphery of the lease area for control of dust and to attenuate noise○ Stabilization of Dump with plantation○ It is strongly recommended that the loss of plant in each year will be counted and again planted in subsequent plantation.○ The plant should be planted taken from nursery, where the survival rate is high.
8	Land Environment		<ul style="list-style-type: none">○ The restoration of the degraded land would cover backfilling and terracing with the overburden / wastes and surfacing the same with top soil.○ Provision of Garland drainage around the dumps○ Fast growing trees and other native shrubs would be planted to stabilize the reclaimed land○ Appropriate measures will be taken for Green belt development.○ The rain water will be stored in the pit which will recharge the ground water as a part of rain water harvesting scheme for irrigating the nearby agricultural lands.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

9	Socio Economic		<ul style="list-style-type: none">○ Good maintenance practices will be adopted for 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.○ Drilling, blasting etc at specified location will be followed with proper schedule.○ Appropriate air pollution control measure will be taken so as to minimize the environmental impact within the core zone.○ An emergency preparedness plan will be prepared in advance, to deal with firefighting, evacuation and local communication.○ For the safety of workers, personal protective appliances like hand gloves, helmets, safety shoes, goggles, aprons, nose masks and ear protecting devices has been provided which meet 'BIS' (Bureau of Indian Standards).○ As a part of CSR activities community welfare measures will be taken by Proponent through local Panchayat
10	Occupational Health		<ul style="list-style-type: none">○ First-aid facilities as per provisions under Rule (44) of Mines Rules 1955○ Initial and Periodical medical examination shall be conducted for the employees under Rule 29B & 45 (A).○ Insurance will be taken in the name of the labourers working in the mines○ Workers involved in mining work shall be provided protective equipments such as Thick Gloves, Goggles, ear plugs, safety boot wears, etc...

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Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

11.5 Analysis of Alternatives

The mining site is dependent on the geology and mineral deposition of the area. Hence, this project is mineral and site specific and no alternative site considered for this project.

11.6 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.

Table No: 11.4 Post Project Environmental Monitoring Program

S. No.	Environment Attributes	Location	Monitoring		Remarks
			Duration	Frequency	
1	Meteorology and Air Quality	Continuous monitoring weather station in core zone/ nearest IMD station	24 hours	Monthly Once	Wind speed, direction, Temperature, Relative humidity and Rainfall.
2	Air Pollution Monitoring – PM _{2.5} , PM ₁₀ , SO ₂ and NO _x	5 locations (One station in the core zone and at least one in nearby residential, area, one in the upwind, two station on the downwind direction and one in cross wind direction).	8 hours	Once in six months	Fine Dust Sampler and Respirable Dust Sampler
3	Water Pollution Monitoring	Mine effluents, Set of grab samples during pre and post monsoon for ground and surface water in the vicinity.	–	Once in six months	Phyiso–chemical, microbiological characteristics
4	Hydrogeology	Water level in open wells in buffer zone around 1km at specific wells	-	Once in six months	Water level monitoring devices may be used.
5	Noise	Mine Boundary, high noise generating areas within the lease and at the	24 hours	Monthly Once	Sound level meter

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

		nearest residential area			
6	Vibration	At the nearest habitation (in case of reporting)	–	During blasting operation	Digital Seismograph
7	Soil	Core zone and Buffer zone (Grab samples)	–	Once in six months	Physical and Chemical characteristics

11.7 Project Benefits

The proponent is very much conscious of their obligations to society at large. Under plantation program, it is suggested to develop green belt further all along the boundary of mining lease area. Apart from the green belts and aesthetic plantation for eliminating fugitive emission and noise control, all other massive plantation efforts will be executed with the assistance of experts and cooperation of the local community.

The mining activity will create rural employment. In addition, there will be indirect employment to many more people in the form of contractual jobs like construction of infrastructural facilities, transportation to destinations, sanitation, supply of goods and services to the mine and other community services, etc., The local population will have preference to get an employment. Part of the royalty is given to local bodies by the State Govt. for the welfare and development of the village. The proponent helps in socio economic development of the village by providing education facilities to children's, procuring sports equipments, welfare amenities like drinking water to school, road facilities to villages and employment opportunities to nearby villagers. CSR budget is allocated as 2.5% of the profit.

11.8 Conclusion

As discussed, it is safe to say that the project is not likely to cause significant impact on the ecology and environment of the area, as adequate preventive measures will be adopted to contain the pollutants within permissible limits. The total operation shall be carried out with ease & minimum risk of the workers. The proposed Environmental Management Plan will keep the area in a safe environment with negligible impact on the environment. Plantation will substantiate the impact due to the mining activity. Mining activity will help in improving the socio-economic benefits in areas like employment, communication and infrastructure development etc.

CHAPTER - 12: DISCLOSURE OF CONSULTANTS ENGAGED

AADHI BOOMI MINING AND ENVIRO TECH (P) LTD, a QCI/NABET Accredited EIA Consultant Organization having its Registered Office at Salem and Branch at Porur, Chennai were promoted by a team of professional Geologists\ Mining\ Environment\ Civil\ Mechanical\ Chemical Engineers\ Scientists. The company has vast experience in various disciplines including Exploration and mining of minerals and was incorporated in 2002 in the name of Suriya Mining Services providing expert advice and solutions for clients' requirement in the field of Mineral prospecting, Exploration, Mining, Geo-technical, Techno economic Feasibility reports\evaluation, Mineral Engineering, Environment Impact Assessment (EIA), Environment Management Plan (EMP), Environment Monitoring and related liaison jobs like Environment Clearance, Wild life and Forest clearance from DEIAA/SEIAA/NBWL/CRZ, MoEF& CC etc of all accredited sectors.

12.1 SCOPE

- EIA & EMP for all accredited sectors and monitoring as per SPCB/CPCB/MoEF & CC
- Environment/ Wild life/ CRZ/ Forest Clearance
- Social Impact Analysis (SIA) and Eco-Biodiversity studies for Mine Closure Plan
- Remote Sensing & GIS including Satellite data processing, ASTER, DEM etc for application in Forest, Agriculture, Disaster, Mineral Exploration, Environment Modelling, Town planning etc.,
- Geological Surveying, Mapping, Exploration and Project Management
- Geophysical, Geochemical & Geotechnical studies to locate concealed deposit\ formation including structural studies
- Noise and Vibration studies as per DGMS\MoEF & CC to design controlled blasting where inhabitations are located within 300m
- Mine Design and costing, selection of Machineries and Project Evaluation
- Statutory Mine Plans & Sections, Mining Plan and other mandatory projects
- Design and development of Mineral Beneficiation Plant including mineral separation studies.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

12.2 INFRASTRUCTURE

- Our Human resources are well expertise in all functional areas as per Ver. 3 of NABET\QCI. Our Hi-Tech ISO certified Office and Lab are accredited by NABL and MoEF&CC.
- And have latest field Investigation devices like Respirable and Fine Dust Samplers, Digital Seismograph, DDR3 Resistivity Meter, Echo sounder, DGPS, Total Station, Water level monitoring meters, GPS 62S, Sound Level Meter etc.

12.3 DISCLOSURE OF CONSULTANT FOR EIA STUDY

Thiru V.Gangesan, appointed AADHI BOOMI MINING AND ENVIRO TECH PRIVATE LTD, having its office at 3/216, K.S.V Nagar, Narasothipatti, Alagapuram, Salem – 636 004, Tamil Nadu, for preparation of EIA/EMP report for obtaining Environment Clearance from SEIAA/SEAC, Tamil Nadu.

AADHI BOOMI MINING AND ENVIRO TECH PRIVATE LTD has MoU with EKDANT ENVIRO SERVICES (P) LTD laboratory at Chennai and has own Laboratory named ABM ENVIRONMENTAL AND ANALYTICAL LABORATORY, accredited by NABL for sampling and testing of air, water, noise and soil samples. Ekdant Enviro Services are recognized by the Ministry of Environment and Forests, Government of India under the relevant provision of Environment (Protection) Act 1986 and Accredited by NABL and NABET, Quality Council of India, New Delhi.

S. No.	Study	Consultants/LAB
1	Generation of Base Line Data	Aadhi Boomi Mining & Enviro Tech P Ltd, Salem Ekdant Enviro Services (P) Ltd, Chennai
2	Remote Sensing and Land use/Land cover Studies	Aadhi Boomi Mining & Enviro Tech P Ltd, Salem
3	Preparation of EIA and EMP Report	Aadhi Boomi Mining & Enviro Tech P Ltd, Salem



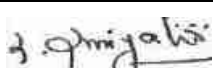
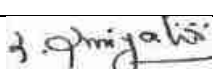
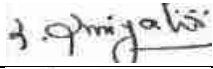
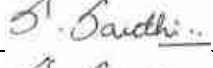
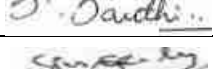



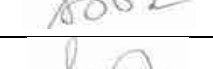
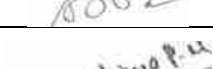
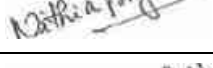
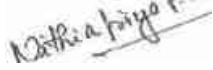
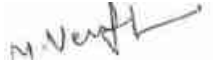
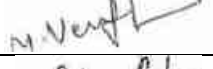

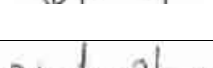
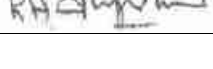
12.4 DECLARATION OF EXPERTS INVOLVED IN THE EIA REPORT PREPARATION

Names of the EIA coordinator, Functional Area Experts and other Team Members engaged and nature of consultancy rendered is provided in NABET Annexure –VII of EIA report. The multidisciplinary team comprises of Environmental Engineers, Geologists and Geographers who involved in preparation of Environmental Impact Assessment Report and Environment Management Plan for various functions like Air quality, Water quality, Noise levels, Soil Conservation, Hydro geology, Ecology and bio-diversity, Land use and Socio-Economics.

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

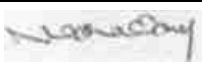




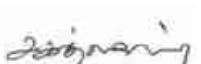




Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

DECLARATION OF EXPERTS - NABET ANNEXURE – VII

S.No	Name of the Expert	Category	Functional Areas	Signature
In-House Experts				
1.	Mr.S.Suriyakumar	A	EIA Co-ordinator	
		A	Solid and Hazardous Waste SHW*- HW* only	
		A	Risk Assessment and Hazard Management (RH)	
		A	Land Use (LU)	
		A	Soil Conservation (SC)	
2.	Mrs. S. Santhi	B	Land Use (LU)	
		B	Socio Economics (SE)	
3.	Mr.K.Thirumeni	B	EIA Co-ordinator - Building and Construction	
		B	EIA Co-ordinator - Highways	
		B	Land use (LU)	
4.	R.R Prakash Babu	B	Air Pollution, Monitoring, Prevention and Control (AP)	
		B	Noise and Vibration (NV)	
5.	Dr. Nithia Priya P.M	B	Air Pollution, Monitoring, Prevention and Control (AP)	
		B	Water Pollution Monitoring, Prevention and Control (WP)	
6.	Mr. M. Venkatesh Prabhu	B	Meteorology, Air Quality Modelling & Prediction (AQ)	
		B	Noise and Vibration (NV)	
7.	Mr. K. Manuraj	B	Geology (GEO)	
			Hydrogeology (HG)	
8.	V. Sudha	B	Ecology and Biodiversity	
Empanelled Experts				

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Proponent: V.Gangesan, Rough Stone and Gravel Quarry, Tiruppur District

9.	Dr. Nallathambi Varadarajan	A	Geology (Geo)	
		A	Hydrology, ground water and water conservation (HG)	
10.	Bidisha Roy	B	Meteorology, Air Quality Modelling & Prediction (AQ)	Bidisha Roy
Team Member Involved in Report Preparation				
11.	Mrs. S. Sri Vidhya	Team Member	Water Pollution Monitoring, Prevention and Control (WP) under FAE - Dr. Nithia Priya P.M	
			Meteorology, Air Quality Modelling & Prediction (AQ) under FAE - Mr. M. Venkatesh Prabhu	
12.	Mr. S. Sagath Srikrishnan	Team Member	Solid hazardous Waste (SHW) under FAE Mr. Suriyakumar. S	
			Water Pollution Monitoring, Prevention and Control (WP) under FAE - Dr. Nithia Priya P.M	
13.	Mrs. A. Nagadevi	Team Member	Water Pollution Monitoring, Prevention and Control (WP) under FAE - Dr. Nithia Priya P.M	
			Ecology and Biodiversity (EB) under FAE – V. Sudha	
14.	Mr. A. Jagadeesh Kumar	Team Member	Noise and vibration under FAE - Mr. M. Venkatesh Prabhu	
			Meteorology, Air Quality Modelling & Prediction (AQ) under FAE - Mr. M. Venkatesh Prabhu	

Annexure-I: Copy of Terms of Reference



File No: 10592

Government of India

Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment
Authority(SEIAA), TAMIL NADU)



Dated 03/04/2024



To,

GANGESAN VELUSAMY
GANGESAN VELUSAMY
No 5/10 Mariyappa Devar Street Sulur Taluk Coimbatore District, COIMBATORE, TAMIL NADU,
641402
gangesanrst@gmail.com

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

Sir/Madam,

This is in reference to your application for Grant of Terms of Reference under the provision of the EIA Notification 2006-regarding in respect of project Kodangipalayam Rough Stone and Gravel Quarry submitted to Ministry vide proposal number SIA/TN/MIN/454038/2023 dated 02.12.2023.

Reference:

1. Online proposal No.SIA/TN/MIN/454038/2023, dated: 02.12.2023.
2. Your application submitted for Terms of Reference dated: 15.12.2023

2. The particulars of the proposal are as below :

(i) TOR Identification No.	TO23B0108TN5824253N
(ii) File No.	10592
(iii) Clearance Type	TOR
(iv) Category	B1
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals
(vii) Name of Project	Kodangipalayam Rough Stone and Gravel Quarry
(viii) Name of Company/Organization	GANGESAN VELUSAMY
(ix) Location of Project (District, State)	TIRUPPUR, 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 Ministry for an appraisal by the State Environment Impact Assessment Authority (SEIAA) Appraisal Committee (SEIAA) in the Ministry under the provision of EIA notification 2006 and its subsequent amendments.

4. The above-mentioned proposal has been considered by State Environment Impact Assessment Authority (SEIAA) Appraisal Committee of SEIAA in the meeting held on 18/03/2024. The minutes of the meeting and all the Application and documents submitted [(viz. Form-1 Part A, Part B, Part C EIA, EMP)] are available on PARIVESH portal which can be accessed by scanning the QR Code above.
5. The State Expert Appraisal Committee (SEAC), based on the information & clarifications provided by the project proponent and after detailed deliberations recommended the proposal for grant of Terms of Reference under the provision of EIA Notification, 2006 and as amended thereof subject to the stipulation of specific and general conditions as detailed in Annexure (2).
6. The SEIAA has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and after accepting the recommendations of the State Environment Impact Assessment Authority (SEIAA) Appraisal Committee hereby decided to grant Terms of Reference for instant proposal of M/s. GANGESAN VELUSAMY under the provisions of EIA Notification, 2006 and as amended thereof.
7. The Ministry/SEIAA-TN reserves the right to stipulate additional conditions, if found necessary.
8. The Terms of Reference to the aforementioned project is under provisions of EIA Notification, 2006. It does not tantamount to approvals/consent/permissions etc. required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/ Regulations or Statutes, as applicable, to the project.
9. This issues with the approval of the Competent Authority.
10. The TORs with public hearing prescribed shall be valid for a period of three years from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.

Copy To

1. The Additional Chief Secretary to Government, Environment, Climate Change and Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi 110032.
3. The Member Secretary, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-600 032.
4. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC, Paryavaran Bhavan, CGO Complex, New Delhi 110003
5. The District Collector, Tiruppur District.
6. Stock File

Annexure 1

Specific Terms of Reference for (Mining Of Minerals)

1. Seiaa Standard Conditions:

S. No	Terms of Reference
1.1	<p><u>Cluster Management Committee</u></p> <p>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.</p> <p>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.,</p>

S. No	Terms of Reference
	<p>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.</p> <p>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.</p> <p>5. The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.</p> <p>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.</p> <p>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.</p> <p>8. The committee shall furnish the Emergency Management plan within the cluster.</p> <p>9. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.</p> <p>10. The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.</p> <p>11. The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.</p> <p><u>Impact study of mining</u></p> <p>12. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following</p> <ol style="list-style-type: none"> Soil health & soil biological, physical land chemical features . Climate change leading to Droughts, Floods etc. Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people. Possibilities of water contamination and impact on aquatic ecosystem health. Agriculture, Forestry & Traditional practices. Hydrothermal/Geothermal effect due to destruction in the Environment. Bio-geochemical processes and its foot prints including environmental stress. Sediment geochemistry in the surface streams. <p><u>Agriculture & Agro-Biodiversity</u></p> <p>13. Impact on surrounding agricultural fields around the proposed mining Area.</p> <p>14. Impact on soil flora & vegetation around the project site.</p> <p>15. Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.</p> <p>16. The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.</p> <p>17. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.</p> <p>18. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.</p> <p><u>Forests</u></p> <p>19. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.</p> <p>20. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.</p> <p>21. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.</p> <p>22. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests,</p>

S. No	Terms of Reference
	<p>National Parks, Corridors and Wildlife pathways, near project site.</p> <p><u>Water Environment</u></p> <p>23. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.</p> <p>24. Erosion Control measures.</p> <p>25. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.</p> <p>26. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.</p> <p>27. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.</p> <p>28. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.</p> <p>29. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.</p> <p>30. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.</p> <p><u>Energy</u></p> <p><u>Climate Change</u></p> <p>32. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.</p> <p>33. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.</p> <p><u>Mine Closure Plan</u></p> <p><u>EMP</u></p> <p>35. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.</p> <p>36. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.</p> <p><u>Risk Assessment</u></p> <p><u>Disaster Management Plan</u></p> <p><u>Others</u></p> <p>39. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.</p> <p>40. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.</p> <p>41. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.</p>

2. Mining Conditions - Site Specific

S. No	Terms of Reference
2.1	<p>1. The project proponent shall furnish Certified Compliance Report (CCR) obtained from IRO (SZ), MoEF&CC and with mitigation measures along with the budgetary allocation for the non-compliance stated therein.</p> <p>2. Land document to be registered.</p> <p>3. For the safety of the persons employed in the quarry, the PP shall carry out the scientific studies to assess the slope stability of the working benches and existing quarry wall during the EIA study, 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 for evaluating the slope stability measures and monitoring system in the proposed quarrying operation in accordance with the provisions of MMR 1961 & DGMS Circulars and the same shall be submitted along with EIA Report.</p> <p>4. 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 and the same shall be submitted along with EIA Report.</p> <p>5. The proponent shall furnish the details on the schools (both Govt. & Private schools), industries, factories and other sensitive structures including temples located within 1 km from the quarry site, and detail the impact of mining activities & mitigation measures for protecting these structures.</p> <p>6. No. of Govt/Pvt. Schools (or) any other Educational Institutions located within 500m from the proposed area & no. of students (including Residential) studying in it.</p>

3. Seac Standard Conditions

S. No	Terms of Reference
3.1	<p>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:</p> <ul style="list-style-type: none"> (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. <p>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.</p> <p>3. 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.</p> <p>4. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.</p> <p>5. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.</p> <p>6. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or</p>

S. No	Terms of Reference
	<p>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.</p> <p>7. 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.</p> <p>8. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.</p> <p>9. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.</p> <p>10. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.</p> <p>11. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,</p> <p>12. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?</p> <p>13. Quantity of minerals mined out.</p> <ul style="list-style-type: none"> ● 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. <p>14. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).</p> <p>15. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,</p> <p>16. 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.</p> <p>17. 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.</p> <p>18. 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.</p> <p>19. 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</p>

S. No	Terms of Reference
	<p>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.</p> <p>20. 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.</p> <p>21. 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.</p> <p>22. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.</p> <p>23. 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.</p> <p>24. 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.</p> <p>25. 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.</p> <p>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.</p> <p>27. Impact on local transport infrastructure due to the Project should be indicated.</p> <p>28. 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.</p> <p>29. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.</p> <p>30. 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.</p> <p>31. 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.</p> <p>32. 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</p> <p>33. 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.</p> <p>34. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP</p>

S. No	Terms of Reference
	<p>Report for the complete life of the proposed quarry (or) till the end of the lease period.</p> <p>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.</p> <p>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.</p> <p>37. 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.</p> <p>38. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.</p> <p>39. 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.</p> <p>40. 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.</p> <p>41. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.</p> <p>42. 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.</p>

Standard Terms of Reference for (Mining of minerals)

1.

S. No	Terms of Reference
1.1	An EIA-EMP Report shall be prepared for peak capacity (.....MTPA)operation in an ML/project area of.....ha based on the generic structure specified in Appendix III of the EIA Notification, 2006.
1.2	An EIA-EMP Report would be prepared for peak capacity operation to cover the impacts and environment management plan for the project specific activities on the environment of the region, and the environmental quality encompassing air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts including prediction modeling for..... MTPA of mineral production based on approved project/Mining Plan for.....MTPA. Baseline data collection can be for any season (three months) except monsoon.
1.3	Propoer KML file with pin drop and coordinate of mine at 500-1000 m interval be provided
1.4	A Study area map of the core zone (project area) and 10 km area of the buffer zone (1: 50,000 scale) clearly delineating the major topographical features such as the land use, surface drainage pattern including rivers/streams/nullahs/canals, locations of human habitations, major constructions including railways, roads, pipelines, major industries, mines, and other polluting sources. In case of ecologically sensitive areas such as Biosphere Reserves/National Parks/WL Sanctuaries/ Elephant Reserves, forests (Reserved/Protected), migratory corridors of fauna, and areas where endangered

S. No	Terms of Reference								
	fauna and plants of medicinal and economic importance found in the 15 km study area should be given. The above details to be furnished in tabular form also								
1.5	Map showing the core zone delineating the agricultural land (irrigated and un-irrigated, uncultivable land as defined in the revenue records, forest areas (as per records), along with other physical features such as water bodies, etc should be furnished.								
1.6	A contour map showing the area drainage of the core zone and 25 km of the study area (where the water courses of the core zone ultimately join the major rivers/streams outside the lease/project area) should also be clearly indicated in the separate map.								
1.7	Catchment area with its drainage map of 25 km area within and outside the mine shall be provided with names, details of rivers/ riverlet system and its respective order. The map should clearly indicate drainage pattern of the catchment area with basin of major rivers. Diversion of drains/ river need elaboration in form of length, quantity and quality of water to be diverted								
1.8	(Details of mineral reserves, geological status of the study area and the seams to be worked, ultimate working depth and progressive stage-wise working scheme until the end of mine life should be provided on the basis of the approved rated capacity and calendar plans of production from the approved Mining Plan. Geological maps and sections should be included. The Progressive mine development and Conceptual Final Mine Closure Plan should also be shown in figures. Details of mine plan and mine closure plan approval of Competent Authority should be furnished for green field and expansion projects.								
1.9	Details of mining methods, technology, equipment to be used, etc., rationale for selection of specified technology and equipment proposed to be used vis-à-vis the potential impacts should be provided.								
1.10	Impact of mining on hydrology, modification of natural drainage, diversion and channeling of the existing rivers/water courses flowing through the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.								
1.11	A detailed Site plan of the mine showing the proposed break-up of the land for mining operations such as the quarry area, OB dumps, green belt, safety zone, buildings, infrastructure, Stockyard, township/colony (within and adjacent to the ML), undisturbed area -if any, and landscape features such as existing roads, drains/natural water bodies to be left undisturbed along with any natural drainage adjoining the lease /project areas, and modification of thereof in terms of construction of embankments/bunds, proposed diversion/re-channelling of the water courses, etc., approach roads, major haul roads, etc should be indicated.								
1.12	<p>Original land use (agricultural land/forestland/grazing land/wasteland/water bodies) of the area should be provided as per the tables given below. Impacts of project, if any on the land use, in particular, agricultural land/forestland/grazing land/water bodies falling within the lease/project and acquired for mining operations should be analyzed. Extent of area under surface rights and under mining rights should be specified. Area under Surface Rights</p> <table border="1" data-bbox="336 1877 1469 1951"> <thead> <tr> <th data-bbox="336 1877 632 1912">S.N ML/Project Land use</th> <th data-bbox="632 1877 847 1912">Area under Surface Rights(ha)</th> <th data-bbox="847 1877 1214 1912">Area Under Mining Rights(ha)</th> <th data-bbox="1214 1877 1469 1912">Area under Both (ha)</th> </tr> </thead> <tbody> <tr> <td data-bbox="336 1951 632 1986">1 Agricultural land</td> <td data-bbox="632 1951 847 1986"></td> <td data-bbox="847 1951 1214 1986"></td> <td data-bbox="1214 1951 1469 1986"></td> </tr> </tbody> </table>	S.N ML/Project Land use	Area under Surface Rights(ha)	Area Under Mining Rights(ha)	Area under Both (ha)	1 Agricultural land			
S.N ML/Project Land use	Area under Surface Rights(ha)	Area Under Mining Rights(ha)	Area under Both (ha)						
1 Agricultural land									

S. No	Terms of Reference
	contribute to carbon emission so what will be the compensatory action plan should be clearly spell out in EIA/ EMP report.
1.18	The socio-economic study to conducted with actual survey report and a comparative assessment to be provided from the census data should be provided in EIA/ EMP report also occupational status & economic status of the study area and what economically project will contribute should be clearly mention. The study should also include the status of infrastructural facilities and amenities present in the study area and a comparative assessment with census data to be provided and to link it with the initialization and quantification of need based survey for CSR activities to be followed.
1.19	The Ecology and biodiversity study should also indicate the likely impact of change in forest area for surface infrastructural development or mining activity in relation to the climate change of that area and what will be the compensatory measure to be adopted by PP to minimize the impact of forest diversion.
1.20	Baseline data on the health of the population in the impact zone and measures for occupational health and safety of the personnel and manpower for the mine should be submitted.
1.21	Impact of proposed project/activity on hydrological regime of the area shall be assessed and report be submitted. Hydrological studies as per GEC 2015 guidelines to be prepared and submitted
1.22	Impact of mining and water abstraction from the mine on the hydrogeology and groundwater regime within the core zone and 10 km buffer zone including long-term monitoring measures should be provided. Details of rainwater harvesting and measures for recharge of groundwater should be reflected in case there is a declining trend of groundwater availability and/or if the area falls within dark/grey zone.
1.23	Study on land subsidence including modeling for prediction, mitigation/prevention of subsidence, continuous monitoring measures, and safety issues should be carried out.
1.24	Detailed water balance should be provided. The break up of water requirement as per different activities in the mining operations, including use of water for sand stowing should be given separately. Source of water for use in mine, sanction of the Competent Authority in the State Govt. and impacts vis-à-vis the competing users should be provided.
1.25	PP shall submit design details of all Air Pollution control equipment (APCEs) to be implemented as part of Environment Management Plan vis-à-vis reduction in concentration of emission for each APCEs
1.26	PP shall propose to use LNG/CNG based mining machineries and trucks for mining operation and transportation of mineral. The measures adopted to conserve energy or use of renewable sources shall be explored
1.27	PP to evaluate the green house emission gases from the mine operation and corresponding carbon absorption plan.
1.28	Site specific Impact assessment with its mitigation measures, Risk Assessment and Disaster Preparedness and Management Plan should be provided.
1.29	Impact of choice of mining method, technology, selected use of machinery and impact on air

S. No	Terms of Reference
	quality, mineral transportation, handling & storage/stockyard, etc, Impact of blasting, noise and vibrations should be provided.
1.30	Impacts of mineral transportation within the mining area and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions should be provided. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop etc, management plan for maintenance of HEMM and other machinery/equipment should be given. Details of various facilities such as rest areas and canteen for workers and effluents/pollution load emanating from these activities should also be provided.
1.31	Details of various facilities to be provided to the workers in terms of parking, rest areas and canteen, and effluents/pollution load resulting from these activities should also be given.
1.32	The number and efficiency of mobile/static water jet, Fog cannon sprinkling system along the main mineral transportation road inside the mine, approach roads to the mine/stockyard/siding, and also the frequency of their use in impacting air quality should be provided.
1.33	Conceptual Final Mine Closure Plan and post mining land use and restoration of land/habitat to the pre- mining status should be provided. A Plan for the ecological restoration of the mined out area and post mining land use should be prepared with detailed cost provisions. Impact and management of wastes and issues of re-handling (wherever applicable) and backfilling and progressive mine closure and reclamation should be furnished.
1.34	Adequate greenbelt nearby areas, mineral stock yard and transportation area of mineral shall be provided with details of species selected and survival rate Greenbelt development should be undertaken particularly around the transport route.
1.35	Cost of EMP (capital and recurring) should be included in the project cost and for progressive and final mine closure plan.
1.36	Details of R&R. Detailed project specific R&R Plan with data on the existing socio- economic status of the population (including tribals, SC/ST, BPL families) found in the study area and broad plan for resettlement of the displaced population, site for the resettlement colony, alternate livelihood concerns/employment for the displaced people, civic and housing amenities being offered, etc and costs along with the schedule of the implementation of the R&R Plan should be given.
1.37	CSR Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project should be given.
1.38	Corporate Environment Responsibility:
1.39	a) The Company must have a well laid down Environment Policy approved by the Board of Directors.
1.40	b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.
1.41	c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.

