

**DRAFT OF ENVIRONMENTAL IMPACT ASSESSMENT
AND
ENVIRONMENT MANAGEMENT PLAN
FOR OBTAINING**

Environmental Clearance under EIA Notification – 2006

Schedule Sl. No. 1 (a) (i): Mining Project

“B1” CATEGORY – MINOR MINERAL – CLUSTER – NON-FOREST LAND

CLUSTER EXTENT = 7.25.00hectares

At

**Devariyambakkam Village, Walajabad Taluk,
Kancheepuram District, Tamil Nadu State**

TOR File No. 11378 and ToR Identification No. TO24B0108TN5756614N, dated.11.01.2025

NAME AND ADDRESS OF THE PROPOSED PROJECT PROPONENT

Name and Address	Extent & S.F.No.	Production in m³
Mr.M.Dhayalan, S/o.Munusamy, No.139, Salai Street, Devariyambakkam Village, Ullavur Post, Walajabad Taluk, Kancheepuram District-631606	2.59.25ha & 293/1B, 293/2A, 293/2B, 293/2C, 295, 300/1A(Part), 301/1A1B, 301/1A2(Part) & 301/1A3B	Rough stone (m ³) – 355708 Gravel (m ³) - 38942

ENVIRONMENTAL CONSULTANT

GEO TECHNICAL MINING SOLUTIONS

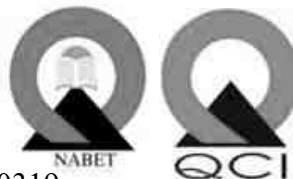
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NABET ACC. NO: NABET/EIA/23-26/RA 0319

Valid till: 31.12.2026

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Valid Until: 31/05/2025

Baseline Study Period – December 2024 - February, 2025

TABLE OF CONTENTS

S No.	TITLE	PAGE No.
I	Introduction	01-06
1.1	Purpose of the Report	1
1.2	Identification of the Project and Proponent	3
1.3	Brief Description of the Project	3
	Scope of the Study	4
1.4	1.4.1 Terms of Reference (ToR)	5
	1.4.2 Environmental Clearance	5
	1.4.3 Post Environment Clearance Monitoring	6
	1.4.4 Transferability of Environmental Clearance	6
II	PROJECT DESCRIPTION	07-22
2.0	General	7
2.1	Description of the Project	7
2.2	Type of the Project	8
2.3	Need for the Project	8
	Location of the Project	8
2.4	2.4.1 Leasehold Area	11
	2.4.2 Corner Coordinates	11
	2.4.3 Geology	11
	Size and Magnitude of Operation	14
2.5	2.5.1 Quantity of Reserves	14
	2.5.2 Magnitude of Operation	14
2.6	Proposed Schedule for Approval and Implementation	17
2.7	Technology and Process Description	17
	Project Description	19
2.8	2.8.1 Extent of Mechanization	19
	2.8.2 Land Requirement	19
	2.8.3 Progressive Quarry Closure Budget	20
	2.8.4 Water Requirement	20
	2.8.5 Energy Requirement	21

	2.8.6	Capital Requirement	21
	2.8.7	Manpower Requirement	22
2.9	Description of Mitigation Measures Incorporated into the Project to Meet Environmental Standards, Environmental Operating Conditions or other EIA Requirements.		22
2.10	Assessment of New and Untested Technology for the Risk of Technological Failure		22
II	DESCRIPTION OF THE ENVIRONMENT		
3.0	General		23
	Study Area, Period, Components & Methodology		23
3.1	3.1.1	Study Area & Period	23
	3.1.2	Components & Methodology	23
3.2	Establishment of Baseline for Valued Environmental Components as Identified in the Scope		23
	3.3 Base Map of all Environmental Components		25
	3.3.1	Land Environment	25
	3.3.2	Soil Environment	30
	3.3.3	Water Environment	33
		3.3.3.1 Hydrogeological Studies	37
		3.3.3.2 Electrical Resistivity Investigation	43
3.3	3.3.4	Air Environment	44
	3.3.5	Noise Environment	55
	3.3.6	Biological Environment	58
		3.3.6.1 Flora	59
		3.3.6.2 Fauna	68
		3.3.6.3 Agriculture Cropping Pattern 1km Radius	72
	3.3.7	Socio Economic Environment	73
3.4	Traffic Density		84
3.5	Site Specific Features		87
IV	ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES		89-109
4.0	Introduction		89