S. No	Terms of Reference												
1.42	d) To have proper checks and balances, the company should have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.												
1.43	e) Environment Management Cell and its responsibilities to be clearly spelled out in EIA/ EMP report												
1.44	f) In built mechanism of self-monitoring of compliance of environmental regulations should be indicated.												
1.45	Status of any litigations/ court cases filed/pending on the project should be provided.												
1.46	PP shall submit clarification from DFO that mine does not fall under corridors of any National Park and Wildlife Sanctuary with certified map showing distance of nearest sanctuary.												
1.47	Copy of clearances/approvals such as Forestry clearances, Mining Plan Approval, mine closure plan approval. NOC from Flood and Irrigation Dept. (if req.), etc. wherever applicable.												
1.48	<p>Details on the Forest Clearance should be given as per the format given:</p> <table border="1" data-bbox="331 927 1474 1151"> <thead> <tr> <th>Total Project Area (ha)</th> <th>Total Forest land (ha)</th> <th>Date of FC</th> <th>Extent of Forest Land</th> <th>Balance area for which FC is yet to be obtained</th> <th>Status of appl For diversion of forest land</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>If more than one provide details of each FC</p>	Total Project Area (ha)	Total Forest land (ha)	Date of FC	Extent of Forest Land	Balance area for which FC is yet to be obtained	Status of appl For diversion of forest land						
Total Project Area (ha)	Total Forest land (ha)	Date of FC	Extent of Forest Land	Balance area for which FC is yet to be obtained	Status of appl For diversion of forest land								
1.49	In case of expansion of the proposal, the status of the work done as per mining plan and approved mine closure plan shall be detailed in EIA/ EMP report												
1.50	Details on Public Hearing should cover the information relating to notices issued in the newspaper, proceedings/minutes of Public Hearing, the points raised by the general public and commitments made by the proponent and the time bound action proposed with budgets in suitable time frame. These details should be presented in a tabular form. If the Public Hearing is in the regional language, an authenticated English Translation of the same should be provided.												
1.51	PP shall carry out survey through drone highlighting the ground reality for atleast 10 minutes												
1.52	Detailed Chronology of the project starting from the first lease deed allotted/Block allotment/ Land acquired to its No. of renewals, CTO /CTE with details of no. renewals, previous EC(s) granted details and its compliance details, NOC details from various Govt bodies like Forest NOC(s), CGWA permissions, Power permissions, etc as per the requisites respectively to be furnished in tabular form.												
1.53	The first page of the EIA/ EMP report must mention the peak capacity production, area, detail of PP, Consultant (NABET accreditation) and Laboratory (NABL / MoEF & CC certification)												
1.54	The compliances of ToR must be properly cited with respective chapter section and page no in tabular form and also mention sequence of the respective ToR complied within the EIA-EMP report												

S. No	Terms of Reference
	in all the chapter,s section.



Annexure-II: Copy of Precise Area Communication Letter

ந.க.எண். 48/கனிமம்/ 2023

புவியியல் மற்றும் சுரங்கத்துறை
மாவட்ட ஆட்சியர் அலுவலகம்,
திருப்பூர்.



நாள்: 15.09.2023.

குறிப்பாணை

பொருள் : கனிமங்களும் சுரங்கங்களும் - சிறுகனிமம் - சாதாரண கற்கள் - திருப்பூர் மாவட்டம் - பல்லடம் வட்டம் - கோடங்கிபாளையம் கிராமம் - புல எண்கள். 103/3A1A (P) (1.00.0), 103/3A2 (0.40.5) மற்றும் 103/3B1 (0.40.5) ஆகியவற்றில் மொத்தம் 1.81.0 ஹெக்டர் பட்டா நிலப்பரப்பில் சாதாரண கற்கள் / கிராவல் மண் வெட்டி எடுக்க 5 வருடங்களுக்கு குவாரி குத்தகை உரிமம் கோரி திரு. V. கங்கேசன், த/பெ. வேலுச்சாமி, என்பவர் மனு அளித்தது-புலத்தணிக்கை அறிக்கை சமர்ப்பிக்கப்பட்டது - தகுதியான நிலப்பரப்பாக கருதி ஏற்பளிக்கப்பட்ட சுரங்க திட்டம் மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய இசைவினை பெற்று சமர்ப்பிக்கக் கோருதல் - தொடர்பாக.

- பார்வை :
1. திரு. ஏ. கங்கேசன், த/பெ. வேலுச்சாமி, எண். 5/10, மாரியப்ப தேவர் வீதி, சூலூர் வட்டம், கோவை மாவட்டம் என்பவரின் மனு நாள்: 08.02.2023.
 2. இவ்வலுவலக ந.க.எண். 48/2023/கனிமம் நாள்:08.02.2023.
 3. இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, சென்னை ந.க. 1870/எம்.எம்.1/2020 நாள்: 10.08.2020 கடிதத்துடன் அரசாணை (பல்வகை) எண். 169, தொழில் (எம்.எம்.சி-1) துறை நாள்: 04.08.2020 இணைத்து வரப்பெற்றுள்ளது. (சுமீநாடு அரசிதழ் சிறப்பு வெளியீடு எண். 315 நாள்: 04.08.2020).
 4. வட்டார வளர்ச்சி அலுவலர் (வ.ஊ), பல்லடம் கடிதம் ந.க. 2503/2023/அ3 நாள்: 27.07.2023
 5. வட்டாட்சியர், பல்லடம் கடிதம் ந.க. 2880/2023/அ4 நாள்: 24.06.2023
 6. சார் ஆட்சியர், திருப்பூர் கடிதம் ந.க. 3980/2023/அ3 நாள்: 17.08.2023
 7. உதவி இயக்குநர் (பொ) / உதவிப் புவியியலாளர் (கனிமம்), திருப்பூர் புலத்தணிக்கை அறிக்கை நாள்: 30.08.2023.
 8. மற்றும் உரிய ஆவணங்கள்

திருப்பூர் மாவட்டம், பல்லடம் வட்டம், கோடங்கிபாளையம் கிராமம், புல எண்கள். 103/3A1A (P) (1.00.0), 103/3A2 (0.40.5) மற்றும் 103/3B1 (0.40.5) ஆகியவற்றில் மொத்தம் 1.81.0 ஹெக்டர் பரப்புள்ள பட்டா பூமியிலிருந்து 5 வருடங்களுக்கு சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க திரு. V. கங்கேசன், த/பெ. வேலுச்சாமி, என்பவர் பார்வையில் கண்டவாறு விண்ணப்பம் அளித்துள்ளார்.

2. மேற்படி விண்ணப்பங்கள் தொடர்பாக, வட்டார வளர்ச்சி அலுவலர், பல்லடம், வட்டாட்சியர், பல்லடம், சார் ஆட்சியர், திருப்பூர், மற்றும் உதவி இயக்குநர் (பொ) / உதவிப் புவியியலாளர் (கனிமம்), திருப்பூர் ஆகியோர் புலத்தணிக்கை மேற்கொண்டு திருப்பூர்

மாவட்டம், பல்லடம் வட்டம், கோடங்கிபாளையம் கிராமம், புல எண்கள். 103/3A1A (P) (1.00.0), 103/3A2 (0.40.5) மற்றும் 103/3B1 (0.40.5) ஆகியவற்றில் மொத்தம் 1.81.0 ஹெக்டர் பரப்பில் திரு. V. கங்கேசன், த/பெ. வேலுச்சாமி என்பவருக்கு சாதாரண கற்கள் மற்றும் கிராவல் மண் குவாரி உரிமம் வழங்க கீழ்க்கண்ட நிபந்தனைகளுக்குட்பட்டு அனுமதி வழங்கலாம் என பரிந்துரை செய்துள்ளனர்.

நிபந்தனைகள்:

- a. 1959ம் வருடத்திய தமிழ்நாடு சிறு கனிம சலுகை விதிகள், அட்டவணை IIல் கண்டுள்ளபடி குவாரி செய்யப்படும் கனிமங்களுக்குரிய சீனியரேஜ் தொகை அவ்வப்போது செலுத்தி கனிமம் கொண்டு செல்லப்பட வேண்டும்.
- b. அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5 மீ பாதுகாப்பு இடைவெளி விட்டு குவாரிப் பணி மேற்கொள்ள வேண்டும்.
- c. குத்தகை கோரும் புலத்தின் கிழக்கு எல்லைக்கு இணையாகச் செல்லும் கிராம பாதைக்கு 10 மீ பாதுகாப்பு இடைவெளி அளித்து குவாரிப்பணி செய்ய வேண்டும்.
- d. அனுபவம் வாய்ந்த வெடிபொருள் பயன்படுத்துவோர் மூலம் குறைந்த அளவு சக்தி கொண்ட வெடிபொருட்களை பயன்படுத்தி அருகிலுள்ள பட்டாதாரர்களுக்கு எவ்வித இடையூறியின்றி / அருகிலுள்ள பட்டா மற்றும் அரசு புலங்களில் எவ்வித ஆக்கிரமிப்பும் இன்றி குவாரிப்பணி மேற்கொள்ள வேண்டும்.
- e. விதிகளின் படி ஏற்பளிக்கப்பட்ட சுரங்கத்திட்டத்தினை உரிய காலத்திற்குள் சமர்ப்பிக்க வேண்டும்.
- f. குத்தகை பத்திரம் நிறைவேற்றுவதற்கு முன்பு குவாரி உரிமம் கோரும் புலத்தை சுற்றி கம்பி வேலி அமைக்கப்பட வேண்டும்.
- g. பிரஸ்தாப புலத்திற்கு DGPS அளவீடு செய்யப்பட்டு அதற்கான வரைபடத்தினை அசல் மற்றும் குறுந்தகட்டிலும் சமர்ப்பிக்க வேண்டும்.
- h. குவாரியில் விதிமீறல்கள் ஏதேனும் கண்டறியப்பட்டால் தமிழ்நாடு சிறுகனிம சலுகை விதிகள், 1959 ல் குறிப்பிட்டுள்ள விதிகளின்படி அபராத நடவடிக்கை மேற்கொள்ளப்படும்.
- i. குவாரி உரிமம் வழங்க உள்ள பகுதிக்கு சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் முன் அனுமதி பெற்று சமர்ப்பிக்கும் பட்சத்தில் மட்டுமே குவாரி உரிமம் வழங்கப்படும்.

3. எனவே, வட்டார வளர்ச்சி அலுவலர், பல்லடம், வட்டாட்சியர், பல்லடம், சார் ஆட்சியர், திருப்பூர், மற்றும் உதவி இயக்குநர் (பொ) / உதவிப் புவியியலாளர் (கனிமம்), திருப்பூர் ஆகியோரின் பரிந்துரை மற்றும் நிபந்தனைகளின் அடிப்படையில், திருப்பூர் மாவட்டம், கோடங்கிபாளையம் கிராமம், புல எண்கள். 103/3A1A (P) (1.00.0), 103/3A2 (0.40.5) மற்றும் 103/3B1 (0.40.5) ஆகியவற்றில் மொத்தம் 1.81.0 ஹெக்டர் பரப்பில் மட்டும் 1959ம் வருட தமிழ்நாடு சிறுகனிம விதிகள், விதி எண்.19-ன் படி மேற்கண்ட

நிபந்தனைகளுக்குட்பட்டு 5 (ஐந்து) வருட காலத்திற்கு திரு. V. கங்கேசன், த/பெ. வேலுச்சாமி என்பவருக்கு சாதாரண கற்கள் மற்றும் கிராவல் மண் குவாரி உரிமம் வழங்குவதற்கான தகுதியான நிலப்பரப்பாக கருதப்படுகிறது.



4. மேலும், தமிழ்நாடு சிறு கனிம சலுகை விதிகள்-1959 விதி எண். 41-ன்படி குவாரிப்பணி மேற்கொள்வது தொடர்பாக வரைவு சுரங்க திட்டத்தினை 90 தினங்களுக்குள் சமர்ப்பிக்குமாறு மனுதாரரைக் கேட்டுக்கொள்ளப்படுகிறது. மேலும் ஏற்பளிக்கப்பட்ட சுரங்கத்திட்டத்தின் தொடர்ச்சியாக 1959ம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகள், விதி எண்.42-ன் படி சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் இசைவினைப் பெற்று சமர்ப்பிக்கும் பட்சத்தில் மட்டுமே குவாரி உரிமம் வழங்கப்படும் என இதன் மூலம் தெரிவிக்கப்படுகிறது.

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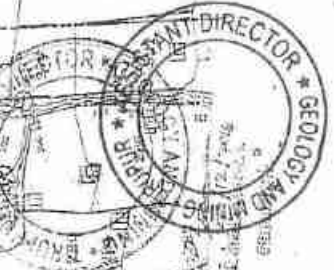
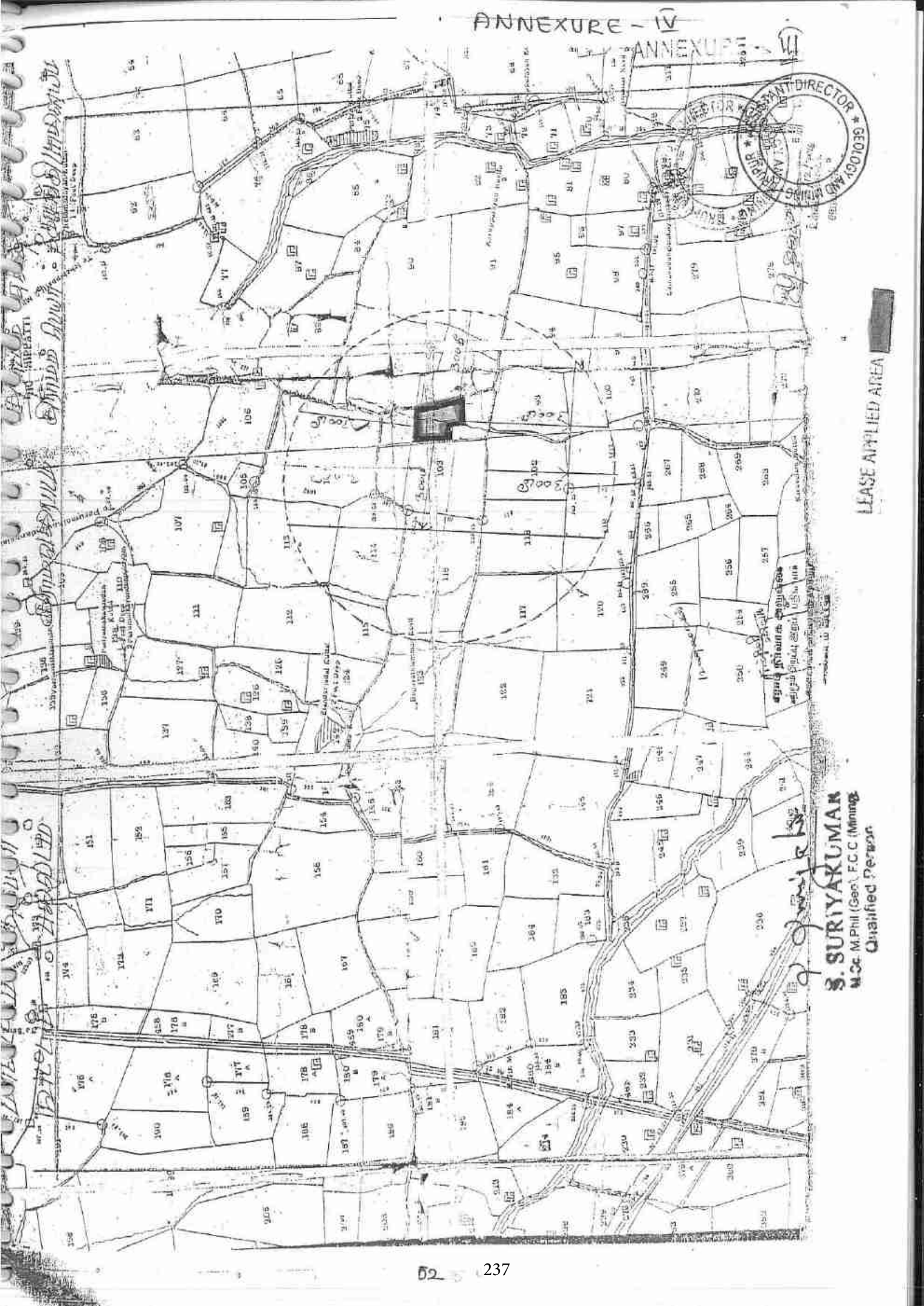
உதவி இயக்குநர் (பொ)/
உதவிப் புவியியலாளர்
புவியியல் மற்றும் சுரங்கத்துறை,
திருப்பூர்.

பெறுநர்:

திரு. ஏ. கங்கேசன்,
த/பெ. வேலுச்சாமி,
எண். 5/10, மாரியப்ப தேவர் வீதி,
குலூர் வட்டம்,
கோவை மாவட்டம்

[Handwritten signature]

[Handwritten signature]
S. SURIYAKUMAR
M.Sc. M.Phil (Geo) F.C.C (Mining)
Qualified Person



LEASE APPLIED AREA

S. SURIYAKUMAN
 M.Sc. M.Phil. (Geol.), F.C.C. (Mining)
 Qualified Person



தமிழக அரசு

வருவாய்த் துறை



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

மாவட்டம் : திருப்பூர்

வட்டம் : பல்லடம்

வருவாய் கிராமம் : கோடங்கிபாளையம்

பட்டா எண் : 1070

உரிமையாளர்கள் பெயர்

1. (லேட்) சுப்பிரமணியம்	மனைவி	மாராத்தாள்	
2. சிவசுப்பிரமணியம்	மனைவி	அம்சவேணி	
3. காங்கேசன்	மனைவி	புவனேஸ்வரி	
4. செந்தில்குமார்	மனைவி	தனலட்சுமி	

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
103	3A1A	1 - 78.50	3.58	--	--	--	--	R11/2612A--- - 15-05-2006
103	3A2	0 - 40.50	0.81	--	--	--	--	R11/2612A--- - 08-01-2002
103	3B1	0 - 40.50	0.81	--	--	--	--	R11/2612A--- - 08-01-2002
		2 - 59.50	5.20					

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 32/03/007/01070/30738 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 20-03-2023 அன்று 12:23:23 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



முதல் பெயர்	இருப்பதன் பெயர்					புள்ளி	(10)
	(1)	(2)	(3)	(4)	(5)		
...
...
...
...
...

P. Srinivasan
S. SURYAKUMAR
 M.Sc. M.Phil (Geo), F.C.C (Mining)
 Qualified Person

முதல் பெயர்	இருப்பதன் பெயர்					புள்ளி	(10)
	(1)	(2)	(3)	(4)	(5)		
...
...
...
...
...

அ-பதிவேடு விவரங்கள்

ANNEXURE -



மாவட்டம் : திருப்பூர்

வட்டம் : பல்லடம்

கிராமம் : கோடங்கிபாளையம்

1. புல் எண்	103	9. மண் வயளமும் ஈகமும்	8 - 3
2. உட்பிரிவு எண்	3A1A	10. மண் தரம்	5
3. பழைய புல் உட்பிரிவு எண்	-3A1P	11. தீர்வை (ரூ - லெ)	2.00
4. பகுதி	P	12. பாய்ப்பு (ஹெக்டேர் - ஈர்)	1 - 78.50
5. அளவு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - லெ)	3.58
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	1070
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இறு போகமா	1	16. பெயர்	மாராத்தாள்மற்றும் 3புர்

குறிப்பு 1:



1. மேற்கண்ட தகவல் / சான்றிதழ் நூல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 30738 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



மாங்கட்டம் : திருப்பூர்

வட்டம் : பல்லடம்

கிராமம் : கோடங்கிபாளையம்

1. புல் எண்	103	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	3A2	10. மண் தரம்	5
3. பழைய புல் உட்பிரிவு எண்	-3AP	11. தீர்வை (ரூ - ஹெ)	2.00
4. பகுதி	P	12. பாப்பு (ஹெக்டேர் - ஏர்)	0 - 40.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.81
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1070
7. பாசன ஆதாரம்	-	15. குறிப்பு	WELL, HOUSES.
8. இரு பேரகமா	1	16. பெயர்	மாசாத்தாளமற்றும 3புர்

குறிப்பு 1:



1. மேற்கண்ட தகவல் / சான்றிதழ் தகவல் விவரங்கள் பின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தரங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 30738 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



மாவட்டம் : திருப்பூர்

வட்டம் : பல்லடம்

கிராமம் : கோடங்கிபாளையம்

1. புல் எண்	103	9. மண் வயனமும் அகழும்	8 - 3
2. உட்பிரிவு எண்	3B1	10. மண் நாம்	5
3. பழைய புல் உட்பிரிவு எண்	-3BP	11. தீர்வை (ரு - ஹெ)	2.00
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 40.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரு - கைப)	0.81
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	1070
7. பாசன ஆதாரம்	-	15. குறிப்பு	WELL, HOUSES.
8. இந் போகஸ்	1	16. பெயர்	மாராத்தாள்மற்றும் 3பேர்

குறிப்பு 1:



1. மேற்கண்ட தகவல் / சார்ந்திதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 30738 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

9. *Suriyakumar*
S. SURIYAKUMAR
 M.Sc. M.Phil (Geo), F.C.C (Mining)
 Qualified Person



सेल रिफ्रेक्टरी कम्पनी लिमिटेड, सेलम
SAIL REFRACTORY COMPANY LTD., SALEM.
(A Govt. of India Enterprises)
(A Subsidiary of Steel Authority of India Limited)

DATE: 18.09.2018

SRCLIP&A/2017/0380 /1935

EMPLOYMENT CERTIFICATE

Employee Details :

Name : S.SURIYAKUMAR
Employee No : 100045
Grade : E-2
Designation : Asst. Manager (Geology)
Department : Mines

This is to certify that Sri. S.SURIYAKUMAR F.S.No.100045 was in the employment of this organisation from 20.03.1981 to 31.07.1992 and he has resigned & released with effect from 31.07.1992 AN.

At the time of his resignation on 31.07.1992, he was employed as Assistant Manager in the capacity of II class Mines Manager.

S. Sridharan

18/09/18
S.SRIDHARAN

Asst. General Manager (Prsl & Admn)

Post Box No. 565 Salem - 636 005. Phone : +91427-2341403/4/5/6 Fax : +91427-2341407

पोस्ट बॉक्स नं. : 565, सेलम - 636 005. फोन +91427-2341403/4/5/6 फैक्स +91427-2341407

E-mail : srclsalem@gmail.com CIN No. : U14200TZ2011GO1017357

002646.



University of Madras

FACULTY OF SCIENCE

The Senate of the *University of Madras* hereby makes known that..... *S. Suriyakumar*..... has been admitted to the Degree of Master of Science, he having been duly certified to be qualified to receive the same, and awarded an Overall Grade..... *0*..... at the Examination held in the month of..... *May*..... 19.79..... in Branch..... *VII A - Special Geology*

Given under the seal of the University, at Madras this..... *28*th..... day of..... *September*..... 19.79.....

Registrar



S. D. S. S.
B. Sc. Engg., C. Engg., F.I.E.E. (Lond.),
F.L. Div. E. (Lond.), F.I.E. (Ind.).

Vice-Chancellor



155

UNIVERSITY OF MADRAS

FACULTY OF SCIENCE

The Senate of the *University of Madras* hereby
makes known that *S. Srinivakumar*
has been admitted to the Degree of Master of Philosophy
in *Geology*, he having been certified by duly
appointed Examiners to be qualified to receive the same, and
having been by them placed in the *First* Class
at the Examination held in *September 1988*

Given under the seal of the University.

Srinivasan
September 21, 1988

P. Venkayya
Registrar

Alwar
F.N.A., F.N.A.Sc.,
Vice-Chancellor.

Government of India
Ministry of Labour
DIRECTORATE GENERAL OF MINES SAFETY



No. Exam/MNCR-1/Field/Metal/R/ 113/91 /Dated, Dhanbad, the 19

To

Shri S. Suriya Kumar,
Assistant Manager,
Mangnesite Mines, Burn Standard Co., Ltd.,
SALEM-636005, TAMIL NADU.

MEMORANDUM

Ref:-His application dated 18-7-90

By virtue of Govt. Notification
No.S.O.712(E) dated 13.12.1974 Shri S. Suriyakumar
son of Shri A. Sarban has become
eligible to work in a capacity requiring the possession
of First Class Manager's certificate,
restricted to mines having open cast workings only, under
the Metalliferous Mines Regulations, 1961 with effect
from 19th March, 1991 till the above notification
remain in force.

Encl:-

Secretary,
Board of Mining Examinations &
Director of Mines Safety (Exam)





தமிழ்நாடு தமில்நாடு TAMILNADU

ரூ. 100.00
DV 011505

தமிழ்நாடு
... எண் 26763 தேதி 7.12.2023

சுப்பிரமணியன்
சுப்பிரமணியன்


E.N. ராஜர்



முத்திரைக்காரன் விநியோகியாளர்
... எண் : 8 / 2008 / TUP
சுப்பிரமணியன்

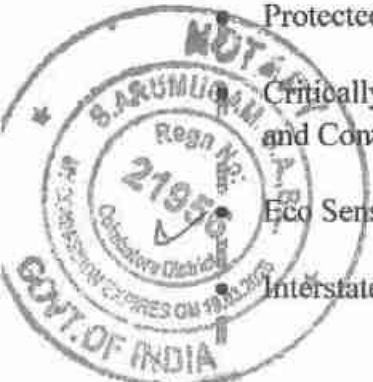
AFFIDAVIT TO SEIAA, TAMIL NADU

I, V.GANGESAN, S/o. K.S.Velusamy, 5/10, Mariyappa Devar Street, Sulur Taluk, Coimbatore District, Tamil Nadu state do here by solemnly declare and sincerely affirm that,

I have applied for getting environmental clearance to SEIAA Tamil Nadu for quarry lease for Rough stone and gravel quarry in S.F. No: 103/3A1A(P),103/3A2 and 103/3B1 over an extent of 1.81.0Ha located in, Kodangipalayam Village, Palladam Taluk, Tiruppur District, Tamil Nadu.

1. I swear to state that within 10kms radius of the mines which I have applied for environmental clearance, none of the followings are situated as per the General Conditions of EIA Notification, 2006.

- Protected areas notified under the Wildlife (Protection) Act, 1972
- Critically polluted area as identified by CPCB constituted under Water (Prevention and Control of Pollution) Act, 1974
- Eco Sensitive areas identified by the Forest Dept/State Govt
- Interstate boundaries and International boundaries





2. I will complete the following Corporate Environment Responsibility (CER) activities before commencement of the quarrying activities in addition to CSR and EMP.

CER Activity	Project Cost (Rs. In Lakh)	CER Cost 2% of Project Cost (Rs in Lakh)
Developing Sanitary and Library Facilities, Tree plantation and environmental awareness sign boards to Government High school in Kodangipalayam Village.	35.0	5.0
Total Cost Allocation	35.0	5.0

3. There are Quarries located within 500m radius from the periphery of our quarry.

Proposed Quarries

S. No	Name of the owner	Village & S.F. No	Extent (in Ha.)	Lease status
1.	Thiru. V.Gangesan,	S.F.No: 103/3A1A (P),103/3A2 and 103/3B1	1.81.0	-
2	K.M.Chinnasamy	89/4B (P), 92/2	2.42.0	-
3	R.Gunasekar	103/3B2 (P)	1.69.5	-
4	V.Prakash	103/2C	1.55.0	-
5	P. Gowtham Rathinam	91/1A (P)	2.00.0	-
6	P.Subramaniam	114/1B, 114/1C	1.99.5	-
Total Extent			11.47.0	-



[Handwritten signature]

Existing Quarries

S. No	Name of the owner	Village & S.F. No	Extent (in Ha.)	Lease status
1.	D.R.Karuppusamy	89/2A, 89/3	1.19.0	26.08.2022 to 25.08.2027
2.	M. Subbathal	114/2C, 2D, 2E1, 2E2, 2F, 2G1	1.82.0	28.12.2022 to 27.12.2027
3.	D.R.Karuppusamy	102/1	1.32.5	28.02.2022 to 27.02.2027
4.	V. Prakash	113/6	0.86.0	20.09.2019 to 19.09.2024
Total Extent			5.19.5	

Abandoned or Expired Quarries

Sl. No	Name of the owner	Village & S.F. No	Extent (in Ha.)	Lease status
1	P.Vijayalakshmi	116/3B (P)	0.70.0	03.10.2018 to 02.10.2023
Total Extent			0.70.0	

4. There will not be any hindrance or disturbance to the people living on enroute / nearby my quarry site while transporting the mined out materials and due to quarrying activities.
5. There are no habitations / villages located within 300 meters radius from the periphery of my 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 labourers working in my proposed quarry.



A handwritten signature in black ink, appearing to be 'S. Arumugam', with a long horizontal stroke extending to the right.

8. The existing road from the main road to the quarry is in good condition and the same will be maintained and utilized for transportation of materials.
9. I will not engaging any child labour at my mines and I aware that engaging child labour is punishable under the Law.
10. All types of safety/protective equipments will be provided to all the laborers working in my quarry.
11. No permanent structures, temples etc are located within 500m from the periphery of my quarry.
12. The quarrying activity has not yet commenced and it will be carried out only after obtaining environmental clearance.


Solemnly and sincerely affirmed and

Signed before the Notary Public on the 7th
the day of Dec-2023

Deponent

(V.GANGESAN)



 07/12/2023
S. ARUMUGAM. B.A., B.L.,
Advocate & Notary Public
Regn No: 21956
Room No: 11, 3rd Floor, India Tower,
Gopalapuram Spd Street,
Coimbatore - 641 618.
Mob: 98422 02967

சிறீ பஞ்சவர்ணம்

07/12/2023

கேள்விக் குறிப்பில் குறிப்பிடப்பட்ட, கி.ஆர். உல்லாஸ்,
 சிறீ பஞ்சவர்ணம், காரியாலய பேரவையின் கீழ் 5/10
 சிறீ பஞ்சவர்ணம் அறிவிப்பு 50. உடனடியாகப் பதில்
 கமிட்டியை சம்பந்தமாகி சிறீ பஞ்சவர்ணம்
 2018-19-ம் ஆண்டு கமிட்டியைக் கமிட்டி கமிட்டி கமிட்டி
 1) கமிட்டி சிறீ பஞ்சவர்ணம் 2) 452/2004. 04/02
 103/1983. 22/01/1983 ல் 775/1981. 18/05/1981-ல்
 4.000. 1,81.0 பற்றியும்
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 கமிட்டி கமிட்டி கமிட்டி கமிட்டி கமிட்டி

(Handwritten Signature)
 சிறீ பஞ்சவர்ணம்
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 கமிட்டி கமிட்டி கமிட்டி கமிட்டி கமிட்டி

Thiru.V.Gangesan S/o.K.S.Velusamy, Rough stone and gravel quarry over an extent of 1.81.0 ha in S.F.No:103/3A1A (P) ,103/3A2 and 103/3B1 Patta land of Kodangipalayam Village, Palladam Taluk, Tiruppur District, Tamil Nadu.



General View of the Proposed Area

A. S. Ganesan
2023
சென்னை மாநகராட்சி
பொது சிவில் இன்ஜினியரிங்
புறவிநியோக அலுவலகம்
சென்னை

Annexure-IX: Copy of 500m Cluster letter

From

Thiru.A.Perumal, M.Sc., M.Phil
Deputy Director,
Geology and Mining,
Tiruppur

To

Tmt. V.Gangesan,
S/o.K.S.Velusamy,
5/10, Mariyappa Devar Street,
Sulur Taluk,
Coimbatore District.

R.c. No.48/ Mines / 2023 dated: 05.12.2023.

Sub: Mines and Minerals – Minor Mineral – Rough Stone and Gravel- Tiruppur District - Palladam Taluk - Kodangipalayam Village- S.F.Nos. 103/3A1A (P) (1.00.0), 103/3A2(0.40.5) and 103/3B1(0.40.5) - Over an Extent of 1.81.0 Hectares of patta land- Quarry lease for Rough Stone and Gravel - Application preferred by Thiru.V.Gangesan- Precise area communicated - further details requested - furnished regarding.

- Ref: 1. Application for grant of Rough Stone and Gravel quarry lease permission preferred by Thiru.V.Gangesan dated: 08.02.2023.
2. G.O. Ms. No. 79 / Industries (MMC 1) Department dated 06.04.2015.
3. The Assistant Director (i/c), Geology and Mining, Tiruppur letter R.C. No. 48/Mines/2023 dated 15.09.2023.
4. Mining Plan submitted by Thiru.V.Gangesan letter dated 09.10.2023.
5. Thiru.V.Gangesan letter dated 09.11.2023
6. This office letter even no. dated. 10.11.2023 (Mining Plan approved)

In the reference 5th cited above, the applicant Thiru.V.Gangesan has requested to furnish details of other quarry leases of expired, existing and proposed within 500mtr radius from the proposed rough stone and gravel lease over an extent of 1.81.0 Hect in S.F.Nos. 103/3A1A (P) (1.00.0), 103/3A2(0.40.5) and 103/3B1(0.40.5) Kodangipalayam Village of Palladam Taluk, Tiruppur District.

As requested by the applicant, the details of existing, proposed and expired quarries situated within the radius of 500 meters from the subject area are furnished as follows:-

1. Existing quarries:

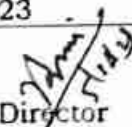
SNo	Name of the Applicant	S.F.Nos	Extent(Hect)	Lease Period
1.	D.R.Karuppusamy	89/2A, 89/3	1.19.0	26.08.2022 to 25.08.2027
2.	M.Subbathal	114/2C, 2D, 2E1, 2E2, 2F, 2G1	1.82.0	28.12.2022 to 27.12.2027
3.	D.R.Karuppusamy	102/1	1.32.5	28.02.2022 to 27.02.2027
4.	V.Prakash	113/6	0.86.0	20.09.2019 to 19.09.2024

2. Proposed quarries :

Sl.No	Name of the Applicant	S.F.Nos	Extent (Hect)	Remarks
1.	Thiru.V.Gangesan	S.F.Nos. 103/3A1A(P) and 103/3A2, 103/3B1	1.81.0	Previously held under quarrying lease. Lastly held under quarrying lease for the period from 18.04.2018 to 17.04.2023 granted vide District Collector proceeding R.C.No.11 /Mines/2017 dated 18.04.2018 After reach the approved quantity, afresh application has been received on 08.02.2023 and the same is under process.
2.	K.M.Chinnasamy	89/4B(P), 92/2	2.42.0	Applied for Quarry lease
3.	R.Gunasekar	103/3B2(P)	1.69.5	Applied for Quarry lease
4.	V.Prakash	103/2C	1.55.0	Applied for Quarry lease
5.	P.Gowtham Rathinam	91/1A(P)	2.00.0	Applied for Quarry lease
6.	P.Subramaniam	114/1B, 114/1C	1.99.5	Applied for Quarry lease

3. Lease expired and abandoned quarries:

SNo	Name of the Applicant	S.F.Nos	Extent(Hect)	Lease Period
1.	P.Vijayalakshmi	116/3B (P)	0.70.0	03.10.2018 to 02.10.2023


 Deputy Director
 Geology and Mining,
 Tiruppur

Copy to : State Level Environment Impact Assessment Authority-Tamil Nadu,
 3rd Floor, Panagal Maaligai, No.1 Jeemis Road, Saidapet. Chennai-15

Annexure-X: Copy of Approved Mining Plan Letter

From

Thiru. K. Ramesh, M.Sc.,
Deputy Director/
Assistant Director (i/c),
Geology and Mining,
Tiruppur

To

Tmt. V.Gangesan,
S/o.K.S.Velusamy,
5/10, Mariyappa Devar Street,
Sulur Taluk,
Coimbatore District.

R.c. No. 48/ Mines / 2023 dated:10.11.2023.

Sub: Mines and Minerals – Minor Mineral – Rough Stone and Gravel- Tiruppur District - Palladam Taluk - Kodangipalayam Village- S.F.Nos. 103/3A1A (P) (1.00.0), 103/3A2(0.40.5) and 103/3B1(0.40.5) - Over an Extent of 1.81.0 Hectares of patta land- Quarry lease for Rough Stone and Gravel - Application preferred by Thiru.V.Gangesan- Precise area communicated for the proposed grant of quarry lease - Mining Plan Submitted for approval - Approved - regarding.

- Ref: 1. Application for grant of Rough Stone and Gravel quarry lease preferred by Thiru.V.Gangesan dated: 08.02.2023.
2. G.O. Ms. No. 79 / Industries (MMC 1) Department dated 06.04.2015.
3. The Assistant Director (i/c), Geology and Mining, Tiruppur letter R.C. No. 48/Mines/2023 dated 15.09.2023.
4. Thiru.V.Gangesan letter dated:Nil received on 09.10.2023

Thiru.V.Gangesan preferred an application for the grant of Rough Stone and Gravel quarry lease over an extent of 1.81.0 Hectare of Patta land in 103/3A1A (P) (1.00.0), 103/3A2(0.40.5) and 103/3B1(0.40.5) of Kodangipalayam Village, Palladam Taluk, Tiruppur District vide the reference 1st cited and the precise area was communicated to the applicant vide the reference 3rd cited with a direction to submit the approved mining plan and Environmental Clearance.


As directed, the applicant submitted three copies of mining plan for approval vide the reference 4th cited. The Mining Plan has been verified in detail and found that it was prepared in accordance with the guidelines /

instructions issued by the Commissioner of Geology and Mining in letter RC. No. 3868 / LC / 2012 dated 19.11.2012.

Therefore in exercise of the powers conferred under Rule 41(2) of Tamil Nadu Minor Mineral Concession Rules, 1959, read with G.O. (Ms). No.79 / Industries (MMC 1) Department dated 06.04.2015, the mining plan is hereby approved, subject to the following conditions:

- (i) The mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.
- (ii) This approval of the mining plan does not in any way convey the approval of the Government in terms or any other provisions of the Mines and Minerals (Development and Regulation) Act, 1957, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Explosives Act, 1884 (Central Act IV of 1884) Minor Mineral Concession and Development Rules, 2010 and the Rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.
- (iii) The mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- (iv) The validity of the mining plan is co-terminus with the lease period.
- (v) Quarrying shall be done in accordance with the approved Mining Plan and that 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.
- (vi) If anything is found to be concealed as required by the Mines Act in the contents of the Mining Plan and the proposal for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.
- (vii) A safety distance of 7.5 meters shall be provided for the patta lands situated adjacent to the applied area.
- (viii) A safety distance of 10 meters shall be provided for the Village road running parallel to the eastern side of the applied area.

Encl.: Approved Mining Plan.


Deputy Director,
Assistant Director (i/c)
Geology and Mining,
Tiruppur





தமிழ்நாடு தமிழ்நாடு TAMILNADU

AG 677334

நாள்: 17.2.2024

U. N. Subramanian

உ. முத்துலக்ஷ்மி

முத்திரைத்தாள் விற்பனையாளர்

உரிமம் எண்: 33/2000

பல்லடம், தமிழ்நாடு.

சென்னை
பஞ்சவர்ணம்



குத்தகை பத்திரம்

2024-ம் வருடம் பிப்ரவரி மாதம் 17-ம் தேதி திருப்பூர் மாவட்டம் பல்லடம் வட்டம் பருவாய் கிராமம் வில்வமரத்தோட்டம் கதவு எண்.1/225D என்ற முகவரியில் வசிக்கும் லேட். N. சுப்பிரமணியம் அவர்களின் மனைவி மாராத்தாள்-1 (ஆதார் எண். 8320 5779 7127) (Cell No. 9842449790)

1 மாராத்தாள்

2 S. Subramanian

3 S. Subramanian

4 S. Subramanian

5 S. Subramanian

புத்தகம் 2024	வருடத்தி 2966ம்
ஆவணம் 21	தாள்களைக் கொண்டது.
வது தாள்	பதிவு அலுவலர்



திருப்பூர் மாவட்டம் பல்லடம் வட்டம் பருவாய் கிராமம் வில்வமரத்தோட்டம்

கதவு எண்.1/225D என்ற முகவரியல் குடியிருக்கும் லேட்.N.சுப்பிரமணியம் அவர்களின் மகனும் சிவசுப்பிரமணியம் அவர்களின் மனைவியுமான S.அம்சவேணி -2 ஆதார் எண்.8725 3336 9076) (Cell No. 9842449790)

கோயம்புத்தூர் மாவட்டம் சூலூர் வட்டம் மாரியப்பதேவர் வீதி கதவு எண்.5/10 என்ற முகவரியல் குடியிருக்கும் லேட்.N.சுப்பிரமணியம் அவர்களின் மகனும் V.கங்கேசன் அவர்களின் மனைவியுமான G.புவனேஸ்வரி -3 ஆதார் எண்.7743 8077 5445) (Cell No.9865268077)

கோயம்புத்தூர் மாவட்டம் சூலூர் வட்டம் கண்ணம்பாளையம் நாலுகவலைத் தோட்டம் கதவு எண்.5/24 என்ற முகவரியல் குடியிருக்கும் லேட்.N.சுப்பிரமணியம் அவர்களின் மகனும் செந்தில் குமார் அவர்களின் மனைவியுமான S.தனலட்சுமி-4 (ஆதார் எண்.9612 7276 1981) (Cell No.63807 12631) (குத்தகைகொடுப்பவர்கள்)

கோயம்புத்தூர் மாவட்டம் சூலூர் வட்டம் மாரியப்பதேவர் வீதி கதவு எண்.5/10 என்ற முகவரியில் வசிக்கும் வேலுச்சாமி மகன் V.கங்கேசன் -5 (ஆதார் அட்டை எண்.5743 6340 5011) (Cell No. 98424 08077) (குத்தகை பெறுபவர்) ஆகிய நாங்கள் அனைவரும் சேர்ந்து எழுதி வைத்துக் கொண்ட குத்தகைப் பத்திரம்.

1 மாரத்தூர்

5 V.சுப்பிரமணியம்

2 S. அம்சவேணி

3 G.புவனேஸ்வரி

4 S. தனலட்சுமி

புத்தகம் 2025 ம் வருடத்தி 2966
ஆவணம் 21 தாள்களைக் கொண்டது.
2 வது தாள்
பதிவு அலுவலர்



எங்களில் 1லக்கமிட்டவரின் கணவரும், 2-4 லக்கமிட்டவர்களின் தகப்பனார் N.சுப்பிரமணியம் என்பவருக்கு பல்லடம் சார்பதிவாளர் அலுவலகத்தில் 1-புத்தகம் 1174-தொகுதி 373-374 பக்கங்களில் 1981-ம் ஆண்டின் 775-எண்ணாகப் பதிவாகியுள்ள கிரையப் பத்திரப்படி பாத்தியப்பட்டு,

பின்னும் மேற்படி N.சுப்பிரமணியம் பல்லடம் சார்பதிவாளர் அலுவலகத்தில் 1-புத்தகம் 1204-தொகுதி 77-78 பக்கங்களில் 1983-ம் ஆண்டின் 103-எண்ணாகப் பதிவாகியுள்ள கிரையப் பத்திரப்படி பாத்தியப்பட்டு,

பின்னும் மேற்படி N.சுப்பிரமணியம் பல்லடம் சார்பதிவாளர் அலுவலகத்தில் 1-புத்தகம் 2004-ம் ஆண்டின் 452-எண்ணாகப் பதிவாகியுள்ள கிரையப் பத்திரப்படி பாத்தியப்பட்டு, மேற்படி N.சுப்பிரமணியம் என்பவர் கடந்த 29.12.2010-ம் தேதியில் காலமாகிவிட்டார் .இவர் காலமான பிறகு இவரது வாரிசுகளாகிய மாராத்தாள்-1, S.அம்சவேணி -2, G.புவனேஸ்வரி -3, S.தனலட்சுமி-4 பல்லடம் வட்டாட்சியர் அலுவலர் அவர்களால் வழங்கப்பட்ட வாரிசு சான்றிதழ் படி எங்கள் நால்வருக்கும் பாத்தியப்பட்டு நாங்கள் இது நாள் வரையில் பொதுவில் வைத்து கூட்டாக சர்வ சுதந்திரத்துடன் ஆண்டனுபவித்து வருகிற கீழ்காணும் சொத்துக்களை நம்மில் 5-லக்கமிட்டவருக்கு கல்குவாரி அமைத்து குத்தகைக்கு அளிக்க நம்மில் 5-லக்கமிட்டவர் நம்மில் 1,2,3,4-லக்கமிட்டவர்கள் இதனடியில் சொத்துவிபரத்தில் குறிப்பிடுள்ள சொத்துக்களை இன்றைய தேதியில் இருந்து (17.02.2024) நாள் இன்று முதல் ஏழு (7) வருட காலக் கெடுவிற்கு குத்தகைக்குக் கொடுப்பதாகப் பேசி ஒப்புக்கொண்டு கீழ்காணும் ஷரத்துக்களுக்கு நாம் அனைவரும் மனப்பூர்வமாக சம்மதித்து சம்மதிக்கிறோம்.

1 மாராத்தாள்

2 S. அம்சவேணி

3 G. புவனேஸ்வரி

4 S. தனலட்சுமி

5 [Handwritten Signature]

...1...புத்தகம் 2024...ம் வருடத்தியில் 29.12.2010...ம் ஆண்டின் 452...எண்ணாகப் பதிவாகியுள்ள கிரையப் பத்திரப்படி பாத்தியப்பட்டு, மேற்படி N.சுப்பிரமணியம் என்பவர் கடந்த 29.12.2010-ம் தேதியில் காலமாகிவிட்டார் .இவர் காலமான பிறகு இவரது வாரிசுகளாகிய மாராத்தாள்-1, S.அம்சவேணி -2, G.புவனேஸ்வரி -3, S.தனலட்சுமி-4 பல்லடம் வட்டாட்சியர் அலுவலர் அவர்களால் வழங்கப்பட்ட வாரிசு சான்றிதழ் படி எங்கள் நால்வருக்கும் பாத்தியப்பட்டு நாங்கள் இது நாள் வரையில் பொதுவில் வைத்து கூட்டாக சர்வ சுதந்திரத்துடன் ஆண்டனுபவித்து வருகிற கீழ்காணும் சொத்துக்களை நம்மில் 5-லக்கமிட்டவருக்கு கல்குவாரி அமைத்து குத்தகைக்கு அளிக்க நம்மில் 5-லக்கமிட்டவர் நம்மில் 1,2,3,4-லக்கமிட்டவர்கள் இதனடியில் சொத்துவிபரத்தில் குறிப்பிடுள்ள சொத்துக்களை இன்றைய தேதியில் இருந்து (17.02.2024) நாள் இன்று முதல் ஏழு (7) வருட காலக் கெடுவிற்கு குத்தகைக்குக் கொடுப்பதாகப் பேசி ஒப்புக்கொண்டு கீழ்காணும் ஷரத்துக்களுக்கு நாம் அனைவரும் மனப்பூர்வமாக சம்மதித்து சம்மதிக்கிறோம்.
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கீழ்க்காணும் சொத்துக்களை 5-லக்கமிட்டவர் மேற்குறிப்பிட்ட படி 7-வருடங்களுக்கு குத்தகைக்கு எடுத்துக்கொண்டு இன்றைய தேதியில் முன்பணமாக ரூ.15,000/- மட்டும் நம்மில் 5-லக்கமிட்டவர் ரொக்கமாக பெற்றுக் கொண்டுள்ளார்.

1. இதனடியில் கண்ட சொத்து விபரத்தில் குறிப்பிட்டுள்ள சொத்துக்களை 1,2,3,4-லக்கமிட்டவர்கள் நம்மில் 5-லக்கமிட்டவருக்கு இன்று முதல் 7-வருடங்கள் வரை அதாவது 2024 முதல் 2031 வரை வருடம் ஒன்றிக்கு ரூபாய்.5,000/- (ஐந்தாயிரம் மட்டும் வடகை விகிதத்தில் குத்தகைக்கு விட்டுள்ளார்.