4.1	Details of Investigated Environmental Impacts Due to Project Location, Possible Accidents, Project Design, Project Construction, Regular Operations, Final Decommissioning or Rehabilitation of a Completed Project	89
4.2	Measures for Minimizing and /of Offsetting Adverse impacts Identified	89
	4.2.1 Land Environment	89
	4.2.2 Soil Environment	90
	4.2.3 Water Environment	90
	4.2.4 Air Environment	90
	4.2.5 Noise Environment	96
	4.2.6 Ground Vibrations	99
	4.2.7 Ecology and Biodiversity	102
	4.2.8 Socio Economic Environment	106
4.3	Irreversible and Irretrievable Commitments of Environmental Components	107
4.4	Assessment of Significance of Impact (Criteria for Determining Significance, Assigning Significance)	107
4.5	Mitigation Measures	108
V	ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)	110
5.0	Introduction	110
VI	ENVIRONMENTAL MONITORING PROGRAMME	111-114
6.0	General	111
6.1	Technical Aspects of Monitoring the Effectiveness of Mitigation Measures (incl. Measurement Methodologies, Frequency, Location, Data Analysis, Reporting Schedules, Emergency Procedures, Detailed Budget & Procurement Schedules)	111
VII	ADDITIONAL STUDIES	115-123
7.0	General	115
7.1	Public Consultation for Proposed Project	115
7.2	Risk Assessment for Proposed Project	115
7.3	Socio Economic Environment	120
7.4	Rehabilitation & Re-Settlement (R & R) Action Plan	123

VIII	PROJECT BENEFITS	124-127
8.0	General	124
8.1	Employment Potential	124
8.2	Socio-Economic Welfare Measures Proposed	124
8.3	Improvement in Physical Infrastructure	124
8.4	Improvement in Social Infrastructure	125
8.5	Other Tangible Benefits	125
8.6	Corporate Social Responsibility	125
8.7	Corporate Environment Responsibility	126
8.8	Summary of Project Benefits	126
IX	ENVIRONMENTAL COST BENEFIT ANALYSIS	127
X	ENVIRONMENTAL MANAGEMENT PLAN	128-135
10.0	General	128
10.1	Environmental Policy	128
	10.1.1 Description of the Administration and Technical Setup	128
10.2	Budgetary Provision for Environmental Management	129
10.3	Conclusion	135
XI	SUMMARY AND CONCLUSION	136-145
11.1	Overall Justification for Implementation of the Project	136
	11.1.1 Introduction	136
	11.1.2 Project Description	136
	11.1.3 Description of the Environment	136
11.2	Explanation of how, Adverse Effects have been Mitigated	139
	11.2.1 Anticipated Environmental Impacts and Mitigation Measures	139
	11.2.2 Environment Monitoring Program	143
	11.2.3 Additional Studies	144
	11.2.4 Project Benefits	145
	11.2.5 Environment Management Plan	145
XII	DISCLOSURES OF CONSULTANT	146-151
	TERMS OF REFERENCE (ToR) COMPLIANCE	152-204

LIST OF TABLES

TABLE No.	CONTENTS	PAGE No.
1.1	Details of Quarries within the cluster area of 500 m radius	3
1.2	Brief Description of the Proposed Project	3
2.1	Site connectivity to the project area	11
2.2	Corner coordinates of proposed project	11
2.3	Estimated resources and reserves of the project	14
2.4	Year-wise production Details	14
2.5	Conceptual Blasting Design	19
2.6	Machinery Details	19
2.7	Land use data at present, during scheme of mining, and at the end of mine life	20
2.8	Mine Closure Budget	20
2.9	Water Requirement for the Project	20
2.10	Fuel Requirement Details	21
2.11	Capital Requirement Details	21
2.12	Employment Potential for the proposed project	22
3.1	Monitoring Attributes and Frequency of Monitoring	24
3.2	LULC Statistics of the Study Area	25
3.3	Soil Sampling Locations	30
3.4	Soil Quality of the Study Area	32
3.5	Water Sampling Locations	33
3.6	Surface and Ground Water Quality Result	35
3.7	Pre-Monsoon Water Level of Open Wells within 2 km Radius	38
3.8	Post-Monsoon Water Level of Open Wells within 2 km Radius	38
3.9	Pre-Monsoon Water Level of Bore Wells within 2 km Radius	38
3.10	Post-Monsoon Water Level of Bore Wells within 2 km Radius	38
3.11	Vertical Electrical Sounding Data	43
3.12	Onsite Meteorological Data	44
3.13	Methodology and Instrument Used for AAQ Analysis	49
3.14	National Ambient Air Quality Standards	49
3.15	Ambient Air Quality (AAQ) Monitoring Locations	50
3.16	Summary of AAQ Result	52