2. இதனடியில் கண்ட சொத்துவிபரத்தில் குறிப்பிட்டுள்ள சொத்திற்கான வரிகளை மேற்படி 1,2,3,4-லக்கமிட்டவர்கள் செலுத்திக் கொள்ள வேண்டியது

3. இதனடியில் கண்ட சொத்துக்களை நல்ல நிலையில் பராமரித்து மேற்படி குத்தகை காலம் முடிந்த உடன் 1,2,3,4-லக்கமிட்டவர்களுக்கு 5-லக்கமிட்டவர் ஒப்படைக்க சம்மதிக்கிறார்.

4. நம்மில் 1,2,3,4-லக்கமிட்டவர்கள் 5-லக்கமிட்டவருக்கு குத்தகைக்கு விட்டுள்ள சொத்தை நம்மில் 5-லக்கமிட்டவர் கல்குவாரி அமைத்து பயன்படுத்திக் கொள்ள வேண்டியது. வேறு நபருக்கு எவ்விதமான பயன்படிற்கும் உட்படுத்தக் கூடாது.

5. இதனடியில் கண்ட சொத்துவிபரத்தில் குறிப்பிட்டுள்ள சொத்துக்களை பொறுத்து அரசு சம்பந்தமாக ஏதாவது கையொப்பம் தேவைப்பட்டால் நம்மில் 1-லக்கமிட்டவர் கையொப்பம் செய்ய கல்குவாரி சார்பாக நம்மில் 2-லக்கமிட்டவர் சம்மதிக்கிறார்.

1 மார்க்குதாள்

2 S. Anna

3 G. B. S.

4 S. D. S.

5 V. Jayaram

புத்தகம் 2024 ம் வருடத்திற் 29.6.24
ஆவணம் 21 தாள்களைக் கொண்டது.



6. குத்தகை காலத்தில் சொத்துகளை நல்ல நிலையில் உள்ளதா என்பதை நம்மில் 1,2,3,4-லக்கமிட்டவர்கள் ஆய்வு செய்ய 5-லக்கமிட்டவர் சம்மதிக்கிறார்.

7. மேற்படி கண்ட கல்குவாரி அமைக்க மாசுக்கட்டுபாட்டு வாரியத்தில் அனுமதி பெறுவதற்கும் HT,LT மின் இணைப்பு பெறுவதற்கும் ஜல்லி கிரஷர் மற்றும் எம் சேண்ட் யூனிட் அலுவலகம் அமைப்பதற்கும் Fire Health Running Licence, Factory Licence போர் வெல் மற்றும் (வேமண்ட்) அமைப்பதற்கும் ஆகிய இவைகள் அனைத்தும் நம்மில் 5-லக்கமிட்டவர் பெயரிலேயே அரசாங்கத்தில் அனுமதி பெற்றுக் கொள்ள வேண்டியது.

இதன்படிக்கு நாம் அனைவரும் சேர்ந்தது மனப்பூர்வமாக சம்மதித்து முழுமன சம்மத்துடன் ஒப்புக் கொண்டு எழுதி வைத்துக்கொண்ட குத்தகை ஒப்பந்தப் பத்திரம்.

கிரையப்பத்திர எண்.775/1981

சொத்து விபரம்.

திருப்பூர் பதிவு மாவட்டம் பல்லடம் துணைப்பதிவு வட்டம் பல்லடம் வட்டம் கோடங்கிபாளையம் கிராம ஊராட்சி எல்லைக்குட்பட்ட கோடங்கிபாளையம் கிராமத்தில்:-

க.ச.103/3 நெ. காலை பு.ஏ.10.80க்கு தீ.நு.8.75 இதில் கிழமேல் பொளியில் தென்புரம் சரிபாதி பாறைக்குளி உள்ள பு.ஏ.5.40 -ல் வடபுரம் கிழமேலாக பு.ஏ.1.00 உள்ள பூமிக்கு செக்குபந்தி விபரம் :-

க.ச.103/3B1 எண் காலையில் நாராயணசாமி

பங்கு பூமிக்கு

வடக்கும் கிழக்கும்

கிழமேல் இட்டேரிக்கும்

மேற்கு

க.ச.103/3A2 எண் காலைக்கும்

தெற்கு

இதன் மத்தியில் பு.ஹெ.0.40.5 க்கு பு.ஏ.1.00 உள்ள பூமி சகிதம்.

மேற்படி பூமி தற்போது க.ச.103/3B1 எண் காலையில் உள்ளது.

1 மாரத்திரன்

2 S. Anand

3 G. Bala

4 S. Anand

S. Anand

261

புத்தகம் 2024 ம் வருடத்திய 2966ம்
ஆவணம் 21 தாள்களைக்கொண்டது.



கிரையப்பத்திர எண்.103/1983

சொத்து விபரம்.

திருப்பூர் பதிவு மாவட்டம் பல்லடம் துணைப்பதிவு வட்டம் பல்லடம்
வட்டம் கோடங்கிபாளையம் கிராம ஊராட்சி எல்லைக்குட்பட்ட
கோடங்கிபாளையம் கிராமத்தில்:-

க.ச.103/3 நெ. காலை பு.ஏ.10.80க்கு தீ.ரு.8.75 இதில் கிழமேல்
பொளியில் வடபுரம் சரிபாதி பாறைக்குளி உள்ள பு.ஏ.5.40 -ல் வடபுரம்
கிழமேலாக பு.ஏ.1.00 உள்ள பூமிக்கு செக்குபந்தி விபரம் :-

க.ச.103/3A1A எண் காலையில்

மேற்கண்ட பு.ஏ.2.47 க்கும்

தெற்கும் கிழக்கும்

க.ச.103/3B1 எண் காலையில் உள்ள

பு.ஏ.1.00 க்கும்

வடக்கு

கிழமேல் இட்டேரிக்கும்

மேற்கு

இதன் மத்தியில் பு.ஹெ.0.40.5 க்கு பு.ஏ.1.00 உள்ள பூமி சகிதம்.

மேற்படி பூமி தற்போது க.ச.103/3A2 எண் காலையில் உள்ளது.

1 மாரத்தூர்

2 S. Ann

3 G. P. S.

4 S. S. S.

5 S. S. S.

புத்தகம் 2025 ம் வருடத்திய 2966ம்
ஆவணம் 21 தாள்களைக்கொண்டது.
வது தாள் பதிவு அலுவலர்



கிரையப்பத்திர எண்.452/2004

சொத்து விபரம்.

திருப்பூர் பதிவு மாவட்டம் பல்லடம் துணைப்பதிவு வட்டம் பல்லடம் வட்டம் கோடங்கிபாளையம் கிராம ஊராட்சி எல்லைக்குட்பட்ட கோடங்கிபாளையம் கிராமத்தில்:-

க.ச.103/3 நெ. காலை பு.ஏ.10.80க்கு தீ.நூ.8.75 இதில் கிழமேல் வடபுரம் சரிபாதி பு.ஏ.5.40 க்கு தீ.நூ.4.38 இதில் தெற்கோடு கிழகோடாக பு.ஏ.4.40 உள்ளதில் தென்புரம் உள்ள பு.ஏ.2.47 உள்ள பூமிக்கு செக்குபந்தி விபரம் :-

வேலுச்சாமி பூமிக்கும்

கிழக்கு

தென்வடல் தடத்திற்கும், க.ச.103/3A2 எண்

காலையில் உள்ள பு.ஏ.1.00 க்கும்

மேற்கு

நாங்கள் நிறுத்திக் கொண்ட பு.ஏ.1.93

பூமிக்கும்

தெற்கு

க.ச.103/3A2, க.ச.103/3B2 எண்

காலைகளில் உள்ள பூமிக்கு

வடக்கு

இதன் மத்தியில் பு.ஹெ.1.00.0 க்கு பு.ஏ.2.47 உள்ள பூமி சகிதம்.

மேற்படி பூமி தற்போது க.ச.103/3A1A எண் காலையில் உள்ளது

க.ச.103/3B1 பு.ஹெ.0.40.5 க்கு பு.ஏ.1.00 உள்ள பூமி

க.ச.103/3A2 பு.ஹெ.0.40.5 க்கு பு.ஏ.1.00 உள்ள பூமி

க.ச.103/3A1A பு.ஹெ.1.00.0 க்கு பு.ஏ.2.47 உள்ள பூமி

ஆக ஒட்டு மொத்தம் பு.ஹெ.1.81.0 க்கு பு.ஏ.4.47 க்கு உள்ள பூமி உள்ள பூமி பூராவும் சகிதம்.

1 மாரத்தா

2 S. Amma

3 G. B. S.

4 S. S. S.

5 S. S. S.

புத்தகம் 2024	ம வருடத்தி 2966
ஆவணம் 2	தாள்களைக் கொண்டது.
7 வது தாள்	பதிவு அலுவலர்



மேற்படி யூமிக்கு மாமூல்படி வரும் தடபாத்தியங்களும் சகிதம்.

வருடம் ஒன்றுக்கு குத்தகை தொகை ரூபாய்.5000/- வீதம்

7 வருடங்கள்க்கு குத்தகை தொகை ரூபாய்.7 X 5000 = 35,000
முன்பணம் (அட்வான்ஸ்) தொகை 15,000

GST 18%

50,000

9,000

59,000/-

1 மார்க்கிள்கள்

5 V. Sengesan

2 S. A.

3 G. B.

4 S. S.

சாட்சிகள்-----

1 S. S.

சந்தோஷ் S/o சங்கரன் 699, பல்லடம்,

திருப்பூர் - 641664 (ஆதார் எண்.9969 1788 6969)

2. S. S.

செந்தில்குமார் S/o சுப்பையன் 5/24

நாலுகவலைத் தோட்டம் கண்ணம்பாளையம் சூலூர் கோயம்புத்தூர் 641402(ஆதார் எண்.2604 3538 4066)

டைப் செய்தவர்:-

சிவசக்தி டைப் ஆபிஸ் பல்லடம்.



S.R.PONNAMBALAM M.A.,LL.B.,
ADVOCATE
MS/1300/2019

D.No: 4/63-2, KARUPPAGOUNDAM PALAYAM ROAD,
TIRUPUR - 641 605, CELL : 94871 56478,
Email: ponsllb@gmail.com

.....புத்தகம் 2024.....ம் வருடத்திய 2966ம்
ஆவணம்.....24.....தாள்களைக்கொண்டது.
.....வது தாள்கள் பதிவு இலுவலர்





தமிழ்நாடு அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருப்பூர்

வட்டம் : பல்லடம்

வருவாய் கிராமம் : கோடங்கிபாளையம்

பட்டா எண் : 1070

உரிமையாளர்கள் பெயர்

1.	(லேட்) சுப்பிரமணியம்	மனைவி	மாராத்தாள்	-
2.	சிவசுப்பிரமணியம்	மனைவி	அம்சவேணி	-
3.	காங்கேசன்	மனைவி	புவனேஸ்வரி	-
4.	செந்தில்குமார்	மனைவி	தனலட்சுமி	-

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
103	3A1A	1 - 78.50	3.58	--	--	--	--	R11/2612A--- -- 15-05-2006
103	3A2	0 - 40.50	0.81	--	--	--	--	R11/2612A--- -- 08-01-2002
103	3B1	0 - 40.50	0.81	--	--	--	--	R11/2612A--- -- 08-01-2002
		2 - 59.50	5.20					

குறிப்பு2 :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 32/03/007/01070/30738 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 17-02-2024 அன்று 10:15:51 AM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

புத்தகம் 2024...ம் வருடத்திய 2966ம்
ஆவணம்...24...தாள்களைக்கொண்டது.
...9...வது தாள் பதிவு அலுவலர்





தமிழ்நாடு அரசு Government of Tamil Nadu



Department of.....

DEATH CERTIFICATE – இறப்பு சான்றிதழ்

(Issued under Section 12/17 of the Registration of Births and Deaths Act, 1969 and Rule 8 of Tamil Nadu Registration of Births and Deaths Rules, 2000.)

This is to certify that the following information has been taken from the original record of Death which is the register for (local area)

..... of Taluk

District..... of State

கீழ்க்கண்ட தகவல்கள் மாநிலம்

..... மாவட்டம்

..... வட்டம் ஊரைச் சேர்ந்த

அசல் இறப்புப் பதிவேட்டிலிருந்து எடுக்கப்பட்டவை எனச் சான்றிதழ் வழங்கப்படுகிறது.

Name / பெயர் : N. சம்பிரமணியம்

Name of Mother / தாயின் பெயர் : _____

Name of Father / Husband : நஞ்சம்பகவுண்டர்

தந்தை / கணவரின் பெயர் : _____

Age / வயது : - 62 -

Sex / பாலினம் : ஆண்

Date of Death / இறந்த தேதி : 29-12-2010

Place of Death / இறந்த இடம் : 1225, விஸ்வமரக்தோட்டம்,

பருவாய்

Permanent Residential Address : 1225, விஸ்வமரக்தோட்டம்,

நிலையான வீட்டு முகவரி : பருவாய்

Address at the time of death : _____

இறப்பின்போது முகவரி : _____

Registration No. / பதிவு எண் : - 5 -

Date of Registration / பதிவு செய்த தேதி : 10-01-2011

C.A.No:-16/2011

C.H.No:-112360

Date / தேதி : 28-01-11

Signature and Address of Issuing Authority

சான்றிதழ் அளிப்பவரின் கையொப்பம் மற்றும் முகவரி

IS 69/11/2011

No disclosure shall be made of particulars regarding the cause of death as entered in the Register.

இறப்புப் பதிவேட்டில் எழுதப்பட்ட இறப்பின் காரணம் எவையும் இப்பகுதியில் வெளியிடப்படக்கூடாது.

[See Proviso to Section 17 (1) – பிரிவு 17 (1)-ன் காப்புரையின்படி]

புத்தகம் 2024...ம் வருடத்தி 2966ம்

ஆவணம்.....4.....தாள்களைக்கொண்டது.

10.....வது தாள் பதிவு அலுவலர்



ப.மு. 624/2011/சு3

வட்டாட்சியர் அலுவலகம்

வருவாய்த்துறை

பல்லடம்

நாள்: 29/01-2011

வாரிசு உரிமைச் சான்றிதழ்
(HEIRSHIP CERTIFICATE)

திருப்பூர் மாவட்டம், பல்லடம் வட்டம்..... படுவாய் கிராமம்

..... கதவு எண்: 1/225, விவிலாத்தேரூர்

என்ற முகவரியில் நிரந்தரமாக வசித்து..... 29.12.2010..... அன்று

..... விவிலாத்தேரூர் என்ற இடத்தில் காலமான

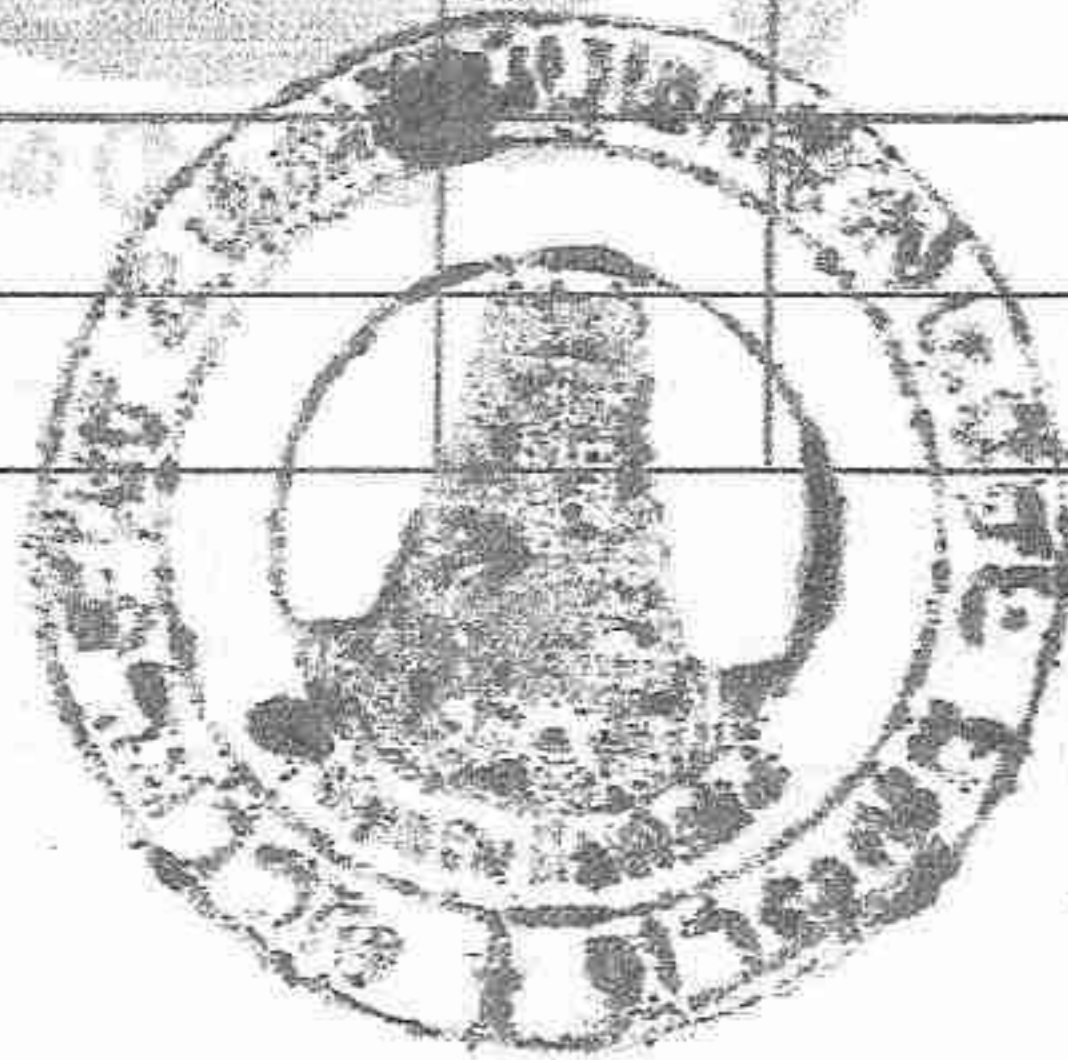
திரு./திருமதி..... கி.பி.மணிமாலை த.பெ./க.பெ..... பி.சீ.சுப்பையன்

என்பவருக்கு கீழ்க்கண்டவர்கள் தான் வாரிசுகள் என்று சான்றளிக்கப்படுகிறது.

வ. எண்	வாரிசுதாரர்களின் பெயர்	வயது	இறந்தவருக்கு உறவு முறை	திருமண நிலை
1.	திருமதி - மாராத்தாள்	57	மனைவி	மீதமுள்ள
2.	திருமதி - அம்மா தேவணி க.பெ. சிவசுப்பையன்	30	மகள்	மணமுள்ள
3.	திருமதி - அனாபைண்டி க.பெ. க.சிவசுப்பையன்	29	மகள்	மணமுள்ள
4.	திருமதி - சிவசுப்பையன் க.பெ. சிவசுப்பையன்	27	மகள்	மணமுள்ள
5.	[சான்றிதழ் மூலம் மட்டும்]			
6.				
7.				
8.				
9.				
10.				
11.				
12.				

பெறுநர்:

திருமதி - மாராத்தாள்
க/பெ (க.பெ) கி.பி.மணிமாலை
1/225, விவிலாத்தேரூர்
படுவாய்



வட்டாட்சியர்
பல்லடம்

29/1/11

.....பத்தகம் 2011.....ம் வருடத்திய 29.6.66.ம்
ஆவணம்..... 21.....தாள்களைக்கொண்டது.
11.....வது தாள் பதிவு அலுவலர்





இந்திய தனிப்பட்ட அடையாள ஆணைய அமைப்பு

இந்திய அரசாங்கம்
Unique Identification Authority of India
Government of India

பதிவு அடையாளம் / Enrollment No.: 1111/98656/01845

To
அம்சவேணி சிவசுப்ரமணியம்
Amsaveni Sivasubramaniam
W/O: Sivasubramaniam
1/225 VILVAMARATHOTTAM
PARUVAI PALLADAMTALUK
Paruvai
Paruvai
Palladam Tiruppur
Tamil Nadu 641658

03/06/2013
33911460



MN339114608FT



உங்கள் ஆதார் எண் / Your Aadhaar No. :
8725 3336 9076

ஆதார் - சாதாரண மனிதனின் அதிகாரம்



இந்திய அரசாங்கம்
Government of India



அம்சவேணி சிவசுப்ரமணியம்
Amsaveni Sivasubramaniam
பிறந்தவருடம் / Year of Birth : 1980
பெண்பால் / Female



8725 3336 9076

ஆதார் - சாதாரண மனிதனின் அதிகாரம்



இந்திய அரசாங்கம்
Government of India



மாராத்தாள் சுப்பிரமணியம்
Marathal Subramaniam
பிறந்தவருடம் / Year of Birth : 1958
பெண்பால் / Female



8320 5779 7127

ஆதார் - சாதாரண மனிதனின் அதிகாரம்



இந்திய தனிப்பட்ட அடையாள ஆணைய அமைப்பு
Unique Identification Authority of India

முகவரி:
W/O: சுப்பிரமணியம், 1/225,
வில்வமரத்தோட்டம், பருவாய்,
பல்லடம்வட்டம், பருவாய்,
திருப்பூர், பருவாய், தமிழ் நாடு,
641658

Address:
W/O: Subramaniam, 1/225,
VILVAMARATHOTTAM,
PARUVAI, PALLADAMTALUK,
Paruvai, Tiruppur, Paruvai, Tamil
Nadu, 641658

8320 5779 7127

1947
1800 300 1947

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www.uidai.gov.in

மார்க்குதாள்

S Anu

புத்தகம் 2024...ம் வருடத்திய 2966ம்
ஆவணம் 21...தாள்களைக்கொண்டது.
12...வது தாள் பதிவு சி.ஜி.வரை



भारत सरकार
Government of India

आधार
Aadhaar

Issue Date : 21/09/2013

புவனேஸ்வரி கங்கேசன்
Bhuvaneswari Gangesan

பிறந்த நாள் / DOB : 05/06/1981
பெண் / Female

7743 8077 5445

मेरा आधार, मेरी पहचान

आधार पहचान का प्रमाण है, नागरिकता का नहीं।
Aadhaar is a proof of identity, not of citizenship.

भारतीय विशिष्ट पहचान प्राधिकरण
Unique Identification Authority of India

आधार
AADHAAR

Print Date : 04/04/2023

முகவரி: W/O: கங்கேசன், 5/10,
மாரியப்பதேவர்வீதி, துலூர், துலூர்
(டீப்), கோயம்புத்தூர், தமிழ் நாடு.
641402

Address: W/O: Gangesan, 5/10,
MARIYAPPA THEVAR STREET,
SULUR, Sular (TP), Coimbatore, Tamil
Nadu, 641402

7743 8077 5445

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

ச. பி. சுவாமி

.....புத்தகம் 2024.....ம் வருடத்திய 29.6.24
ஆவணம்.....21.....தாள்களைக்கொண்டது.
18.....வது தாள் பதிவு அலுவலர்



இந்திய அரசாங்கம்
Government of India

தனலட்சுமி செந்தில்குமார்
Dhanalakshmi Senthilkumar



பிறந்த நாள் DOB: 20/01/1985
பாலினம் / Female



9612 7276 1981

ஆதார் - சாதாரண மனிதனின் அதிகாரம்


இந்திய தனிப்பட்ட தடையாள ஆணைய அமைப்பு
Unique Identification Authority of India


ஆதார்


முகவரி: W/O செந்தில்குமார்
524 நாயக்கவலைத்தோட்டம்
கண்ணம்பாளையம், தூலூர் தாலுக்கா
கண்ணம்பாளையம், கண்ணம்பாளையம்
கோயம்புத்தூர், தமிழ் நாடு. 641402

Address: W/O: Senthilkumar,
5/24
NALUKAVALAITHOTTAM,
KANNAMPALAYAM, SULUR
THALUKA, Kannampalayam,
Kannampalayam,
Coimbatore, Tamil Nadu,
641402

9612 7276 1981


1800 300 1947


help@uidai.gov.in


www.uidai.gov.in

S. Senthilkumar

புத்தகம் 2024...ம் வருடத்தி 29.66...ம்
ஆவணம் 21...தாள்களைக் கொண்டது.
வது தாள் பதிவு அலுவலர்





भारत सरकार
GOVERNMENT OF INDIA



भारतीय विशिष्ट पहचान प्राधिकरण
UNIQUE IDENTIFICATION AUTHORITY OF INDIA



கங்கேசன் வேலுசாமி
Gangesan Velusamy

பிறந்த நாள்/ DOB: 11/12/1972

ஆண் / MALE



முகவரி:

S/O: வேலுசாமி, 5/10,

மாரியப்பதேவர்வீதி, சூலூர்,

சூலூர் (மலர்),
கோயம்புத்தூர்,
தமிழ்நாடு - 641402

Address:

S/O: Velusamy, 5/10,
MARIYAPPAR THEVAR STREET,
SULUR, Sulur (TP), Coimbatore,
Tamil Nadu - 641402

5743 6340 5011

5743 6340 5011

எனது ஆதார், எனது அடையாளம்.