3.17	Noise Monitoring Locations	55
3.18	Noise Quality Result	55
3.19	Flora in mine lease area	60
3.20	Flora in 300m Radius	61
3.21	Calculation of Species Diversity in 300m Radius	64
3.22	Species Richness (Index) in 300 m radius	65
3.23	Flora in Buffer Zone	66
3.24	Aquatic Vegetation	68
3.25	Methodology applied during survey of fauna	68
3.26	Fauna in Core Zone	69
3.27	Fauna in Buffer Zone	70
3.28	Agriculture Cropping Pattern in 1km radius	72
3.29	Major Field Crops & Horticulture cultivation in 1km radius	72
3.30	Type of Information and Sources	76
3.31	Devariambakkam Village Population Facts	77
3.32	Population and Literacy Data of Study Area	78
3.33	Workers Profile of Study Area	81
3.34	Traffic Survey Locations	85
3.35	Existing Traffic Volume	85
3.36	Transportation Requirement	85
3.37	Summary of Traffic Volume	85
3.38	Details of Environmentally Sensitive Ecological Features in the Study Area	87
4.1	Empirical Formula for Emission Rate from Overall Mine	92
4.2	Estimated Emission Rate	92
4.3	Incremental & Resultant GLC of PM _{2.5}	93
4.4	Incremental & Resultant GLC of PM ₁₀	93
4.5	Activity and Noise Level Produced by Machinery	97
4.6	Predicted Noise Incremental Values	98
4.7	Predicted PPV Values due to Blasting	99
4.8	Predicted PPV Values due to Blasting at 100-500 m radius	99
4.9	Carbon Released During Five Years of Rough Stone Production	102
4.10	CO ₂ Sequestration	103

4.11	Recommended Species for Greenbelt Development Plan	103
4.12	Greenbelt Development Plan	104
4.13	Budget for Greenbelt Development Plan	104
6.1	Implementation Schedule for Proposed Project	113
6.2	Proposed Monitoring Schedule Post EC for the Proposed Quarry	113
6.3	Environment Monitoring Budget	114
7.1	Risk Assessment & Control Measures for Proposed Project	116
7.2	Cumulative Production Load of Rough Stone	120
7.3	Cumulative Production Load of Gravel	120
7.4	Cumulative impact results from the proposed project	120
7.5	Cumulative Impact of Noise from the Proposed Project	121
7.6	Cumulative Effect of Ground Vibrations Resulting from the Proposed Project	121
7.7	Socio Economic Benefits from One Mines	122
7.8	Employment Benefits from the proposed project	122
7.9	Greenbelt Development Benefits from the proposed project	122
7.10	Action Plan to Manage Plastic Waste	123
8.1	CER Action Plan	126
8.2	Project Benefits to the State Government	126
10.1	EMP Budget for Proposed Project	129
10.2	Estimation of Overall EMP Budget after Adjusting 5% Annual Inflation	135
11.1	LULC Statistics of the Study Area	136
11.2	Environment Monitoring Program	143

LIST OF FIGURES

FIGURE NO.	TITLE	PAGE NO.
1.1	Location of the proposed and existing rough stone quarries in the cluster of 500m radius	02
2.1	Overall view of proposed project site	08
2.2	Key map showing location of the project site	09
2.3	Route Map of the Project Site	10
2.4	Google earth image showing lease area with pillars	12
2.5	Mine Lease Plan	13
2.6	Surface Geological Plan and Section	15

2.7	Year wise Development Production Plan and Section	15
3.1	Geology Map of 5 km Radius from Proposed Project Site	26
3.2	Geomorphology Map of 5 km Radius from Proposed Project Site	27
3.3	LULC map of 5km radius from the proposed project site	28
3.3A	Drainage Map of 5 km Radius from Proposed Project Site	29
3.4	Toposheet Showing Soil Sampling Locations within 5 km Radius around the Proposed Project Site	31
3.5	Map Showing Water Sampling Locations within 5 km Radius around the Proposed Project Site	34
3.6	Open well static groundwater elevation map showing the direction of groundwater flow during per-monsoon season	39
3.7	Open Well Static Groundwater Elevation Map Showing Direction of Groundwater Flow during Post-Monsoon Season	40
3.8	Borewell Static Groundwater Elevation Map Showing Direction of Groundwater Flow during Pre-Monsoon Season	41
3.9	Borewell Static Groundwater Elevation Map Showing Direction of Groundwater Flow during Post-Monsoon Season	42
3.10	Graph Showing Occurrence of Water Bearing Fracture Zones at the Depth of 70 m Below Ground Level in Proposed Project	43
3.11	Long-term monthly average rainfall vs monthly rainfall	44
3.12	Windrose Diagram for 2020-2021 And 2021-2022 (December to February)	46
3.13	Windrose Diagram for 2022-2023 And 2023-2024 (December to February)	47
3.14	Onsite Wind Rose Diagram	48
3.15	Map showing Ambient Air Quality Monitoring Station location around 5km Radius from the proposed project Site.	51
3.16	Bar Chart Showing Maximum, Minimum, and Average Concentrations of PM _{2.5} Measured from 7 Air Quality Monitoring Stations within 5 km Radius	52
3.17	Bar Chart Showing Maximum, Minimum, and Average Concentrations of PM ₁₀ Measured from 7 Air Quality Monitoring Stations within 5 km Radius	53
3.18	Bar Chart Showing Maximum, Minimum, and Average Concentrations of SO ₂ Measured from 7 Air Quality Monitoring Stations within 5 km Radius	53
3.19	Bar Chart Showing Maximum, Minimum, and Average Concentrations of NO _x Measured from 7 Air Quality Monitoring Stations within 5km Radius	54
3.20	Bar Chart Showing Maximum, Minimum, And Average Concentrations of Pollutants in Atmosphere within 5 km Radius	54

3.21	Bar Chart Showing Day Time Noise Levels Measured in Core and Buffer Zones	56
3.22	Bar Chart Showing Night Time Noise Levels Measured in Core and Buffer Zones	56
3.23	Map showing Noise Level Monitoring Station Location Around 5 Km Radius from the Proposed Project Site	57
3.24	Quadrates Sampling Methods of Flora	58
3.25	Species Richness (Index) in 300 m radius	65
3.26	Socio Economic Village Boundary Map	74
3.27	Chart Diagram about Population, SC, ST and Literacy in Surrounding Villages	80
3.28	Chart Diagram about Workers Profile in Surrounding Villages	83
3.29	Traffic Density Map	86
3.30	Field Study & Socio-Economic Study Photographs	88
4.1	Predicted incremental concentration of PM _{2.5}	94
4.2	Predicted incremental concentration of PM ₁₀	95
4.3	Predicted PPV Values due to Blasting at 100-500 m radius	101
6.1	Proposed environmental monitoring chart	112
7.1	Disaster management team layout for proposed project	119

LIST OF ANNEXURES

Annexure No.	Contents	Page No.
I	Copy of ToR letter	205-228
II	Copy of 500 m radius letter	229-231
III	Approved mining plan along with mining plan AD/DD letter/original mining plan plates.	232-330
IV	VAO 300m radius letter	331
V	NABET certificate of EIA consultant	332

CHAPTER I INTRODUCTION

1.1 PURPOSE OF THE REPORT

Preamble

Environmental Impact Assessment (EIA) study is a process used to identify the environmental, social and economic impacts of a project prior to decision-making. EIA systematically examines both beneficial and adverse consequences of the proposed project and ensure that these impacts are considered during the project designing. According to the Ministry of Environment and Forests, Govt. of India, EIA notification S.O. 1533(E) of 14th September 2006 and its subsequent amendments as per Gazette Notification S.O. 3977 (E) of 14th August 2018, all the mining projects are broadly classified into two categories, i.e., category A and category B, based on the spatial extent of the projects. The category B projects are further divided into B1 and B2 on the basis of the guidelines issued by the Ministry of Environment and Forests. All mining projects included in category B1 require an EIA report for obtaining environmental clearance from the State Environment Impact Assessment Authority (SEIAA). As the proposed project falls within the cluster of quarries of overall extent of greater than 5 ha and less than 50 ha in the case of non-coal mine lease, the proposed project falls under the category B1 and the project requires preparation and submission of an EIA report after public consultation to SEIAA for obtaining environmental clearance as per the order dated 04.09.2018 & 13.09.2018 passed by Hon'ble National Green Tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018.