MERA AADHAAR, MERI PEHACHAN

Gangesan

...புத்தகம் 2024...ம் வருடத்திய 2966
ஆவணம்... 21...தாள்களைக்கொண்டது
15 வது தாள் பதிவு அலுவலர்



இந்திய அரசாங்கம்
Government of India

சந்தோஷ் சங்கரன்
Santhosh Shankaran

பிறந்த தாள்: DOB: 13/11/1993
ஆண்/பால் / Male

9969 1788 6969

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

இந்திய தனிப்பட்ட அடையாள ஆணைய அமைப்பு
Unique Identification Authority of India

ஆதார்

முகவரி: S/O: சங்கரன், 8/699
சி எம் நகர், அம்மாபாளையம் வழி
பல்லடம், பல்லடம், திருப்பூர்
தமிழ் நாடு, 641664

Address: S/O: Shankaran,
8/699 H, C M NAGAR,
AMAPALAYAM VIA,
Palladam, Tiruppur,
Palladam, Tamil Nadu,
641664

9969 1788 6969

1947
1907 300 1947

help@uidai.gov.in

www.uidai.gov.in

S. S. S.

புத்தகம் 2024 ம் வருடத்திய 2966
ஆவணம் 21 தாள்களைக் கொண்டது
16 வது தாள்
பதிவு அலுவலர்




 भारत सरकार
 Government of India


 आधार

Issue Date: 27/11/2013


 க. செந்தில்குமார்
S. Senthilkumar
 பிறந்த நாள் / DOB: 05/06/1977
 ஆண் / MALE


 2604 3538 4066

मेरा आधार, मेरी पहचान


 भारतीय विशिष्ट पहचान प्राधिकरण
 Unique Identification Authority of India


 AADHAAR

Print Date: 03/06/2021

முகவரி: S/O: சுப்பையன், 5/24
 நாலுகவலைத்தோட்டம்,
 கண்ணம்பாளையம், சூலூர் தாலுக்கா,
 கண்ணம்பாளையம், கோயம்புத்தூர்,
 தமிழ் நாடு, 641402

Address: S/O: Subbaiyan, 5/24
 NALUKAVALAITHOTTAM,
 KANNAMPALAYAM, SULUR THALUKA,
 Kannampalayam, Coimbatore, Tamil Nadu,
 641402

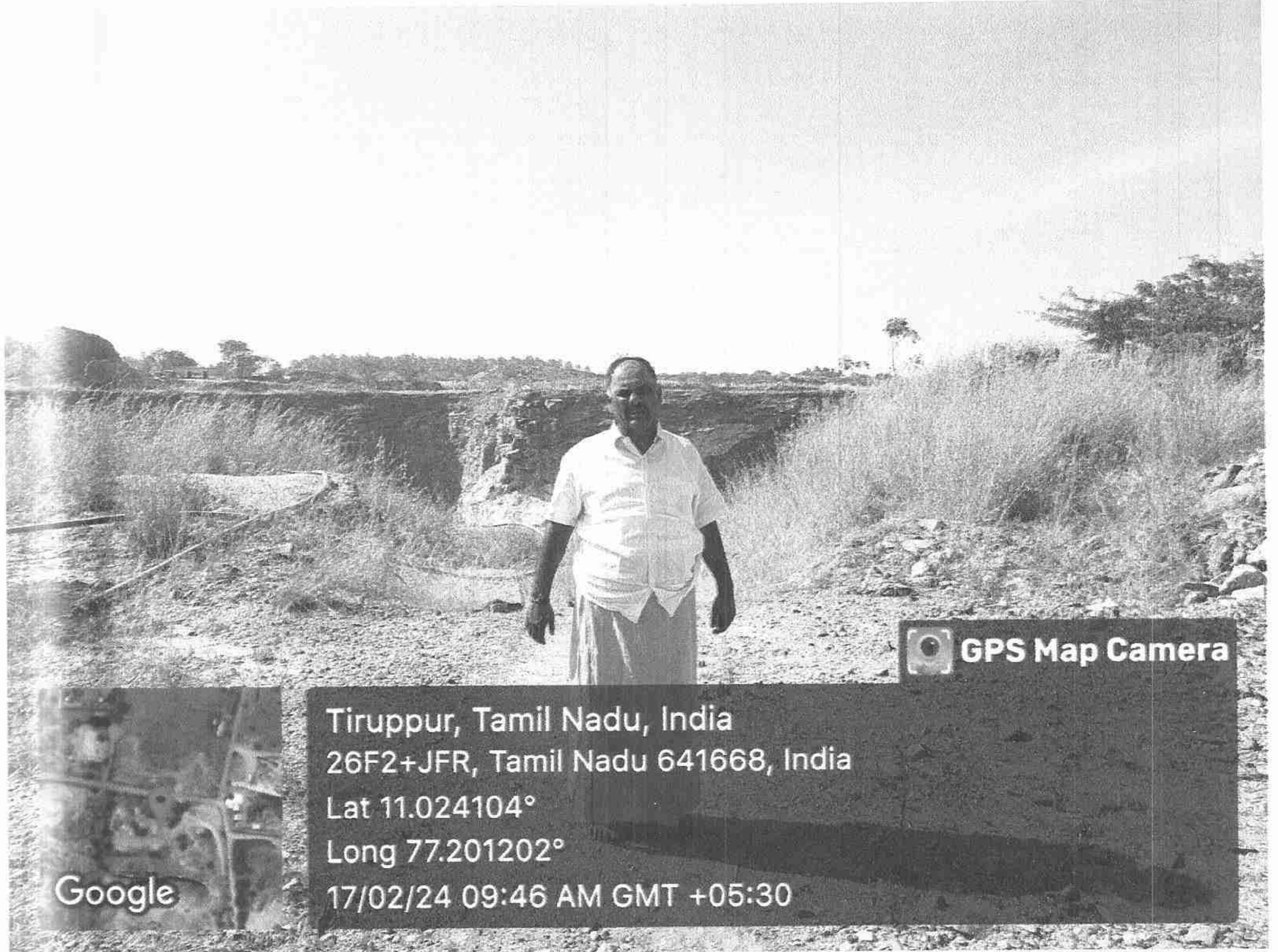

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  help@uidai.gov.in
 www.uidai.gov.in

S. Senthilkumar

புத்தகம்... 2024...ம் வருடத்தி...
 ஆவணம்... 21...தாள்களைக்கொண்டது.
 17...வது தாள் பசிவ அலுவலர்





GPS Map Camera

Tiruppur, Tamil Nadu, India
26F2+JFR, Tamil Nadu 641668, India
Lat 11.024104°
Long 77.201202°
17/02/24 09:46 AM GMT +05:30

Google

மாநகராள்

S. Anna

S. Balas

S. Subramanian

V. Sanyasa

...புத்தகம் 2024...ம் வருடத்தி...
ஆவணம்... 21...தாள்களைக்கொண்டது.
...18...வது தாள் பதிவு அலுவலர்



R/பல்லடம்/புத்தகம்-1/2966/2024

1899ம் ஆண்டு இந்திய முத்திரைச் சட்டம் 42வது பிரிவின் கீழான சான்று

2024ம் ஆண்டு வரிசை எண் 2179

5/10, துலூர், துலூர், கோயம்புத்தூர், தமிழ்நாடு, இந்தியா, 641402-ல் வசிக்கும் திரு கங்கேசன் என்பவரிடமிருந்து ₹ 90/- (ரூபாய் தொண்ணூறு மட்டும்) இந்த ஆவணத்திற்காக இந்திய முத்திரைச் சட்டம் 41வது பிரிவின் படி குறைவாயிருந்த முத்திரைக் கட்டணம் வசூலிக்கப்பட்டது என நான் இதன் மூலம் சான்றளிக்கிறேன்.

சார்பதிவாளர் : பல்லடம்
நாள்: 17/02/2024

சார்பதிவாளர் மற்றும் இந்திய முத்திரைச் சட்டம் பிரிவு
41ன் படி ஆட்சியர்

2024 ஆம் ஆண்டு பிப்ரவரி மாதம் 17ம் தேதி பி.ப. 01:48 மணியளவில் பல்லடம் சார்பதிவாளர் அலுவலகத்தில் தாக்கல் செய்து கட்டணம் ₹ 2,800/- செலுத்தியவர்.

இடது பெருவிரல்



கூடுதல் விவரங்கள் ஆவண வாசகத்தில் உள்ளபடி

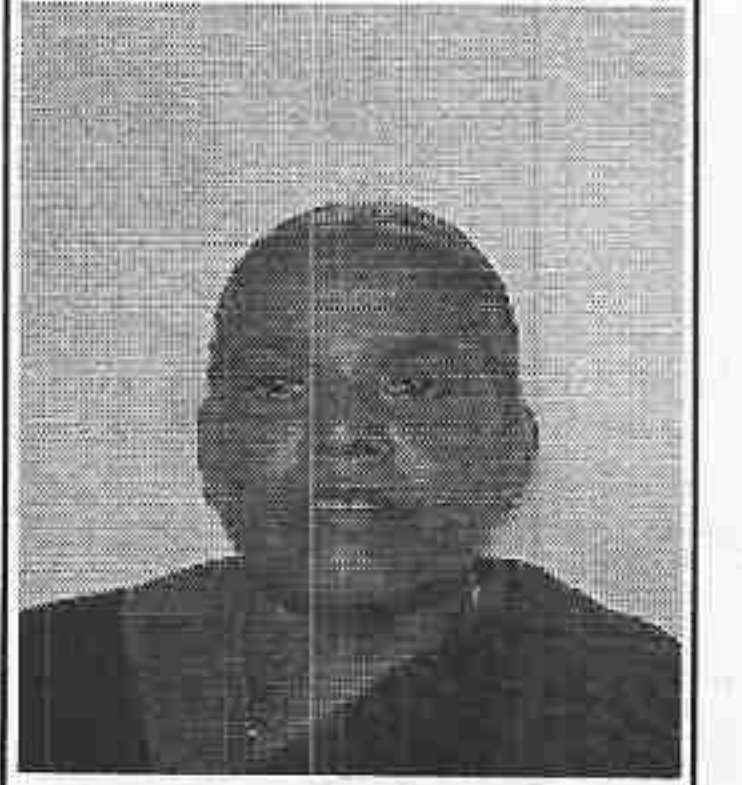
புத்தகம் 2024...ம் வருடத்திய 2966ம்
ஆவணம்.....21.....தாள்களைக்கொண்டது.
.....19...வது தாள் பதிவு அலுவலர்

எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர்
இடது பெருவிரல்



"சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்" என்ற வழி இந்த நபரின் அடையாளம் கருவிழிப்படலம் மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது. ஒப்பீட்டு எண் :

UKC:407841055251e3d045483b8eb4fe3c8db16283.
(Details from UIDAI : Marathal Subramaniam W/O:
Subramaniam, 04-06-1958, xxxxxxxx7127)







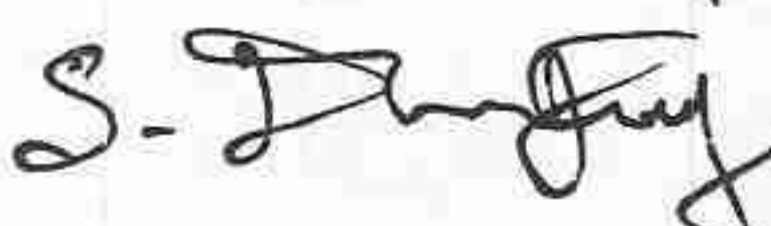

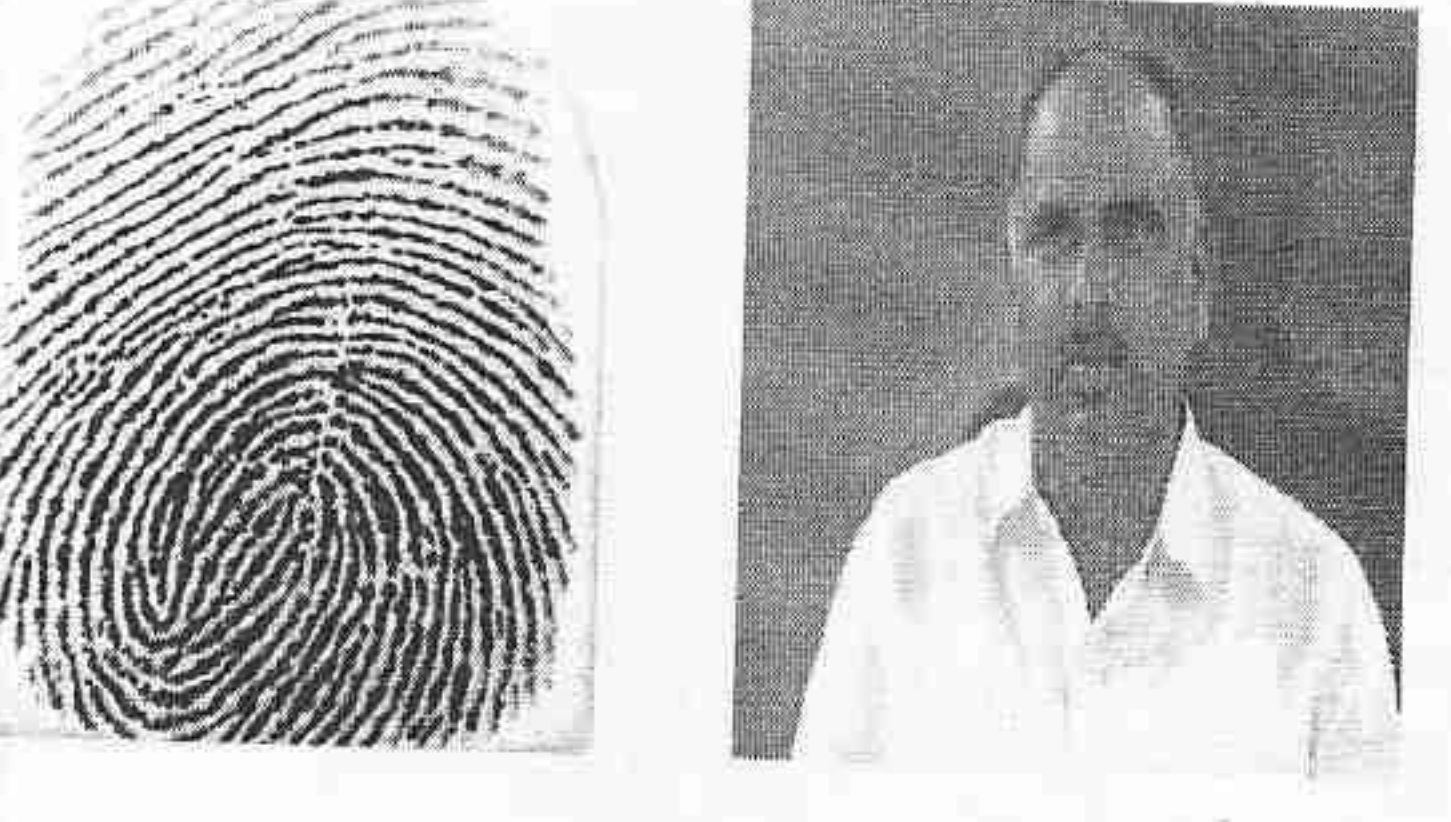

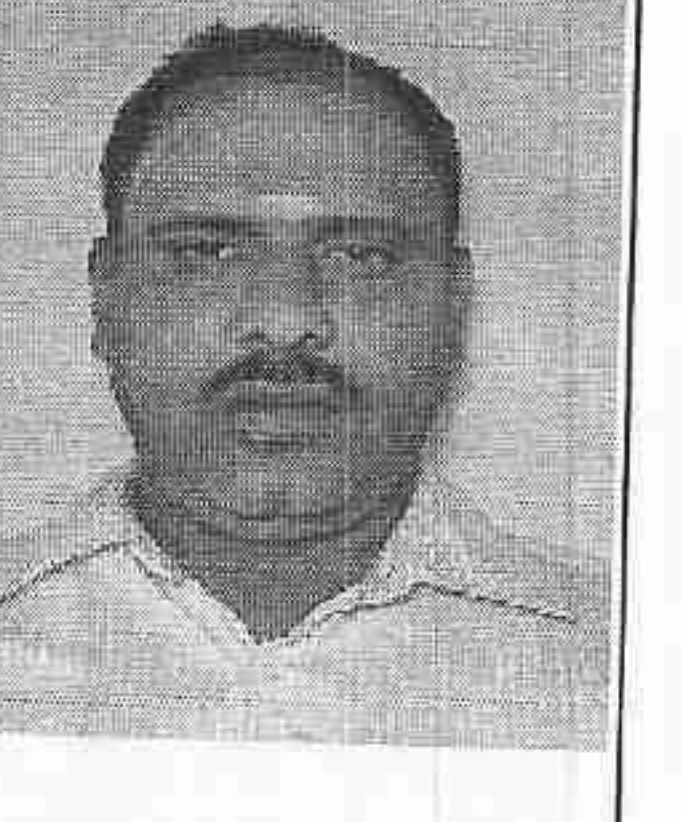
எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர்
இடது பெருவிரல்



"சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்" என்ற வழி இந்த நபரின் அடையாளம் விறல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது. ஒப்பீட்டு எண்

UKC:6275842f2dbeddea64a26b93170838f588a28
(Details from UIDAI : Amsaveni Sivasubramaniam W/O:

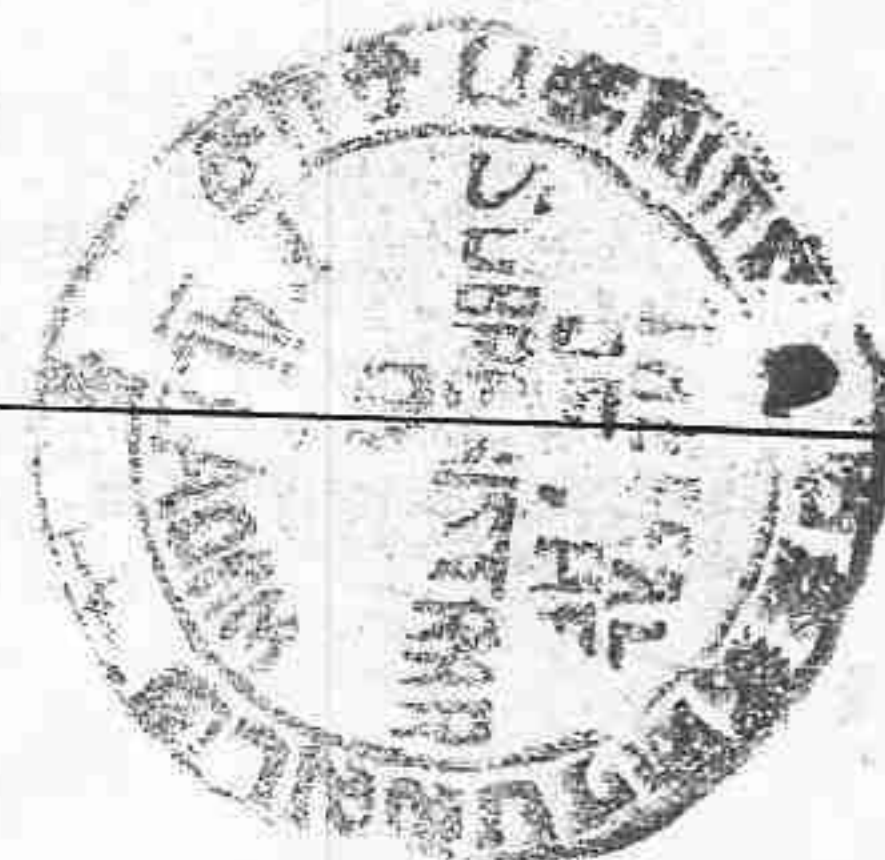


<p>எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர் இடது பெருவிரல்</p> 	<p>Sivasubramaniam, 1980, xxxxxxxx9076)</p>  <p>"சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்" என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது. ஒப்பீட்டு எண் : UKC:873353d72d2c4d15d5487d8bc527d1541a6509 (Details from UIDAI : Bhuvanewari Gangesan W/O: Gangesan, 1981, xxxxxxxx5445)</p>	
<p>எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர் இடது பெருவிரல்</p> 	 <p>"சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்" என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது. ஒப்பீட்டு எண் : UKC:2109188066ffb95fcb46d9838002da44b033ea (Details from UIDAI : Dhanalakshmi Senthilkumar W/O: Senthilkumar, 20-01-1985, xxxxxxxx1981)</p>	
<p>எழுதி வாங்கியதாக ஒப்புக் கொண்டவர் இடது பெருவிரல்</p> 	 <p>"சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்" என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது. ஒப்பீட்டு எண் : UKC:15606681d352bf9c0547e7ac67e4ed3c80a56e (Details from UIDAI : Gangesan Velusamy S/O: Velusamy, 1972, xxxxxxxx5011)</p>	

2024 ஆம் ஆண்டு பிப்ரவரி மாதம் 17ம் நாள்


காந்திமணி அ
சார்பதிவாளர்
பல்லடம்


புத்தகம்..2024...ம் வருடத்திய..2966ம்
ஆவணம்.....21.....தாள்களைக்கொண்டது.
20.....வது தாள் பதிவு இலாவலர் 2 / 3

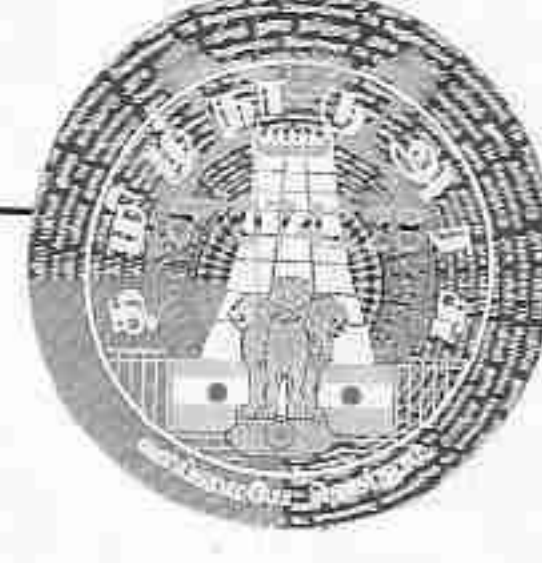


R/பல்லடம்/புத்தகம்-1/2966/2024 எண்ணாகப் பதிவு செய்யப்பட்டது.

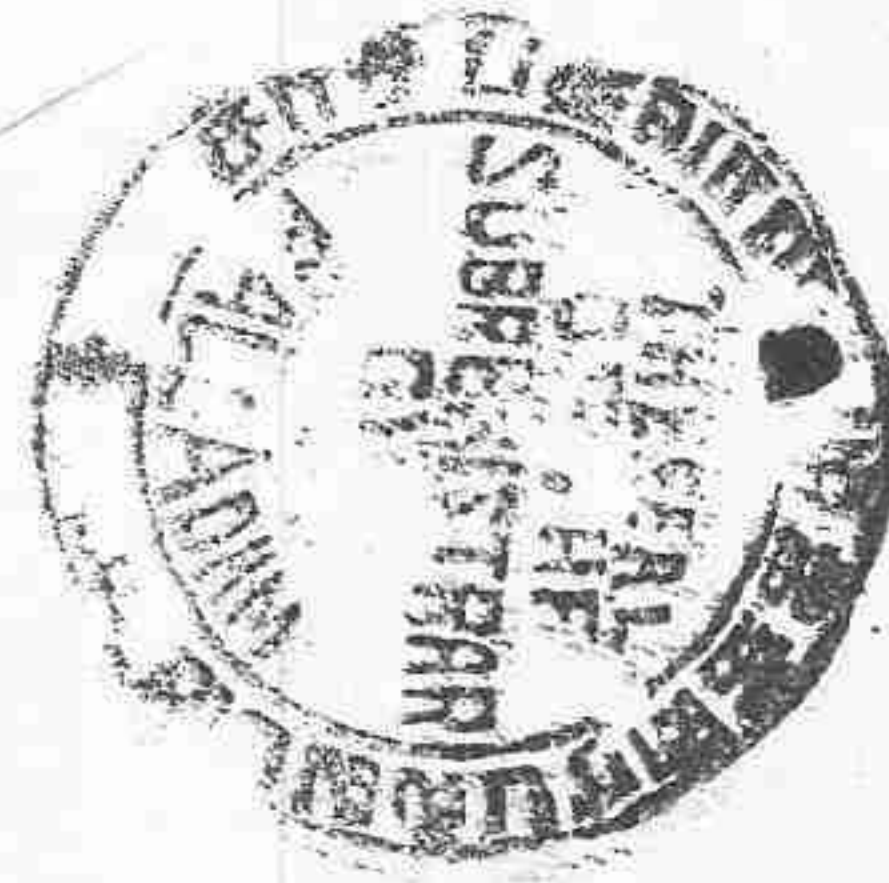
நாள்: 17/02/2024

பல்லடம்


காந்திமணி அ
சார்பதிவாளர்



... புத்தகம் 2024 ... ம் வருடத்தி 2966 ... ம்
ஆவணம் 21 ... தாள்களைக் கொண்டு
... 21 ... வது தாள் ... பதிவு அலுவலர்



Annexure-XII: Copy of Previous Environmental Clearance

1

DR. K.S. PALANISAMY, I.A.S.,
CHAIRMAN

DISTRICT LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY
Collectorate,
Master Plan Complex,
Palladam Road,
Tiruppur- 641 604.

ENVIRONMENTAL CLEARANCE

Lr. No. DEIAA – TPR / F. No. 601 / 3 (V) / 2017 dated: 08.03.2018.

To

V.Gangesan,
S/o.K.S.Velusamy,
5/10 Mariappa Devar Street,
Sulur,
Coimbatore District,
641 402.

Sir,


Sub: DEIAA- Tiruppur – Proposed Rough Stonequarry located at S.F. Nos.103/3A1A (Part), 103/3A2 and 103/3B1 over an extent of 1.81.0 Hectares. –Kodangipalayam Village, -Palladam Taluk – Tiruppur District – grant of Environmental Clearance – Reg.

- Ref: 1. Your application For Environmental Clearance dated 18.08.2017.
2. Minutes of the 3rd meeting of DEAC, Tiruppur, held on 21.12.2017.
3. Minutes of the 2nd meeting of DEIAA, Tiruppur, held on 22.2.2018.