In compliance with ToR obtained vide ToR File No.11378 and ToR Identification No. TO24B0108TN5756614N, dated.11.01.2025. This EIA report has been prepared for the project proponent Mr.M.Dhayalan applied for rough stone and gravel quarry lease in the patta land falling in S.F.No's. 293/1B, 293/2A, 293/2B, 293/2C, 295, 300/1A(Part), 301/1A1B, 301/1A2(Part) & 301/1A3B over an extent of 2.59.25ha in Devariyambakkam Village, Walajabad Taluk, Kancheepuram District, Tamil Nadu. This EIA report takes into account the roughstone and gravel quarry within the cluster of 500 m radius from the periphery of the proposed project site. The cluster contains one proposed project, known as P1 and two existing projects known as E1, E2. All the projects mentioned above have been taken for cluster extent calculation as per MoEF & CC Notification S.O. 2269 (E) dated 1st July 2016. The total extent of all the quarries is 7.25.0ha, also known as the cluster extent. The quarries involved in the calculation of cluster extent are shown in Figure 1.1.

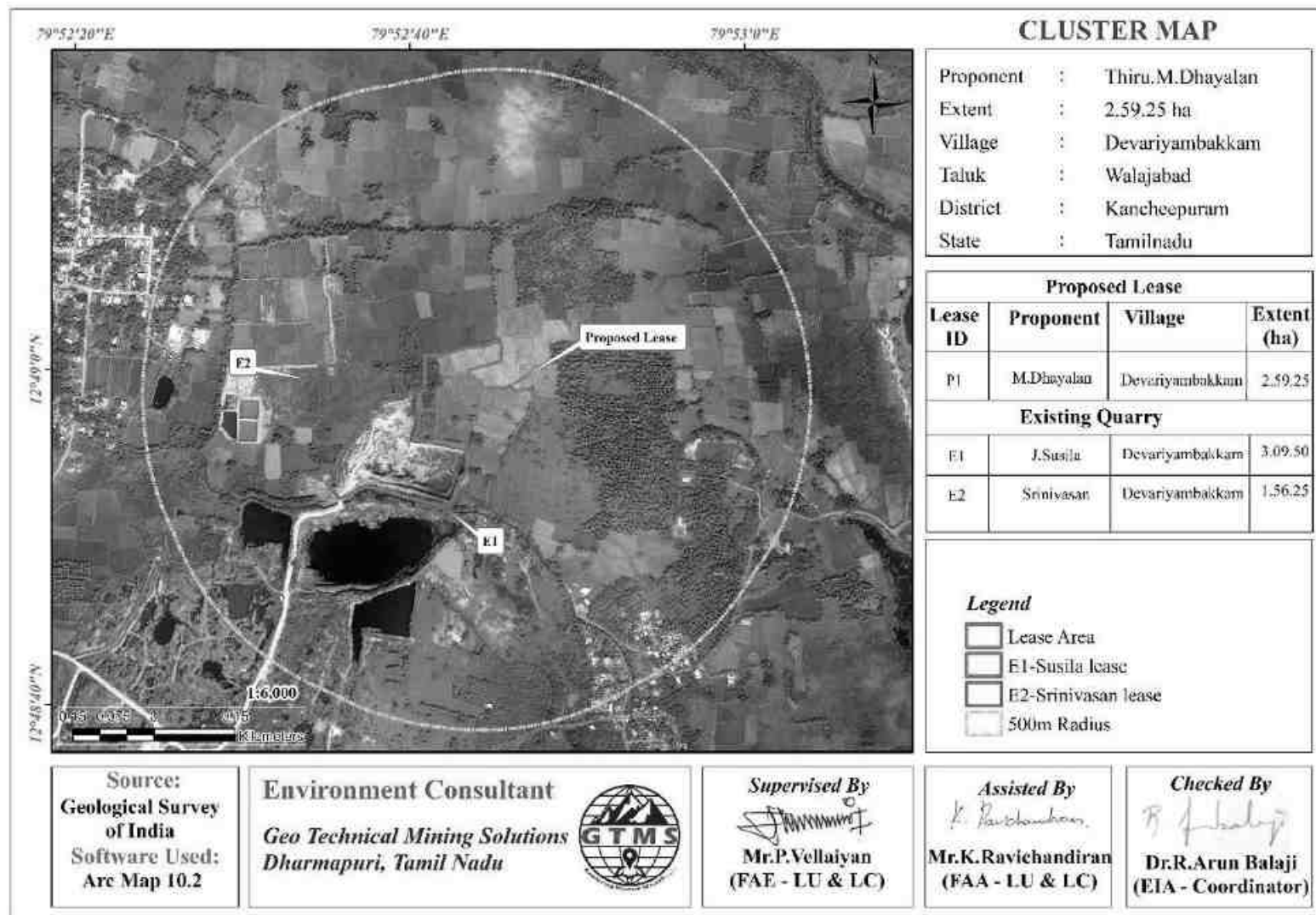


Figure 1.1 Location of the proposed and existing quarries in the cluster of 500m radius

Table 1.1 Details of Quarries within the cluster area of 500 m radius

Proposed Quarries				
Code	Name of the owner	S. F. No. and Village	Extent (ha)	Status
P1	M.Dhayalan	293/1B, 293/2A, 293/2B, 293/2C, 295, 300/1A(P), 301/1A2(P), 301/1A3B & 301/1A1B, Devariyambakkam	2.59.25	Proposed Project
Existing Quarries				
E1	J.Susila	267, 305, 303/1, 264/3C2, 302/4, 303/2 304, Devariyambakkam	3.09.50	05.10.2021 to 04.10.2031
E2	Srinivasan	268/1(P), 268/2A, 268/2B, 268/2C(P), 269/2(P), 269/3(P), 269/5(P), 281/1(P), 281/2(P), 281/3(P), 281/4(P), 281/5(P), 302/1(P), 302/2(P) & 302/3(P) Devariyambakkam	1.56.25	07.08.2024 to 06.08.2034
Total Cluster Extent			7.25.00	

Source:

DD Letter - Rc.No.314/Q3/2024, Dated:10.10.2024.

Note: Cluster area is calculated as per MoEF & CC Notification – S.O. 2269 (E) Dated: 01.07.2016.

1.2 IDENTIFICATION OF THE PROJECT AND PROPONENT