Details of Minor Mineral Activity:-

This has reference to your application first cited. The proposal is for obtaining Environmental Clearance for quarrying of Rough Stone (Minor mineral) under "B2" Category, based on the particulars furnished in your application as shown below.


1.	Name of Project Proponent and Address	V.Gangesan, S/o.K.S.Velusamy, 5/10 Mariappa Devar Street, Sulur, Coimbatore District, 641 402.
----	---------------------------------------	---


Chairman,
DEIAA, Tiruppur.


12/3/18

2.	Location of the Proposed Activity	
	Survey Number	S.F.Nos. 103/3A1A (Part), 103/3A2 and 103/3B1
	Latitude and Longitude	11°01' 19.31" N to 11°01' 24.98" N 77°12' 01.85" E to 77°12' 07.13" E
	Village	Kodangipalayam
	Taluk	Palladam
	District	Tiruppur
3.	Proposed Activity	
	i. Minor Mineral	Rough stone
	ii. Quarry Lease Area	1.81.0 Hectares
	iii. Approved Quantity	1,18,965M ³ of Rough stone
	iv. Depth of Mining	The quarry operation proposed upto a depth of 46 meters below ground level.
	v. Type of quarrying	Opencast Semi Mechanized Quarrying
	vi. category	B2
	vii. Precise area Communication	District Collector, Tiruppur, letter in Na.Ka. 11 / Mines / 2017, dated 19.05.2017.
	viii. Mining Plan Approved	Deputy Director, Geology and Mining, Tiruppur, letter in R.C. No.11 / Mines / 2017, dated 03.07.2017.
	ix. Mining Lease period	5 Years
4.	Whether project area attracts any General condition Specified in the EIA notification, 2006 as amended:-	Not attracted.
5	Man Power requirement per day:	11 Employees
6	Utilities	
	i. Source of Water	Water Vendors.
	ii. Quantity of Water Requirement in KLD	
	a. Drinking and Domestic Purposes	0.3 KLD
	b. Dust Suppression	0.3 KLD
	c. Green Belt	0.4 KLD

		1.0 KLD
	iii. Power Requirement:	
	a. Domestic Purpose	
	b. Industrial Purpose	Not required.
7.	Cost	
	i. Project Cost	Rs.59,67,500/- (Inclusive of EMP Cost)
	ii. EMP Cost	Rs.3,80,000/-
8	Public Consultation:-	Not required.
9.	Date of Appraisal by DEAC:- Agenda No.	21.12.2017 Item No. 5



 Chairman,
 DEIAA, Tiruppur.


 14/3/18

10.	<p>Date of Review / Discussion by DEIAA and the Remarks:- The proposal was placed before the DEIAA, Tiruppur in its 2nd Meeting held on 22.2.2018 as Agenda Item No.20 and the Authority after careful examination has approved the proposal for the grant of Environmental Clearance to the said project for quarrying of Roughstone subject to the terms and conditions stipulated under the provisions of Environment Impact Assessment Notification, 2006 as amended.</p>
11.	<p>Validity:-</p> <ol style="list-style-type: none"> 1) This Environmental Clearance is granted for quarrying of 1,18,965 Cubic Meters of Rough Stone for a period of five years from the date of execution of the quarry lease agreement. 2) The Environment Clearance is co-terminus with the quarry lease period.


Conditions to be Complied before commencing quarrying operation:-

1. The Project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that
 - i. The project has been accorded Environmental Clearance.
 - ii. Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.
 - iii. Environmental Clearance may also be seen on the website of the DEIAA, Tiruppur.
 - iv. The advertisement should be made within 7 days from the date of receipt of the Clearance letter and a copy of the same shall be forwarded to the DEIAA, Tiruppur.
2. No Objection Certificate from the Standing Committee of the National Board of Wild Life shall be obtained, if protected areas are located within 10 Kilo meters from the proposed project site.
3. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Mineral Concession Rules, 1959.
4. A copy of the Environmental Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat Union, Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions / representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.
5. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
6. The proponent shall ensure that First Aid Box is available at site.
7. The excavation activity shall not alter the natural drainage pattern of the area.
8. The excavated pit shall be restored by the project proponent for useful purposes.
9. The proponent shall quarry and remove only in the permitted areas as per the Approved Mining Plan.
10. The quarrying operation shall be restricted between 7 AM and 6 PM.
11. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.


Chairmah,
DEIAA, Tiruppur.


12/3/18

12. A minimum distance of 50 meters from any Public/Civil structure shall be kept from the periphery of the quarry permitted area.
13. Depth of quarrying shall be 2 meters above the ground water table or upto the approved depth of mining whichever is lesser to be considered as a safe guard against Environmental Contamination and over exploitation of resources.
14. The mined out pits should be backfilled where warranted and the area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
15. Wet drilling method is to be adopted to control dust emission. Delay detonator and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
16. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
17. The explosives shall not be stored at quarry site unless proper license should be obtained from the Petroleum Explosives and Safety Organization under Explosives Act.
18. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
19. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and the records kept for inspection.
20. The proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF, Gol on 16.11.2009.
21. The following measures are to be implemented to reduce Air Pollution during transportation of mineral.
 - a. Roads shall be graded to mitigate the dust emission.
 - b. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust.
22. The following measures are to be implemented to reduce Noise Pollution
 - a. Proper and regular maintenance of vehicle and other equipment.
 - b. Limiting time exposure of workers to excessive noise.
 - c. The workers employed shall be provided with protection equipment and earmuffs etc.
 - d. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.
23. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dated: 11.1.2010 issued by the MoE&F, Gol to control noise to the prescribed level.
24. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.


 Chairman,
 DEIAA, Tiruppur.

25. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
26. The following measures are to be adopted to control erosion of dumps:-
 - a. Retention / toe walls shall be provided at the foot of the dumps.
 - b. Worked out slops are to be stabilized by planting appropriate shrub / grass species on the slopes.
27. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous Wastes (Management, Handling, and trans-boundary movement Rules, 2008 and its amendments thereof to the recyclers authorized by TNPCB.
28. Concealing the factual date or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
29. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
30. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the over flow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
31. The proponent shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. It at any stage, if it is observed that the ground water table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. The PWD, Ground Water Division shall ensure this.
32. No tree-felling shall be done in the leased area, except only with the permission from competent authority.
33. To Take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air and flora / fauna environment, slurry water generated / disposed and method of disposal, involving a reputed academic institution.
34. It shall be ensured that the total extent of nearby quarries (existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 25 hectares within the quarry lease period of this application.
35. It shall be ensured that there is no habitation is located within 500 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 500 m radius from the periphery of the quarry site.


 J. Chairman,
 DEIAA, Tiruppur.


 12/3/18

36. Ground water quality monitoring should be conducted once in 6 months by the proponent and the records kept for inspection. The District Environment Engineer, TNPCB, shall ensure this.
37. Transportation of the quarries material shall not cause any hindrance to the village people / existing village road.
38. Free silica test should be conducted and reported to Tamil Nadu Pollution Control Board, Tiruppur, and Regional Director, MoEF, GOI.
39. Air sampling at intersection point should be conducted and reported to Tamil Nadu Pollution Control Board, Tiruppur and Regional Director, MoEF, GOI..
40. Bunds to be provided at the boundary of the project site.
41. The project proponent shall undertake plantation/ afforestation work by planting the native species on all side of the lease area at the rate of 400 / Hec. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.
42. At least 75 Neem Trees and 50 Pungan Trees should be planted around the boundary of the quarry site.
43. Floor of excavated pits should be leveled as per the Approved Mining Plan (Conceptual Mining Plan).
44. The project proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR activity.
45. The project proponent shall comply with the Tamil Nadu Minor Mineral Concession Rules, 1959 and other relevant Mining Rules and Regulations where ever applicable.
46. Rainwater shall be pumped out via settling tank only.
47. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
48. As per MoEF& CC, GoI, Office Memorandum dated 30.03.2015, prior clearance from Forestry & Wild life angle including clearance from obtaining committee of the National Board for Wild Life as applicable shall be obtained before starting the quarrying operation, if the project site is located within 10 KM from National Park and Sanctuaries.
49. The quarrying activity shall be stopped if the entire quantity indicated in the Approved Mining Plan is quarried even before the expiry of the quarry lease period and the same shall be monitored by the Deputy Director/Assistant Director, Geology and Mining.
50. Safety equipments should be provided to all the employees.
51. Safety distance of 50 meters has to be provided in case of railway, reservoir, canal / odai.


Chairman,
DEIAA, Tiruppur.


12/3/18

52. The proponent shall collect the Baseline data covering the Air, Water, Noise and land environment quality for the quarry site for every 6 months. The District Environment Engineer, TNPCB, shall ensure this.
53. The proponent shall erect the pillars in accordance with the Rules for depicting GPS details in the earmarked boundary of the quarry site to monitor electronically.
54. The proponent shall furnish the data obtained from the Public Works Department regarding the details of Ground water table in the quarry site.
55. The proponent has to provide insurance protection to the workers.
56. The Proponent has to display the name board at the quarry site showing the details of proponent, lease period, extent, etc., with respect of the existing activity before the commencement of mining.
57. If any Heavy earth machinery and equipments, utilized, necessary approval shall be obtained from the competent authority as per Metaliferous Mining Regulations 1961.
- 58. A safety distance of 10 Meters should be provided to the Cart Track situated on the Eastern boundary of the proposed field.**

General Conditions:-

1. Environmental Clearance is given only on the factual records, documents and details furnished by the Proponent.
2. The Proponent shall obtain the Consent for establishment and Consent to operate from the Tamil Nadu Pollution Control Board, Tiruppur before commencing the quarry activity.
3. No change in mining technology and scope of working should be made without prior approval of the DEIAA, Tiruppur.
4. Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particular matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
5. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
6. A 7.5 Meter berm shall be left from the boundary of adjoining field.
7. Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.


Chairman,
DEIAA, Tiruppur.


12/3/18

8. Vehicular emission shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
9. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
10. All personnel shall be provided with protective respiratory devices including safety shoes, masks, gloves, etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any constructions due to exposure to dust and take corrective measures, if needed.
11. Periodical medical examination of workers engaged in the project shall be carried out and records to be maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc. and a record should be maintained.
12. Workers / labours shall be provided with facilities for drinking water and sanitation facility for female and male separately.
13. The project proponent shall ensure that child labour is not employed / engaged in the quarrying activity.
14. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Officer located at Chennai.
15. The Environmental Clearance does not absolve the applicant / proponent of his obligation / requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
16. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance.
17. The DEIAA, Tiruppur may alter / modify the above conditions or stipulate any further condition in the interest of environment protection.
18. The DEIAA, Tiruppur may cancel the environmental clearance granted to this project under the provisions of EIA Notification, 2006, if, at any stage of the validity of this environmental clearance, if it is found or if it comes to the knowledge of this DEIAA, Tiruppur that the project proponent has deliberately concealed and / or submitted false or misleading information or inadequate data for obtaining the environmental clearance.
19. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.


J. Chairman,
DEIAA, Tiruppur.


12/13/18

20. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, draft Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006 and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India / Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.
21. Any other conditions stipulated by other statutory / Government authorities shall be complied.
22. Any appeal against this environmental clearance shall lie with the Tamil Nadu State Environment Impact Assessment Authority, Chennai, if preferred, within a period of 30 days.


 J. Chairman,
 DEIAA, Tiruppur.


 12/3/18

Copy to

1. The Secretary, Ministry of Mines, Government of India , Shastri Bhawan, New Delhi
2. The Principal Secretary, Environment and Forest Department, Government of Tamil Nadu, Secretariat, Fort. St. George, Chennai- 600 009.
3. The Additional Chief Secretary to Government, Industries Department, Government of Tamil Nadu, Secretariat, Fort. St. George, Chennai- 600 009.
4. The Chairman, State Level Environment Impact Assessment Authority, Panagal Maaligai, Saidapet, Chennai – 600 015.
5. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building 1st& 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai-34.
6. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex East Arjun Nagar, New Delhi 110 032.
7. The Director of Geology and Mining, Guindy, Chennai-32.
8. The District Environment Engineer, Tamil Nadu Pollution Control Board, Tiruppur (South).
9. The Assistant Director, Public Works Department, Ground Water Division, Coimbatore.
10. The District Forest Officer, Tiruppur.
11. Spare.

Annexure-XIII- Copy of Lab Report

ABM ENVIRONMENTAL AND ANALYTICAL LABORATORY

(Unit of Aadhi Boomi Mining and Enviro Tech Pvt Ltd)



NIPBASS PLAZA
4/77-L, Indrani Nagar, Santhai Road,
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Ph: (0427)2444297, 2440446
Mob: 9842729655, 9443290855



Email: suriyakumarsenban@gmail.com, abmlabnabl@gmail.com

TEST REPORT

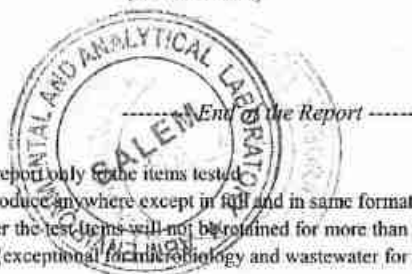
Sample Ref No: ABM-TRF-225		Report No. : ABM-TR-757(a)
Issued To:	Thiru.V.Gangesan, Kodangipalayam Village, Palladam (TK), Tiruppur (DT).	Report Date : 02.01.2023 Page : 1 of 1
	Sample Name : Bore Water Sample Description : Colourless Liquid Sample Drawn By/ Date : By hand/28.12.2022 Sample method : ABMEAL/QSP/21 Sample Plan : ABMEAL/QSP/22 Sample Mark : Core Zone Site Address : Village : Kodangipalayam District : Thiruppur State : Tamil Nadu.	Received On : 28.12.2022 Commenced On : 28.12.2022 Completed On : 31.12.2022 Sample latitude : 11°1'25.81" N Sample Longitude : 77° 12'10.43" E

S.No	Parameters	Units	Methods	Results
1.	pH	-	IS 3025:P.11:1983:R.2019	7.49
2	Electrical Conductivity (EC)	µs/cm	IS 3025:P.14:1984:R.2019	1192
3	Turbidity	NTU	IS 3025:P.10:1984:R.2017	BDL(DL:0.1)
4	Temperature	°C	IS 3025:P.09:1984:R.2017	25.1
5	Total Suspended Solids (TSS)	mg/l	IS 3025:P.17:1984:R.2017	2
6	Total Dissolved Solids (TDS)	mg/l	IS 3025:P.16:1984:R.2012	714
7	Total Hardness as CaCO ₃	mg/l	IS 3025:P.21:2009:R.2019	380
8	Calcium as Ca	mg/l	IS 3025:P.40:1991:R.2019	260
9	Magnesium as Mg	mg/l	IS 3025:P.46:1994:R.2019	120
10	Chloride as Cl ⁻	mg/l	IS 3025:P.32:1988:R.2019	290
11	Total Alkalinity as CaCO ₃	mg/l	IS 3025:P.23:1986:R.2019	190
12	Carbonate	mg/l	IS 3025:P.51:1986:R.2017	BDL(DL:1.0)
13	Bicarbonate	mg/l	IS 3025:P.51:1986:R.2017	190
14	Sulfate	mg/l	IS 3025:P.24:1986:R.2019	43
15	Iron	mg/l	IS 3025:P.53:1984:R.2017	0.06

Prepared by
(V.KALAIYANI)

Verified by
(V.KALAIYANI)

Authorized Signatory
(S.SURVAKUMAR)



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Mob: 9842729655, 9448290855



Email: suriyakumarcmhnan@gmail.com, abmlabnabl@gmail.com

TEST REPORT

Sample Ref No: ABM-TRF-225		Report No. : ABM-TR-757(a)
Issued To:	Thiru.V.Gangesan, Kodangipalayam Village, Palladam (TK), Tiruppur (DT).	Report Date : 02.01.2023 Page : 1 of 1
Sample Name	: Bore Water	Received On : 28.12.2022
Sample Description	: Colourless Liquid	Commenced On : 28.12.2022
Sample Drawn By/ Date	: By hand/28.12.2022	Completed On : 31.12.2022
Sample method	: ABMEAL/QSP/21	Sample latitude : 11°2'53.63" N
Sample Plan	: ABMEAL/QSP/22	Sample Longitude : 77°11'24.18" E
Sample Mark	: Buffer Zone-I	
Site Address	: Village : Kumbakkadu puthur District : Thiruppur State : Tamil Nadu.	

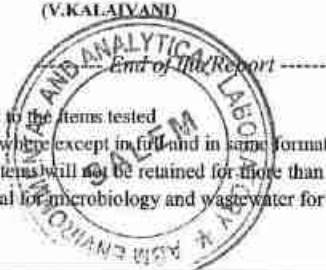
S.No	Parameters	Units	Methods	Results
1.	pH	-	IS 3025:P.11:1983:R.2019	7.07
2	Electrical Conductivity (EC)	µs/cm	IS 3025:P.14:1984:R.2019	1364
3	Turbidity	NTU	IS 3025:P.10:1984:R.2017	BDL(DL:0.1)
4	Temperature	°C	IS 3025:P.09:1984:R.2017	25.3
5	Total Suspended Solids (TSS)	mg/l	IS 3025:P.17:1984:R.2017	2
6	Total Dissolved Solids (TDS)	mg/l	IS 3025:P.16:1984:R.2012	830
7	Total Hardness as CaCO ₃	mg/l	IS 3025:P.21:2009:R.2019	390
8	Calcium as Ca	mg/l	IS 3025:P.40:1991:R.2019	240
9	Magnesium as Mg	mg/l	IS 3025:P.46:1994:R.2019	150
10	Chloride as Cl ⁻	mg/l	IS 3025:P.32:1988:R.2019	341
11	Total Alkalinity as CaCO ₃	mg/l	IS 3025:P.23:1986:R.2019	210
12	Carbonate	mg/l	IS 3025:P.51:1986:R.2017	BDL(DL:1.0)
13	Bicarbonate	mg/l	IS 3025:P.51:1986:R.2017	210
14	Sulfate	mg/l	IS 3025:P.24:1986:R.2019	47
15	Iron	mg/l	IS 3025:P.53:1984:R.2017	0.07

Prepared by
(V.KALAIVANI)

Verified by
(V.KALAIVANI)

Authorized Signatory
(S.SURYAKUMAR)

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ABM ENVIRONMENTAL AND ANALYTICAL LABORATORY
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Ph: (0427)2444297, 2440446
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Email: suriyakumarsemban@gmail.com, abmlabnabl@gmail.com

TEST REPORT

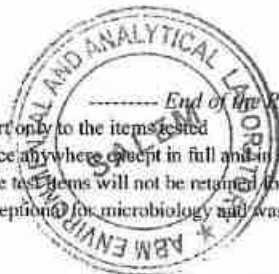
Sample Ref No: ABM-TRF-225		Report No. : ABM-TR-757(a)
Issued To:	Thiru.V.Gangesan, Kodangipalayam Village, Palladam (TK), Tiruppur (DT).	Report Date : 02.01.2023 Page : 1 of 1
Sample Name	: Bore Water	Received On : 28.12.2022
Sample Description	: Colourless Liquid	Commenced On : 28.12.2022
Sample Drawn By/ Date	: By hand/28.12.2022	Completed On : 31.12.2022
Sample method	: ABMEAL/QSP/21	Sample latitude : 11°02'35.36" N
Sample Plan	: ABMEAL/QSP/22	Sample Longitude : 77°13'17.84" E
Sample Mark	: Buffer Zone-II	
Site Address	: Village : Rasakoundanpalayam District : Tiruppur State : Tamil Nadu.	

S.No	Parameters	Units	Methods	Results
1.	pH	-	IS 3025:P.11:1983:R.2019	7.84
2	Electrical Conductivity (EC)	µs/cm	IS 3025:P.14:1984:R.2019	758
3	Turbidity	NTU	IS 3025:P.10:1984:R.2017	BDL(DL:0.1)
4	Temperature	°C	IS 3025:P.09:1984:R.2017	25.5
5	Total Suspended Solids (TSS)	mg/l	IS 3025:P.17:1984:R.2017	1
6	Total Dissolved Solids (TDS)	mg/l	IS 3025:P.16:1984:R.2012	464
7	Total Hardness as CaCO ₃	mg/l	IS 3025:P.21:2009:R.2019	190
8	Calcium as Ca	mg/l	IS 3025:P.40:1991:R.2019	110
9	Magnesium as Mg	mg/l	IS 3025:P.46:1994:R.2019	80
10	Chloride as Cl ⁻	mg/l	IS 3025:P.32:1988:R.2019	220
11	Total Alkalinity as CaCO ₃	mg/l	IS 3025:P.23:1986:R.2019	80
12	Carbonate	mg/l	IS 3025:P.51:1986:R.2017	BDL(DL:1.0)
13	Bicarbonate	mg/l	IS 3025:P.51:1986:R.2017	80
14	Sulfate	mg/l	IS 3025:P.24:1986:R.2019	56
15	Iron	mg/l	IS 3025:P.53:1984:R.2017	0.04

V. King
Prepared by
(V.KALAIYANI)

V. King
Verified by
(V.KALAIYANI)

Authorized Signatory
(S.SURYAKUMAR)



----- End of the Report -----

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Email: suriyakumarsemban@gmail.com, abmlabnabl@gmail.com



TEST REPORT

Sample Ref No: ABM-TRF-225		Report No. : ABM-TR-757(a)
Issued To:	Thiru.V.Gangesan, Kodangipalayam Village, Palladam (TK), Tiruppur (DT).	Report Date : 02.01.2023 Page : 1 of 1
Sample Name	: Bore Water	Received On : 28.12.2022
Sample Description	: Colourless Liquid	Commenced On : 28.12.2022
Sample Drawn By/ Date	: By hand/28.12.2022	Completed On : 31.12.2022
Sample method	: ABMEAL/QSP/21	Sample latitude : 11°1'43.36" N
Sample Plan	: ABMEAL/QSP/22	Sample Longitude : 77°10'29.68" E
Sample Mark	: Buffer Zone-III	
Site Address	: Village : Kadampadi District : Tiruppur State : Tamil Nadu.	

S.No	Parameters	Units	Methods	Results
1.	pH	-	IS 3025:P.11:1983:R.2019	7.25
2	Electrical Conductivity (EC)	µs/cm	IS 3025:P.14:1984:R.2019	1540
3	Turbidity	NTU	IS 3025:P.10:1984:R.2017	BDL(DL:0.1)
4	Temperature	°C	IS 3025:P.09:1984:R.2017	25
5	Total Suspended Solids (TSS)	mg/l	IS 3025:P.17:1984:R.2017	4
6	Total Dissolved Solids (TDS)	mg/l	IS 3025:P.16:1984:R.2012	924
7	Total Hardness as CaCO ₃	mg/l	IS 3025:P.21:2009:R.2019	460
8	Calcium as Ca	mg/l	IS 3025:P.40:1991:R.2019	270
9	Magnesium as Mg	mg/l	IS 3025:P.46:1994:R.2019	190
10	Chloride as Cl ⁻	mg/l	IS 3025:P.32:1988:R.2019	430
11	Total Alkalinity as CaCO ₃	mg/l	IS 3025:P.23:1986:R.2019	310
12	Carbonate	mg/l	IS 3025:P.51:1986:R.2017	BDL(DL:1.0)
13	Bicarbonate	mg/l	IS 3025:P.51:1986:R.2017	310
14	Sulfate	mg/l	IS 3025:P.24:1986:R.2019	84
15	Iron	mg/l	IS 3025:P.53:1984:R.2017	0.08

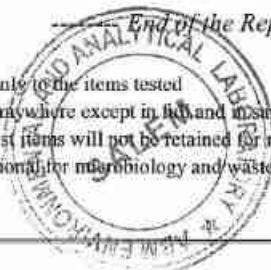
V. Kalaiyani
Prepared by
(V.KALAIYANI)

S. Sagathisri Krishnan
Verified by
(S.SAGATHSRI KRISHNAN)

S. Suryakumar
Authorized Signatory
(S.SURYAKUMAR)

----- End of the Report -----

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Email: suryakumarsemban@gmail.com, abmlabnabl@gmail.com

TEST REPORT

Sample Ref No: ABM-TRF-225		Report No. : ABM-TR-757(a)
Issued To:	Thiru.V.Gangesan, Kodangipalayam Village, Palladam (TK), Tiruppur (DT).	Report Date : 02.01.2023 Page : 1 of 1
Sample Name	: Bore Water	Received On : 28.12.2022
Sample Description	: Colourless Liquid	Commenced On : 28.12.2022
Sample Drawn By/ Date	: By hand/28.12.2022	Completed On : 31.12.2022
Sample method	: ABMEAL/QSP/21	Sample latitude : 11°0'17.73" N
Sample Plan	: ABMEAL/QSP/22	Sample Longitude : 77° 10'59.95" E
Sample Mark	: Buffer Zone-IV	
Site Address	: Village : Paruvai District : Tiruppur State : Tamil Nadu.	

S.No	Parameters	Units	Methods	Results
1.	pH	-	IS 3025:P.11:1983:R.2019	7.15
2	Electrical Conductivity (EC)	µs/cm	IS 3025:P.14:1984:R.2019	2100
3	Turbidity	NTU	IS 3025:P.10:1984:R.2017	BDL(DL:0.1)
4	Temperature	°C	IS 3025:P.09:1984:R.2017	25.2
5	Total Suspended Solids (TSS)	mg/l	IS 3025:P.17:1984:R.2017	6
6.	Total Dissolved Solids (TDS)	mg/l	IS 3025:P.16:1984:R.2012	1260
7	Total Hardness as CaCO ₃	mg/l	IS 3025:P.21:2009:R.2019	420
8	Calcium as Ca	mg/l	IS 3025:P.40:1991:R.2019	96
9	Magnesium as Mg	mg/l	IS 3025:P.46:1994:R.2019	44
10	Chloride as Cl ⁻	mg/l	IS 3025:P.32:1988:R.2019	273
11.	Total Alkalinity as CaCO ₃	mg/l	IS 3025:P.23:1986:R.2019	168
12	Carbonate	mg/l	IS 3025:P.51:1986:R.2017	BDL(DL:1.0)
13	Bicarbonate	mg/l	IS 3025:P.51:1986:R.2017	168
14	Sulfate	mg/l	IS 3025:P.24:1986:R.2019	93
15	Iron	mg/l	IS 3025:P.53:1984:R.2017	0.09

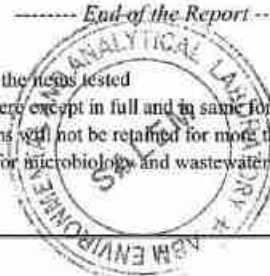
V. Kalavani
Prepared by
(V.KALAIVANI)

S. Sagath Sri Krishnan
Verified by
(S.SAGATHSRI KRISHNAN)

S. Suryakumar
Authorized Signatory
(S.SURYAKUMAR)

----- End of the Report -----

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ABM ENVIRONMENTAL AND ANALYTICAL LABORATORY
(Unit of Aadhi Boomi Mining and Enviro Tech Pvt Ltd)



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Email: suryakumarsemban@gmail.com, abmlabnabl@gmail.com

TEST REPORT

Sample Ref No: ABM-TRF- 225		Report No. : ABM-TR- 757(b)
Issued To:	Thiru.V.Gangesan, Kodangipalayam Village, Palladam (TK), Tiruppur (DT).	Report Date : 02.01.2023 Page : 1 of 1
Sample Name	: Soil	Received On : 28.12.2022
Sample Drawn By/ Date	: By hand/28.12.2022	Commenced On : 28.12.2022
Sample method	: ABMEAL/QSP/21	Completed On : 31.12.2022
Sample Plan	: ABMEAL/QSP/22	Sample latitude : 11°2'55.62" N
Sample Mark	: Buffer Zone-I	Sample Longitude : 77° 11'23.67" E
Site Address	: Village : Kumbakkadu Puthur District : Tiruppur State : Tamil Nadu.	

S.No	Parameters	Test Methods	Units	Results	
1.	pH	IS: 2720 (P-26):1987	-	8.32	
2.	Electrical Conductivity	IS :14767 : 2000	µs/cm	123	
3.	Moisture	IS:2720 (P-2):1972	%	2.03	
4.	Bulk density	ABMEAL/CH/SO/SOP/18	g/cc	1.04	
5.	Water holding capacity	IS :14765 : 2000	%	62	
6.	Texture	IS:10317:1982	%	Sand	54
				Silt	26
				Clay	20
				Sandy Clay Loam	
7.	Organic Matter	IS:2720 (P-22):1972	%	1.35	
8.	Calcium	ABMEAL/CH/SO/SOP/12	%	0.002	
9.	Magnesium	ABMEAL/CH/SO/SOP/13	%	BDL(DL:0.1)	
10.	Chloride	ABMEAL/CH/SO/SOP/14	%	0.004	

BDL = Below Detectable Limit : DL: Detection Limit

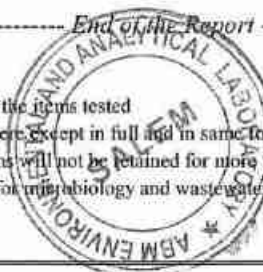
Prepared by
(V.KALAIVANI)

Verified by
(S.SAGATHSRI KRISHNAN)

Authorized Signatory
(S.SURYAKUMAR)

----- End of the Report -----

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TEST REPORT

Sample Ref No: ABM-TRF- 225		Report No. : ABM-TR- 757(b)
Issued To:	Thiru.V.Gangesan, Kodangipalayam Village, Palladam (TK), Tiruppur (DT).	Report Date : 02.01.2023 Page : 1 of 1
Sample Name	: Soil	Received On : 28.12.2022
Sample Drawn By/ Date	: By hand/28.12.2022	Commenced On : 28.12.2022
Sample method	: ABMEAL/QSP/21	Completed On : 31.12.2022
Sample Plan	: ABMEAL/QSP/22	Sample latitude : 11°2'33.09" N
Sample Mark	: Buffer Zone-II	Sample Longitude : 77° 13'16.90" E
Site Address	: Village : Rasakoundampalayam District : Tiruppur State : Tamil Nadu.	

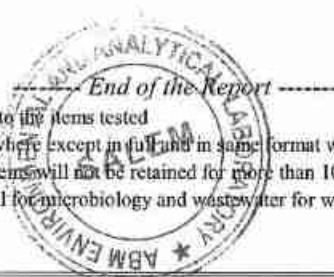
S.No	Parameters	Test Methods	Units	Results	
1.	pH	IS: 2720 (P-26):1987	-	7.55	
2.	Electrical Conductivity	IS:14767 : 2000	µs/cm	104	
3.	Moisture	IS:2720 (P-2):1972	%	1.69	
4.	Bulk density	ABMEAL/CH/SO/SOP/18	g/cc	1.15	
5.	Water holding capacity	IS:14765 : 2000	%	58	
6.	Texture	IS:10317:1982	%	Sand	48
				Silt	28
				Clay	24
					Sandy Loam
7.	Organic Matter	IS:2720 (P-22):1972	%	0.98	
8.	Calcium	ABMEAL/CH/SO/SOP/12	%	0.003	
9.	Magnesium	ABMEAL/CH/SO/SOP/13	%	BDL(DL:0.1)	
10.	Chloride	ABMEAL/CH/SO/SOP/14	%	0.004	

BDL = Below Detectable Limit : DL: Detection Limit

Prepared by
(V.KALAIYANI)

Verified by
(S.SAGATHSRI KRISHNAN)

Authorized Signatory
(S.SURYAKUMAR)



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Email: suriyakumarsembau@gmail.com, abmlabnabl@gmail.com

TEST REPORT

Sample Ref No: ABM-TRF- 225		Report No. : ABM-TR- 757(b)
Issued To:	Thiru.V.Gangesan, Kodangipalayam Village, Palladam (TK), Tiruppur (DT).	Report Date : 02.01.2023 Page : 1 of 1
Sample Name	: Soil	Received On : 28.12.2022
Sample Drawn By/ Date	: By hand/28.12.2022	Commenced On : 28.12.2022
Sample method	: ABMEAL/QSP/21	Completed On : 31.12.2022
Sample Plan	: ABMEAL/QSP/22	Sample latitude : 11 ^o 1'42.54" N
Sample Mark	: Buffer Zone-III	Sample Longitude : 77 ^o 10'25.63" E
Site Address	: Village : Kadampadi District : Tiruppur State : Tamil Nadu..	

S.No	Parameters	Test Methods	Units	Results	
1.	pH	IS: 2720 (P-26):1987	-	8.31	
2.	Electrical Conductivity	IS :14767 : 2000	µs/cm	121	
3.	Moisture	IS:2720 (P-2):1972	%	1.95	
4.	Bulk density	ABMEAL/CH/SO/SOP/18	g/cc	1.65	
5.	Water holding capacity	IS :14765 : 2000	%	64	
6.	Texture	IS:10317:1982	%	Sand	48
				Silt	32
				Clay	20
					Sandy Loam
7.	Organic Matter	IS:2720 (P-22):1972	%	1.42	
8.	Calcium	ABMEAL/CH/SO/SOP/12	%	0.002	
9.	Magnesium	ABMEAL/CH/SO/SOP/13	%	BDL(DL:0.1)	
10.	Chloride	ABMEAL/CH/SO/SOP/14	%	0.003	

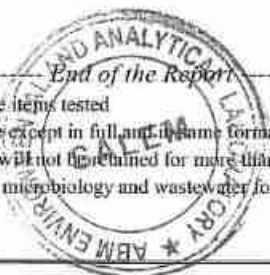
BDL = Below Detectable Limit : DL: Detection Limit

V.Kg
Prepared by
(V.KALAIYANI)

Verified by
(S.SAGATHSRI KRISHNAN)

Authorized Signatory
(S.SURIYAKUMAR)

- ABM ENVIRONMENTAL AND ANALYTICAL LABORATORY
End of the Report
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ABM ENVIRONMENTAL AND ANALYTICAL LABORATORY
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Email: suriyakumarsemban@gmail.com, abmlabnabl@gmail.com

TEST REPORT

Sample Ref No: ABM-TRF- 225		Report No. : ABM-TR- 757(b)
Issued To:	Thiru.V.Gangesan, Kodangipalayam Village, Palladam (TK), Tiruppur (DT).	Report Date : 02.01.2023 Page : 1 of 1
Sample Name	: Soil	Received On : 28.12.2022
Sample Drawn By/ Date	: By hand/28.12.2022	Commenced On : 28.12.2022
Sample method	: ABMEAL/QSP/21	Completed On : 31.12.2022
Sample Plan	: ABMEAL/QSP/22	Sample latitude : 11°0'19.01" N
Sample Mark	: Buffer Zone-IV	Sample Longitude : 77° 10'58.97" E
Site Address	: Village : Paruvai District : Tiruppur State : Tamil Nadu..	

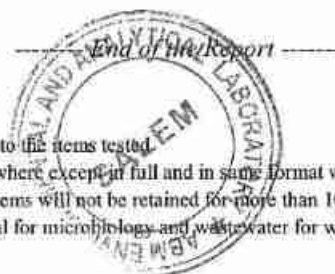
S.No	Parameters	Test Methods	Units	Results	
1.	pH	IS: 2720 (P-26):1987	-	7.80	
2.	Electrical Conductivity	IS :14767 : 2000	µs/cm	108	
3.	Moisture	IS:2720 (P-2):1972	%	2.34	
4.	Bulk density	ABMEAL/CH/SO/SOP/18	g/cc	1.35	
5.	Water holding capacity	IS :14765 : 2000	%	54	
6.	Texture	IS:10317:1982	%	Sand	52
				Silt	28
				Clay	20
				Sandy Loam	
7.	Organic Matter	IS:2720 (P-22):1972	%	1.05	
8.	Calcium	ABMEAL/CH/SO/SOP/12	%	0.004	
9.	Magnesium	ABMEAL/CH/SO/SOP/13	%	BDL(DL:0.1)	
10.	Chloride	ABMEAL/CH/SO/SOP/14	%	0.005	

BDL = Below Detectable Limit ; DL: Detection Limit

V. Kalavani
Prepared by
(V.KALAIVANI)

S. Sagathisri Krishnan
Verified by
(S.SAGATHSRI KRISHNAN)

S. Suryakumar
Authorized Signatory
(S.SURYAKUMAR)



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ABM ENVIRONMENTAL AND ANALYTICAL LABORATORY
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TEST REPORT

Sample Ref No: ABM-TRF-225		Report No. : ABM-TR-757(c)
Issued To:	Thiru.V.Gangesan, Kodangipalayam Village, Palladam (TK), Tiruppur (DT).	Report Date : 02.01.2023 Page : 1 of 1
Sample Description	: AMBIENT AIR	Received On : 28.12.2022
Sampling Method	: IS 5182(Part-14):2000	Commenced On : 28.12.2022
Date of Sampling	: 27.12.2022	Completed On : 31.12.2022
Sample Mark	: Core Zone	Sample latitude : 11° 1'25.39" N
Sample Drawn By/ Date	: By hand/28.12.2022	Sample Longitude : 77° 12'4.63" E
Sampling Method	: ABMEAL/QSP/22	
Ambient Temperature	: 30°C	
Relative Humidity	: 67%	
Site Address	: Village : Kodangipalayam District : Tiruppur State : Tamil Nadu.	

S.NO	PARAMETERS	PROTOCOL	UNIT	RESULT
1	Particulate Matter(PM2.5)	IS 5182 (Part 24): 2019	µg/m ³	28
2	Respirable Particulate Matter(PM10)	IS 5182 (Part 23): 2006	µg/m ³	53
3	Sulphur Dioxide(SO ₂)	IS 5182 (Part 2): 2006	µg/m ³	15
4	Nitrogen Dioxide(NO ₂)	IS 5182(Part 6) : 2006	µg/m ³	20
5	Ozone(O ₃)	IS 5182(Part 9): 1974	µg/m ³	32
6	Ammonia(NH ₃)	IS 5182 (Part 25): 2018	µg/m ³	27
7	Nickel(Ni)	IS 5182 (Part 26) : 2020	µg/m ³	BDL(DL:0.1)
8	Lead(Pb)	IS 5180(Part22): 2004	µg/m ³	BDL(DL:0.1)

BDL = Below Detectable Limit ; DL = Detection Limit

V.Kalavani
Prepared by
(V.KALAIVANI)

V.Kalavani
Verified by
(V.KALAIVANI)

S.Suryakumar
Authorized Signatory
(S.SURYAKUMAR)



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Email: suriyakumarsemban@gmail.com, abmlabnabl@gmail.com

TEST REPORT

Sample Ref No: ABM-TRF-225		Report No. : ABM-TR-757(c)
Issued To:	Thiru, V.Gangesan, Kodangipalayam Village, Palladam (TK), Tiruppur (DT).	Report Date : 02.01.2023 Page : 1 of 1
Sample Description	: AMBIENT AIR	Received On : 28.12.2022
Sampling Method	: IS 5182(Part-14):2000	Commenced On : 28.12.2022
Date of Sampling	: 27.12.2022	Completed On : 31.12.2022
Sample Mark	: Buffer Zone-I	Sample latitude : 11° 2'49.72" N
Sample Drawn By/ Date	: By hand/28.12.2022	Sample Longitude : 77°11'16.48" E
Sampling Method	: ABMEAL/QSP/22	
Ambient Temperature	: 32°C	
Relative Humidity	: 65%	
Site Address	: Village : Kumbakkaduputhur District : Tiruppur State : Tamil Nadu.	

S.NO	PARAMETERS	PROTOCOL	UNIT	RESULT
1	Particulate Matter(PM2.5)	IS 5182 (Part 24): 2019	µg/m ³	27
2	Respirable Particulate Matter(PM10)	IS 5182 (Part 23): 2006	µg/m ³	49
3	Sulphur Dioxide(SO ₂)	IS 5182 (Part 2): 2006	µg/m ³	12
4	Nitrogen Dioxide(NO ₂)	IS 5182(Part 6) : 2006	µg/m ³	21
5	Ozone(O ₃)	IS 5182(Part 9): 1974	µg/m ³	30
6	Ammonia(NH ₃)	IS 5182 (Part 25): 2018	µg/m ³	25
7	Nickel(Ni)	IS 5182 (Part 26) : 2020	µg/m ³	BDL(DL:0.1)
8	Lead(Pb)	IS 5180(Part22): 2004	µg/m ³	BDL(DL:0.1)

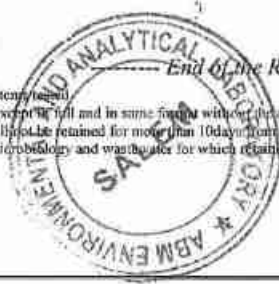
BDL = Below Detectable Limit ; DL = Detection Limit

V King
Prepared by
(V.KALAIVANI)

V King
Verified by
(V.KALAIVANI)

S.S.
Authorized Signatory
(S.SURYAKUMAR)

- End of the Report -----
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Email: suryakumarsemban@gmail.com, abmalabnabl@gmail.com

TEST REPORT

Sample Ref No: ABM-TRF-225		Report No. : ABM-TR-757(c)
Issued To:	Thiru.V.Gangesan, Kodangipalayam Village, Palladam (TK), Tiruppur (DT).	Report Date : 02.01.2023 Page : 1 of 1
Sample Description	: AMBIENT AIR	Received On : 28.12.2022
Sampling Method	: IS 5182(Part-14):2000	Commenced On : 28.12.2022
Date of Sampling	: 27.12.2022	Completed On : 31.12.2022
Sample Mark	: Buffer Zone-II	Sample latitude : 11° 2'32.85" N
Sample Drawn By/ Date	: By hand/28.12.2022	Sample Longitude : 77°13'18.84" E
Sampling Method	: ABMEAL/QSP/22	
Ambient Temperature	: 32°C	
Relative Humidity	: 67%	
Site Address	: Village : Rasakoundanpalayam District : Tiruppur State : Tamil Nadu..	

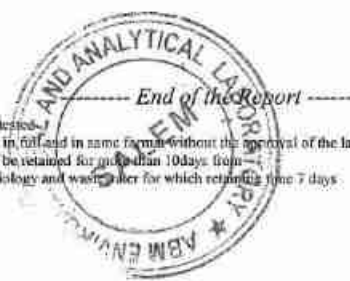
S.NO	PARAMETERS	PROTOCOL	UNIT	RESULT
1	Particulate Matter(PM2.5)	IS 5182 (Part 24): 2019	µg/m ³	28
2	Respirable Particulate Matter(PM10)	IS 5182 (Part 23): 2006	µg/m ³	50
3	Sulphur Dioxide(SO ₂)	IS 5182 (Part 2): 2006	µg/m ³	14
4	Nitrogen Dioxide(NO ₂)	IS 5182(Part 6) : 2006	µg/m ³	23
5	Ozone(O ₃)	IS 5182(Part 9): 1974	µg/m ³	29
6	Ammonia(NH ₃)	IS 5182 (Part 25): 2018	µg/m ³	24
7	Nickel(Ni)	IS 5182 (Part 26) : 2020	µg/m ³	BDL(DL:0.1)
8	Lead(Pb)	IS 5180(Part22): 2004	µg/m ³	BDL(DL:0.1)

BDL = Below Detectable Limit ; DL = Detection Limit

V. Kalaiavan
Prepared by
(V.KALAIIVANI)

V. Kalaiavan
Verified by
(V.KALAIIVANI)

S. Suryakumar
Authorized Signatory
(S.SURYAKUMAR)



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TEST REPORT

Sample Ref No: ABM-TRF-225		Report No. : ABM-TR-757(c)
Issued To:	Thiru.V.Gangesan, Kodangipalayam Village, Palladam (TK), Tiruppur (DT).	Report Date : 02.01.2023 Page : 1 of 1
Sample Description	: AMBIENT AIR	Received On : 28.12.2022
Sampling Method	: IS 5182(Part-14):2000	Commenced On : 28.12.2022
Date of Sampling	: 27.12.2022	Completed On : 31.12.2022
Sample Mark	: Buffer Zone-III	Sample latitude : 11° 1'42.58" N
Sample Drawn By/ Date	: By hand/28.12.2022	Sample Longitude : 77° 10'29.61" E
Sampling Method	: ABMEAL/QSP/22	
Ambient Temperature	: 36°C	
Relative Humidity	: 68%	
Site Address	: Village : Kadampadi District : Tiruppur State : Tamil Nadu..	

S.NO	PARAMETERS	PROTOCOL	UNIT	RESULT
1	Particulate Matter(PM2.5)	IS 5182 (Part 24): 2019	µg/m ³	26
2	Respirable Particulate Matter(PM10)	IS 5182 (Part 23): 2006	µg/m ³	48
3	Sulphur Dioxide(SO ₂)	IS 5182 (Part 2): 2006	µg/m ³	13
4	Nitrogen Dioxide(NO ₂)	IS 5182(Part 6): 2006	µg/m ³	22
5	Ozone(O ₃)	IS 5182(Part 9): 1974	µg/m ³	33
6	Ammonia(NH ₃)	IS 5182 (Part 25): 2018	µg/m ³	26
7	Nickel(Ni)	IS 5182 (Part 26) : 2020	µg/m ³	BDL(DL:0.1)
8	Lead(Pb)	IS 5180(Part22): 2004	µg/m ³	BDL(DL:0.1)

BDL = Below Detectable Limit ; DL = Detection Limit

V. Kalai
Prepared by
(V.KALAIVANI)

V. Kalai
Verified by
(V.KALAIVANI)


 Authorized Signatory
(S.SURYAKUMAR)

- Note: 1. Test Results Shown in this test report only to the items tested
 2. This test report shall not be reproduced anywhere except in full and in same format without the approval of the laboratory
 3. Unless informed by the customer the test items will not be retained for more than 14 days from the date of issue of test report (exceptional for microbiology and water for which retaining time is 30 days)



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TEST REPORT

Sample Ref No: ABM-TRF-225		Report No. : ABM-TR-757(c)
Issued To:	Thiru.V.Gangesan, Kodangipalayam Village, Palladam (TK), Tiruppur (DT).	Report Date : 02.01.2023 Page : 1 of 1
Sample Description	: AMBIENT AIR	Received On : 28.12.2022
Sampling Method	: IS 5182(Part-14):2000	Commenced On : 28.12.2022
Date of Sampling	: 28.12.2022	Completed On : 31.12.2022
Sample Mark	: Buffer Zone-IV	Sample latitude : 11° 0'17.38" N
Sample Drawn By/ Date	: By hand/28.12.2022	Sample Longitude : 77°10'59.51" E
Sampling Method	: ABMEAL/QSP/22	
Ambient Temperature	: 35°C	
Relative Humidity	: 59%	
Site Address	: Village : Paruvai District : Tiruppur State : Tamil Nadu..	

S.NO	PARAMETERS	PROTOCOL	UNIT	RESULT
1	Particulate Matter(PM2.5)	IS 5182 (Part 24): 2019	µg/m ³	25
2	Respirable Particulate Matter(PM10)	IS 5182 (Part 23): 2006	µg/m ³	46
3	Sulphur Dioxide(SO ₂)	IS 5182 (Part 2): 2006	µg/m ³	11
4	Nitrogen Dioxide(NO ₂)	IS 5182(Part 6) : 2006	µg/m ³	19
5	Ozone(O ₃)	IS 5182(Part 9): 1974	µg/m ³	28
6	Ammonia(NH ₃)	IS 5182 (Part 25): 2018	µg/m ³	23
7	Nickel(Ni)	IS 5182 (Part 26) : 2020	µg/m ³	BDL(DL:0.1)
8	Lead(Pb)	IS 5180(Part22): 2004	µg/m ³	BDL(DL:0.1)

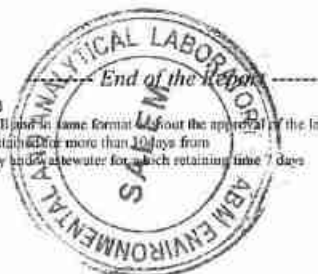
BDL = Below Detectable Limit ; DL = Detection Limit

V. Kalai
Prepared by
(V.KALAIVANI)

V. Kalai
Verified by
(V.KALAIVANI)

(Signature)
Authorized Signatory
(S.SURIYAKUMAR)

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ABM ENVIRONMENTAL AND ANALYTICAL LABORATORY
(Unit of Aadla Boomi Mining and Enviro Tech Pvt Ltd)



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Ph: (0427)2444297, 2440446
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Email: suriyakumarzemban@gmail.com, abmlabnabl@gmail.com

TEST REPORT

Sample Ref No: ABM-TRF-225		Report No. : ABM-TR-757(d)
Issued To:	Thiru.V.Gangesan, Kodangipalayam Village, Palladam (TK), Tiruppur (DT).	Report Date : 02.01.2023 Page : 1 of 1
Sample Name	: NOISE	Data Received On : 28.12.2022
Monitoring Date	: 27.12.2022	
Site Address	: Village : Kodangipalayam	
	: District : Tiruppur : State : Tamil Nadu.	

S.NO	PARAMETERS	TEST METOD	UNIT	LOCATION	RESULT
1	NOISE	IS:9989-1981	dB(A)	N	37.4
2				W	36.9
3				E	42.1
4				S	39.8
5				Core Zone	41.1

V. Kalyan
Prepared by
(V.KALAIVANI)


Verified by
(S.SURYAKUMAR)



----- End of the Report -----

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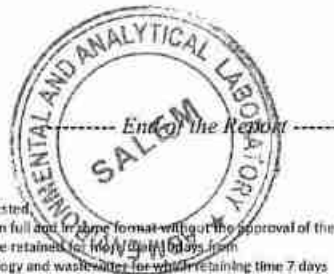
TEST REPORT

Sample Ref No: ABM-TRF-225		Report No. : ABM-TR-757(d)
Issued To:	Thiru.V.Gangesan, Kodangipalayam Village, Palladam (TK), Tiruppur (DT).	Report Date : 02.01.2023 Page : 1 of 1
Sample Name	: NOISE	Data Received On : 28.12.2022
Monitoring Date	: 27.12.2022	
Site Address	: Village : Kumbakkadu Puthur District : Tiruppur State : Tamil Nadu.	

S.NO	PARAMETERS	TEST METOD	UNIT	LOCATION	RESULT
1	NOISE	IS:9989-1981	dB(A)	N	49.4

V. Kalai
Prepared by
(V.KALAIVANI)

S.S.
Verified by
(S.SURVAKUMAR)



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The date of issue of test report (exceptional for microbiology and waste water for which retaining time 7 days)

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TEST REPORT

Sample Ref No: ABM-TRF-225		Report No. : ABM-TR-757(d)
Issued To:	Thiru.V.Gangesan, Kodangipalayam Village, Palladam (TK), Tiruppur (DT).	Report Date : 02.01.2023 Page : 1 of 1
Sample Name	: NOISE	Data Received On :28.12.2022
Monitoring Date	: 27.12.2022	
Site Address	: Village : Rasakoundanpalayam District : Tiruppur State : Tamil Nadu.	

S.NO	PARAMETERS	TEST METOD	UNIT	LOCATION	RESULT
1	NOISE	IS:9989-1981	dB(A)	S	45.6

V. Kalai
Prepared by
(V.KALAIYANI)

S. Suryakumar
Verified by
(S.SURYAKUMAR)



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The date of issue of test report (exceptional for microbiology and wastewater for which retaining time 7 days)

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TEST REPORT

Sample Ref No: ABM-TRF-225		Report No. : ABM-TR-757(d)
Issued To:	Thiru.V.Gangesan, Kodangipalayam Village, Palladam (TK), Tiruppur (DT).	Report Date : 02.01.2023 Page : 1 of 1
Sample Name	: NOISE	Data Received On : 28.12.2022
Monitoring Date	: 27.12.2022	
Site Address	: Village : Kadampadi	
	: District : Tiruppur	
	: State : Tamil Nadu.	