Identification of the Project

The rough stone and gravel quarry lease in S.F.No. 293/1B, 293/2A, 293/2B, 293/2C, 295, 300/1A(P), 301/1A1B, 301/1A2(P) & 301/1A3B over on extent of 2.59.25ha, Patta land of Devariyambakkam Village, Walajabad Taluk, Kancheepuram District, Tamil Nadu.

Identification of the Proponent

The applicant Mr.M.Dhayalan, S/o Munusamy, No.139, Salai Street, Devariyambakkam Village, Ullavur Post, Walajabad Taluk, Kancheepuram District - 631 606.

1.3 BRIEF DESCRIPTION OF THE PROJECT

The proposed project deals with excavation of rough stone and gravel quarry which is primarily used in construction projects. The method adopted for rough stone and gravel excavation is open cast manual mining method. Some of the important features of the proposed project have been provided in Table 1.2.

Table 1.2 Brief Description of the Proposed Project

Name of the Quarry	Mr.M.Dhayalan

Type of Land	Patta land		
Extent	2.59.25 ha		
S.F. No.	293/1B, 293/2A, 293/2B, 293/2C, 295, 300/1A(P), 301/1A1B, 301/1A2(P) & 301/1A3B		
Village	Devariyaambakkam		
Taluk & District	Walajabad & Kancheepuram		
State & Country	Tamil Nadu & India		
Toposheet No.	57 P/13		
Maximum Elevation	65m AMSL		
Latitude	12°48'54.71"N to 12°49'01.67"N		
Longitude	79°52'40.61"E to 79°52'47.37"E		
Ultimate Depth of Mining	50m BGL		
Geological Resources	Rough stone (m ³) - 1243392	Gravel (m ³) - 51808	
Mineable Reserves	Rough stone (m ³) - 355708	Gravel (m ³) - 38942	
Proposed production	Rough stone (m ³) - 355708	Gravel (m ³) - 38942	
Ultimate Pit Dimensions	Length (m)	Width (m)	Depth (m)
	135	110	50
Method of Mining	The quarrying operation is proposed to carried out by open cast mining in conjunction with conventional method using jack hammer drilling and blasting for shattering effect and loosen the rough stone.		
Topography	Flat Topography		
Machinery Proposed	Hydraulic Excavator	2	
	Tipper	10	
	Jack Hammer	3	
	Compressor	1	
Proposed Manpower Deployment	22 persons		
Project Cost	Rs.1,33,66,000/-		