S.NO	PARAMETERS	TEST METOD	UNIT	LOCATION	RESULT
1	NOISE	IS:9989-1981	dB(A)	W	39.4

V. Kalaiyani
Prepared by
(V.KALAIYANI)

S. Suryakumar
Verified by
(S.SURYAKUMAR)



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Email: suriyakumarsemban@gmail.com, abmlabnabl@gmail.com

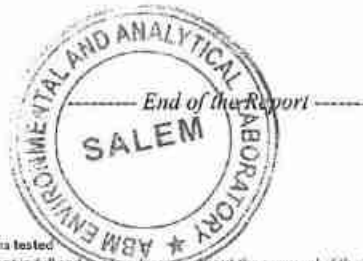
TEST REPORT

Sample Ref No: ABM-TRF-225		Report No. : ABM-TR-757(d)
Issued To:	Thiru.V.Gangesan, Kodangipalayam Village, Palladam (TK), Tiruppur (DT).	Report Date : 02.01.2023 Page : 1 of 1
Sample Name	: NOISE	Data Received On : 28.12.2022
Monitoring Date	: 27.12.2022	
Site Address	: Village : Paruvai District : Tiruppur State : Tamil Nadu.	

S.NO	PARAMETERS	TEST METOD	UNIT	LOCATION	RESULT
1	NOISE	IS:9989-1981	dB(A)	E	39.3

V.Kij
Prepared by
(V.KALAIVANI)

S.S
Verified by
(S.SURYAKUMAR)



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The date of issue of test report (exceptional for microbiology and wastewater for which retaining time 7 days)

அனுப்புநர்

திரு.கே.மனோகரன்,
வட்டார வளர்ச்சி அலுவலர்,
(வட்டார ஊராட்சி)(மு.கூ.பொ.),
பல்லடம் 641 664,
திருப்பூர் மாவட்டம்.

பெறுநர்

துணை இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
திருப்பூர்.

ந.க.எண்: 2503/2023/அ3,

நாள்: 27.07.2023.

ஐயா,

பொருள்: கனிமங்களும் சுரங்கங்களும் - சிறு கனிமம் - சாதாரண கற்கள் - திருப்பூர் மாவட்டம் - பல்லடம் வட்டம் - கோடங்கிபாளையம் கிராமம் - புல எண்கள் 103/3A1A(P) (1.00.0), 103/3A2 (0.40.5) மற்றும் 103/3B1 (0.40.5) ஆகியவற்றில் மொத்தம் 1.81.0 ஹெக்டர் பட்டா நிலப்பரப்பில் சாதாரண கற்கள்/கிராவல் மண் வெட்டி எடுக்க 5 வருடங்களுக்கு குவாரி குத்தகை உரிமம் கோரி திரு.வி.கங்கேசன், த/பெ.வேலுச்சாமி, எண் 5/10, மாரியப்ப தேவர் வீதி, சூலூர் வட்டம், கோவை மாவட்டம் என்பவர் மனு செய்துள்ளது - விசாரணை அறிக்கை சமர்ப்பித்தல் - தொடர்பாக.

- பார்வை: 1. திரு.வி.கங்கேசன், த/பெ.வேலுச்சாமி, எண் 5/10, மாரியப்ப தேவர் வீதி, சூலூர் வட்டம், கோவை மாவட்டம் - என்பவரின் மனு நாள்: 08.02.2023
2. மண்டல துணை வட்டார வளர்ச்சி அலுவலர்-3(பொ), பல்லடம் வட்டாரம் - அறிக்கை நாள்: 27.07.2023.

திருப்பூர் மாவட்டம், பல்லடம் வட்டம், கோடங்கிபாளையம் கிராமம் புல எண்கள் 103/3A1A(P) (1.00.0), 103/3A2 (0.40.5) மற்றும் 103/3B1 (0.40.5) ஆகியவற்றில் மொத்தம் 1.81.0 ஹெக்டர் பட்டா நிலப்பரப்பில் சாதாரண கற்கள்/ கிராவல் மண் வெட்டி எடுக்க 5 வருடங்களுக்கு சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க திரு.வி.கங்கேசன், த/பெ.வேலுச்சாமி, எண் 5/10, மாரியப்ப தேவர் வீதி, சூலூர் வட்டம், கோவை மாவட்டம் என்பவர் பார்வை 1-ன் படி விண்ணப்பம் செய்துள்ளார்.

பார்வை 2-ல் காணும் மண்டல துணை வட்டார வளர்ச்சி அலுவலர்-(3)(பொ), கள ஆய்வு அறிக்கையின் படி, மேற்படி புல எண்களில் கல்குவாரியிலிருந்து மேற்குப் பகுதியில் 250 மீட்டர் தொலைவில் திரு.சதீஷ் என்பவருக்கு சொந்தமான அங்கீகரிக்கப்படாத தொழிலாளர் குடியிருப்பு உள்ளது மற்றும் தெற்குப் பகுதியில் 240 மீட்டர் தொலைவில் திரு.சுப்பிரமணி என்பவருக்கு சொந்தமான அங்கீகரிக்கப்படாத தொழிலாளர் குடியிருப்பு உள்ளது. மேலும், 300 மீட்டர் தொலைவில் அங்கீகரிக்கப்பட்ட குடியிருப்பு மனைகள் (Layout) மற்றும் அங்கீகரிக்கப்பட்ட கட்டுமானங்கள் ஏதும் இல்லை என்பதை கனிவுடன் தெரிவித்துக் கொள்கிறேன்.



வட்டார வளர்ச்சி அலுவலர்
(வட்டார ஊராட்சி) (மு.கூ.பொ.),
பல்லடம்.

Annexure-XV: Copt of Tahsildar Letter

வட்டாட்சியர் அலுவலகம்
பல்லடம்.

ஒ.மு.990/2023/அ4

நாள்: .02.2023

குறிப்பாணை

பொருள்: கனிமங்களும் சுரங்கங்களும் - சிறுகனிமம் - சாதாரண கற்கள் மற்றும் கிராமல் மண் - திருப்பூர் மாவட்டம் - பல்லடம் வட்டம் - கோடங்கிபாளையம் கிராமம் - புலணன். 103/3A1A(PX1.00.0) - 103/3A2 (0.40.5) மற்றும் 103/3B1(0.40.5) ஆகியவற்றில் மொத்தம் பூ.நெ.1.81.0 பட்டா நிலப்பரப்பில் சாதாரண கற்கள் மற்றும் கிராமல் மண் வெட்டியெடுக்க 5 வருடங்களுக்கு குவாரி குத்தகை உரிமம் வழங்கக்கோரி திருவேகங்கேசன் த/பெவேலுச்சாமி என்பவர் மனு செய்துள்ளது - தொடர்பாக.

பார்வை: திருப்பூர் சார் ஆட்சியர் அலுவலக கடித ஒ.மு.877/2023/ஈ1 நாள்: 20.02.2023.

திருப்பூர் மாவட்டம், பல்லடம் வட்டம், கோடங்கிபாளையம் கிராமம், புலணன்.103/3A1A(PX1.00.0), 103/3A2 (0.40.5) மற்றும் 103/3B1(0.40.5) என மொத்தம் பூ.நெ.1.81.0 பட்டா நிலப்பரப்பில் சாதாரண கற்கள் மற்றும் கிராமல் மண் வெட்டியெடுக்க 5 வருடங்களுக்கு குவாரி குத்தகை உரிமம் வழங்கக்கோரி திருவேகங்கேசன் த/பெவேலுச்சாமி என்பவர் விண்ணப்பம் அளித்துள்ளது தொடர்பாக விசாரணை மேற்கொண்டு குறிப்பான பரிந்துரைபுடன் அறிக்கை அனுப்பமாறு பார்வையில் காணும் கடிதத்தில் கோரியுள்ளதன்பேரில்,

1. குத்தகை வழங்கக் கேட்கும் புலத்தின் எல்லைகள் வரையறுக்கப்பட்டு எல்லைக் கற்கள் நடப்பட்டுள்ளதா?
2. குவாரி குத்தகை தொடர்பாக பொதுமக்கள் ஆட்சேபணை ஏதும் உள்ளதா என "அ1" வினம்பரம் மூலம் கண்டறிந்தும்,
3. குத்தகை வழங்க கேட்கும் புலத்திலிருந்து 300 மீ சுற்றளவிற்குள் கிராம நடத்தும், அங்கீகரிக்கப்பட்ட குடியிருப்பு மனைகள் மற்றும் கட்டுமானங்கள் ஏதும் உள்ளதா?
4. குவாரி குத்தகை உரிமம் வழங்கக் கோரும் நிலத்தின் மீதான உரிமை (Surface right) விண்ணப்பதாரருக்கு உள்ளதா? போன்ற விபரங்களுடன் கிராம கணக்குகளின் நகல் மற்றும் "அ1" வினம்பரம் ஆகியவற்றுடன் குவாரி உரிமம் வழங்குவது தொடர்பான குறிப்பான பரிந்துரைபுடன் அறிக்கை அனுப்பி வைக்குமாறு சாமனாராம் உள்வட்ட நிலவருவாய் ஆய்வாளர் மற்றும் கோடங்கிபாளையம் கிராம நிர்வாக அலுவலர் ஆகியோர் கேட்டுக் கொள்ளப்படுகிறார்கள்.

இணைப்பு ; மேற்கண்டவாறு

ஒம்/சி.நந்தகோபால்
வட்டாட்சியர்
பல்லடம்.

பெறுநாள்:

1. உள்வட்ட நிலவருவாய் ஆய்வாளர், சாமனாராம்
2. கிராம நிர்வாக அலுவலர், கோடங்கிபாளையம்

//உண்மை நகல்/உத்தரவுப்படி//

வட்டாட்சியருக்காக

பணிநிறுத்தப்படுகிறது

திருப்பூர் மாவட்டம், பல்லடம் வட்டாச்சியர் அவர்களின் குறிப்பானை ஒ.மு.990/2023/அ4 நாள் 28.02.2023 ன் படியும் திருப்பூர் மாவட்டம், பல்லடம் வட்டம், கோடங்கிபாளையம் கிராமத்தில் புல எண் 103/3A1A(p)(1.00.0), 103/3A2(P)(0.40.5) மற்றும் 103/3B1(p)(0.40.5) ஆகியவற்றில் மொத்தம் பு.ஹெ.1.81.0 பரப்பளவுள்ள பட்டா பூமியில் 5 வருடங்களுக்கு சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டி எடுக்கும் பொருட்டு கோவை மாவட்டம், தூலூர் தாலுக்கா, தூலூர் கிராமம், மாரியப்ப தேவர் விதியில் வசிக்கும் வேலுசாமி மகன் கங்கேசன் என்பவர் குவாரி குத்தகை உரிமம் புதுபித்து வழங்க கோரியது தொடர்பாக புலத்தணிக்கை மேற்கொண்டு எனது அறிக்கையினை கீழ்க்கண்டவாறு சமர்ப்பிக்கிறேன்.

திருப்பூர் மாவட்டம், பல்லடம் தாலுக்கா 7, கோடங்கிபாளையம் கிராமத்தில் க.ச.எண் 103/3A1A காலையில் பு.ஹெ.க் 1.78.5 பரப்பளவு கொண்ட பூமியும், க.ச.எண் 103/3A2 காலையில் பு.ஹெ.க் 0.40.5 பரப்பளவு கொண்ட பூமியும் க.ச.எண் 103/3B1 காலையில் பு.ஹெ.க் 0.40.5 பரப்பளவு கொண்ட பூமியும் ஆக மொத்தம் பு.ஹெ.க் 2.59.5 பரப்பளவு கொண்ட பூமியானது பல்லடம் சார்பதிவாளர் அலுவலக கிரையப் பத்திர எண்கள் 452/2004 dt:4.02.2004, 103/1983 dt: 22.01.1983 மற்றும் 775/1981 dt:18.05.1981 ன்படியும் நஞ்சப்பகவுண்டர் மகன் சுப்பிரமணியம் என்பவருக்கு பாத்தியப்பட்டு மேற்படி சுப்பிரமணியம் காலமாகிவிட்டபிறகு பல்லடம் வட்டாச்சியர் அலுவலக வாரிசு சான்றிதழ் ப.மு.624/2011/ஆ3 நாள் 29.01.2011 ன்படியும் பட்டா எண் 1070 ன்படியும் சுப்பிரமணியம் மனைவி மாராத்தாள் (1) மகள்கள் அம்சவேணி (2) புவனேஸ்வரி (3) மற்றும் தனலட்சுமி (4) ஆகியோருக்கு பாத்தியப்பட்டது.

மேற்படி க.ச.எண் 103/3A1A காலையில் பு.ஹெக் 1.00.0 பரப்பளவு கொண்ட பூமியும், க.ச.எண் 103/3A2 காலையில் பு.ஹெக் 0.40.5 பரப்பளவு கொண்ட பூமியும் க.ச.எண் 103/3B1 காலையில் பு.ஹெக் 0.40.5 பரப்பளவு கொண்ட பூமியும் ஆக மொத்தம் பு.ஹெக் 2.59.5 பரப்பளவு கொண்ட பூமிக்கு கோவை மாவட்டம், துலூர் வட்டம், துலூர் டவுன், மாரியப்பதேவர் விதி கதவு.எண் 5/10. என்ற விலாசத்தில் வசிக்கும் வேலுச்சாமி மகன் கங்கேசன் என்பவர் மேற்படி பூமியின் உரிமையாளர்களான சுப்பிரமணியம் மனைவி மாராத்தாள் (1) மகள்கள் அம்சவேணி (2) புவனேஸ்வரி (3) மற்றும் தனலட்சுமி (4) ஆகியோரிடமிருந்து ஆட்சேபணை இல்லை என சான்று பெற்று கல்குவாரி பணி செய்ய ஏற்கனவே ந.க.11/ கனிமம்/ 2017 ஈ18.04.2018 ன்படி 18.04.2018 முதல் 17.04.2023 வரை ஜந்து ஆண்டுகளுக்கு உரிமம் பெற்று கல் உடைப்பு செய்து வந்துள்ளார்.

வ. எண்	புல எண்	மொத்த பரப்பு (பு.ஹெக்)	குத்தகை கோரப்படும் பரப்பு (பு.ஹெக்)	பட்டா எண்	பட்டாதாரர் பெயர்
1	103/3A1A	1.78.5	1.00.0	1070	சுப்பிரமணியம் மனைவி
2	103/3A2	0.40.5	0.40.5		மாராத்தாள் (1) மகள்கள்
3	103/3B1	0.40.5	0.40.5		அம்சவேணி (2) புவனேஸ்வரி (3) மற்றும் தனலட்சுமி (4)
மொத்தம்		2.59.5	1.81.0		

மேற்காண் புல எண் 103/3A1A, 103/3A2 மற்றும் 103/3B1 காலையில் மொத்தம் பு.ஹெக் 1.81.0 பரப்பளவுள்ள பட்டா பூமியில் வேலுச்சாமி மகன் கங்கேசன் என்பவர் 5 வருடங்களுக்கு சாதாரண

கல் மற்றும் கிராவல் மண் வெட்டி எடுக்க குவாரி குத்தகை உரிமம் கோரி விண்ணப்பித்துள்ளார். அதற்கான சம்மத கடிதமும் பெற்றுள்ளார். மேலும்

- 1 குவாரி குத்தகை உரிமம் கோரும் புலங்களின் எல்லைகள் வரையறுக்கப்பட்டு எல்லைக்கற்கள் நடப்பட்டுள்ளது.
- 2 மனுதாரருக்கு குவாரி குத்தகை உரிமம் வழங்குவது தொடர்பாக 03.03.2023 அன்று கோடங்கிபாளையம் கிராமத்தில் அ1 விளம்பரம் பிரசித்தம் செய்யப்பட்டது. மேற்படி விளம்பரம் பிரசித்தம் செய்யப்பட்டதில் குவாரி குத்தகை உரிமம் வழங்குவது தொடர்பாக ஆட்சேபனை ஏதும் நாளது தேதி வரை வரப்பெறவில்லை.
- 3 குவாரி குத்தகை கோரும் புலத்தினை சுற்றி 300 மீட்டர் சுற்றளவில் அங்கிகரிக்கப்பட்ட மனையிடங்கள், நத்தம் குடியிருப்புகள் ஏதும் இல்லை.

குவாரி குத்தகை கோரும் புலத்தின் 300 மீட்டர்

சுற்றளவிற்குள் வடக்கில் கல்குவாரிகள், தார் பிளாண்ட், வீடு ஒன்று மற்றும் பணியாளர் குடியிருப்பு உள்ளது. கிழக்கு பகுதியில் கிரஷர், கல்குவாரிகள் மற்றும் பணியாளர் குடியிருப்பு உள்ளது. தெற்கு பகுதியில் கல்குவாரிகள் உள்ளது மேற்கு பகுதியில் கிரஷர் யூனிட் மற்றும் கல்குவாரிகள் உள்ளன.


குவாரி குத்தகை கோரும் புலத்தினை சுற்றி 500 மீட்டர் சுற்றளவில் தொல்லியல் துறைக் கட்டுப்பாட்டிலுள்ள புராதானச் சின்னங்களோ, பள்ளிகளோ, காடுகள், வனவிலங்கு சரணாலயங்கள் மற்றும் மயானமோ ஏதும் இல்லை.

- 4 குவாரி குத்தகை கோரும் புலத்துடன் அரசு புறம்போக்கு நிலம் அல்லது அரசினால் நிலஎடுப்பு செய்யப்பட்டுள்ள நிலம் ஏதும் இணையவில்லை
- 5 குவாரி குத்தகை கோரும் புலத்திற்கு செல்வதற்கான வழிதடங்கள் உள்ளன.

6 குவாரி குத்தகை வழங்க கோரும் புலம் தொடர்பாக வழக்குகள் ஏதும் நிலுவையில் இல்லை.

7 குவாரி குத்தகை வழங்க கோரும் புலம் பாதுகாக்கப்பட்ட மலைப்பகுதி ஆணையத்தின் கட்டுப்பாட்டில் இல்லை.

எனவே மனுதாரர் கோரும் குவாரி குத்தகை உரிமம் வழங்குவது தொடர்பான தக்க மேல்நடவடிக்கை மேற்கொள்ளும் பொருட்டு தொடர்புடைய ஆவணங்களை இத்துடன் இணைத்து அனுப்பியுள்ளேன் என்பதைப் பணிவுடன் தெரிவித்துக் கொள்கிறேன்.


சுயநிர்வாக அலுவலர்
வழங்குபுலம்
கோட்டை, சிவகாமியம் கிராமம்
கோட்டை வட்டம்

அ1 விளம்பரம்

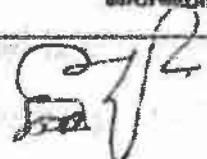
கோவை மாவட்டம், குலூர் வட்டம், 5/10 மாரியப்ப தேவர் வீதி என்ற மூகவரியில் வசிக்கும் திரு .V. கங்கேசன்; த/பெ வேலுசாமி என்பவர் திருப்பூர் மாவட்டம், பல்லடம் வட்டம், சாமளாபுரம் உள்வட்டம், கோடங்கிபாளையம் கிராமம் புல எண் 103/3A1A (1.00.0) 103/3A2 (0.40.5) மற்றும் 103/3B1 (0.40.5) ஆக மொத்தம் ப.பெறாக 1.81.0 பரப்பளவுள்ள பூமியில் கிராமம் மண் வெட்டி எடுக்க குவாரி குத்தகை உரியம் கோரி விண்ணப்பித்துள்ளனர். மேற்படி குவாரி குத்தகை உரியம் வழங்குவது தொடர்பாக ஆட்சேபனை ஏதுமிருப்பின் இவ்விளம்பரம் செய்யப்பட்டு 15 தினங்களுக்குள் பல்லடம் வட்டாட்சியர் அவர்களிடமே அல்லது சாமளாபுரம் உள்வட்ட நில வருவாய் ஆய்வாளரிடமே நேரினோ அல்லது எழுத்து பூர்வமாகவோ தெரிவிக்குமாறும், 15 தினங்களுக்குள் ஆட்சேபனை ஏதும் வரப் பெறவிட்டால் ஆட்சேபனை ஏதுமில்லை எனக் கருதி நில ஒப்படை வழங்குவது தொடர்பான மேல் நடவடிக்கை மேற்கொள்ளப்படும் என்பது இதன் மூலம் கோடங்கிபாளையம் கிராம பொதுமக்களுக்கு தெரிவிக்கப்படுகிறது


நில வருவாய் ஆய்வாளர்,
சாமளாபுரம் உள்வட்டம்,
பல்லடம் வட்டம்.

பெறுநர்:
கிராம நிர்வாக அலுவலர்
கோடங்கிபாளையம்

மேற்படி விளம்பரத்தினை கோடங்கிபாளையம் கிராம பொதுமக்களிடம் பிரசுரித்தும் செய்து குடிகள் ஒப்பம் பெற்று கோடங்கிபாளையம் கிராம நிர்வாக அலுவலர் மீள சுமர்ப்பிக்க வேண்டியது.

தகவல் தெரிந்து கொண்டோம்.

வ.எண்	பெயர் மற்றும் முகவரி	கையொப்பம்
1.	தி.வி. பழனிசாமி தலைவர், செயல் அதிகாரி கோவ்விலாசலம் காம கிராமம் (முதல் நிலை) கோவ்விலாசலம்	
2	ச. சிவசுப்பிரமணியன் கோவ்விலாசலம் / 5 வது மாடு கோவ்விலாசலம்	S சிவசுப்பிரமணியன்
3	ச. சிவசுப்பிரமணியன் 4102, கோவ்விலாசலம் கோவ்விலாசலம்	ச. சிவசுப்பிரமணியன் 92659 06233
4)	ச. சிவசுப்பிரமணியன் - 9842297135 31948 சாமி அரங்கம் கோவ்விலாசலம்	ச. சிவசுப்பிரமணியன்
5)	ச. சிவசுப்பிரமணியன் 31948 சாமி அரங்கம் கோவ்விலாசலம்	ச. சிவசுப்பிரமணியன் 9842221577
6)	B சிவசுப்பிரமணியன் 31948 சாமி அரங்கம் கோவ்விலாசலம்	B. Revathi
7)	ச. சிவசுப்பிரமணியன் க. மாவட்ட கமிஷனரின் கார்டு அலுவலகம் கோவ்விலாசலம் கோவ்விலாசலம் - 641584	ச. சிவசுப்பிரமணியன்
	SRANDCO SP NO 104	R. Manjula


கோவ்விலாசலம் காம கிராமம்
முதல் நிலை
கோவ்விலாசலம்

பொதுமக்கள் வாக்குமூலம்

கோவை மாவட்டம், குறார் வட்டம், 5/10 மாரியப்ப தேவர் வீதி என்ற

முகவரியில் வசிக்கும் திரு .V. கங்கேசன், த/பெ வேலுசாமி என்பவர் திருப்பூர்

மாவட்டம், பல்லடம் வட்டம், சாமளாபுரம் உள்வட்டம், கோடங்கிபாளையம் கிராமம் புல

மண் 103/3A1A (1.00.0) 103/3A2 (0.40.5) மற்றும் 103/3B1 (0.40.5) ஆக

மொத்தம் பரப்பளவு 1.81.0 பரப்பளவுள்ள பூமியில் கிராவல் மண் வெட்டி எடுக்க குவாரி


குத்தகை உரிமை கோரி கோடங்கிபாளையம் கிராம ஊர் பொதுமக்கள் ஆகிய

எங்களுக்கு எவ்வித ஆட்சேபனையும் இல்லை என்பதை இதன் மூலம் தெரிவித்துக்

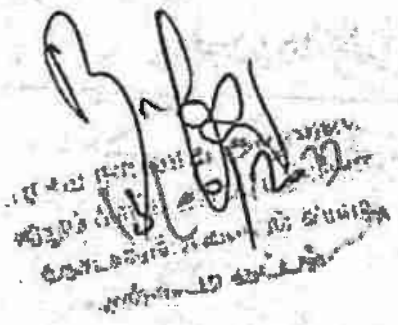
கொள்கிறோம்.

/படித்துப்பார்த்தோம் சரி/

/படிக்க கேட்டோம் சரி/

வ.எண்	பெயர் மற்றும் முகவரி	கையொப்பம்
1.	சென். பழனிச்சாமி கோடங்கிபாளையம் கிராம கிராமத்தினர் (சென். பழனி) மாவட்டம் வட்டம்	
2.	சென். கங்கேசன் கோடங்கிபாளையம் சென். வேலுசாமி	S. கங்கேசன்
3.	சென். கங்கேசன் 1122, கோடங்கிபாளையம் கிராமத்தினர்	S. கங்கேசன் 06231
4.	சென். கங்கேசன் 1122, கோடங்கிபாளையம் கிராமத்தினர்	S. கங்கேசன்

5.	<p> <i>J. A. 400</i> <i>32 Jaring Operasi</i> <i>di Chong Nam</i> </p>	<p> <i>J. A. 400</i> 9842221577 </p>
6.	<p> <i>B. Dewati</i> <i>32 Jaring Operasi</i> <i>di Chong Nam</i> </p>	<p> <i>B. Dewati</i> </p>
7.	<p> <i>S. Lamin KSR</i> <i>S. Lamin KSR & CO</i> <i>Alamat: 10, Jalan Besar, Singapore</i> <i>Tel: 641 664</i> </p>	<p> <i>K. Mangayusyi</i> </p>
	<p> <i>KSR & CO</i> <i>KSR AND CO</i> <i>SF NO 104</i> </p>	<p> <i>R. Mangayusyi</i> </p>



Greenbelt Development



Wire fencing around the lease area



Water Sprinklers