1.4 SCOPE OF THE STUDY

The main scope of the EIA study is to quantify the cumulative impact of the quarries in the cluster on the study area and formulate the effective mitigation measures for each individual lease. A detailed account of the emission sources, emissions control equipment, background air quality levels, meteorological measurements, dispersion model and all other aspects of pollution like effluent discharge, and dust generation has been provided in this report. The baseline monitoring study has been carried out during the period of **December 2024-February 2025** for various environmental components such as land, soil, air, water, noise, ecology, etc. to assess the anticipated impacts of the cluster quarry projects on the environment and suggest suitable mitigation measures for likely adverse impacts due to the proposed project. The

sampling methodologies for the various environmental parameters required for the study, frequency of sampling, method of sample analysis, etc., are given in Table 3.1 in chapter III.

1.4.1 Terms of Reference (ToR)

The SEAC framed a comprehensive Terms of Reference (ToR) based on the information provided in the Form 1 and information collected from the proposed project site visit and issued ToR to the proponent vide ToR File No.11378 and ToR Identification No. TO24B0108TN5756614N, Dated.11.01.2025.

1.4.2 Environmental Clearance

The Environmental Clearance process for the project will comprise of four stages. These stages are given below:

- ❖ Screening
- ❖ Scoping
- ❖ Public consultation &
- ❖ Appraisal

Screening

Screening is the first stage of the EIA process. In this stage, the State level Expert Appraisal Committee (SEAC) examined the application of EC made by the proponent in Form 1 through online (Proposal No. SIA/TN/ MIN/501858/2024, dated.19.10.2024) and decided that the project requires detailed environmental studies for the preparation of EIA report. Therefore, the proponent submitted application for Terms of Reference (ToR) on 23.10.2024.

Scoping

The proposal was placed in the 522nd meeting of SEAC on 26.12.2024. Based on the presentation and documents furnished by the project proponent, SEAC decided to recommend the proposal for the grant of Terms of Reference (ToR) and the recommendation for ToR is subjected to the outcome of the Honourable NGT, Principal Bench, New Delhi (O.A No.186 of 2016 (M.A.No.350/2016) and O.A. No.200/2016 and O.A.No.580/2016 (M.A.No.1182/2016) and O.A.No.102/2017 and O.A.No.404/2016 (M.A.No. 758/2016, M.A.No.920/2016, M.A.No.1122/2016, M.A.No.12/2017 & M.A. No. 843/2017) and O.A.No.405/2016 and O.A.No.520 of 2016 (M.A.No. 981/2016, M.A.No.982/2016 & M.A.No.384/2017).

Public Consultation

In this stage, an application along with the draft of EIA and EMP report will be made to the Member Secretary of the Tamil Nadu Pollution Control Board (TNPCB) to conduct Public Hearing ensuring public participation at the project site or in its close proximity in the district. During public hearing, an opportunity will be given to the people living nearby the project site

to express their opinions about the impact of the proposed project on the environment. The outcome of the public hearing meeting will be submitted in the final EIA report.

Appraisal

In this stage, an application along with final EIA report including the outcome of the public consultations will be made to the SEIAA. The application thus made will be scrutinized by the SEAC. Then, the SEAC will make recommendations to grant EC or reject the application to the SEIAA.

1.4.3 Post Environment Clearance Monitoring

For category B projects, irrespective of its clearance by MoEF/SEIAA, the project proponent shall prominently advertise in the newspapers indicating that the project has been accorded environmental clearance and the details of MoEF website where it is displayed.

After obtaining EC, the project proponent will submit a half-yearly compliance report of stipulated environmental clearance terms and conditions to MoEF & CC Regional Office & SEIAA on 1st June and 1st December of every year.

1.4.4 Transferability of Environmental Clearance

A prior environmental clearance granted for a specific project or activity to an applicant may be transferred during its validity to another legal person entitled to undertake the project or activity on application by the transferor or the transferee with a written “no objection” by the transferor, to, and by the regulatory authority concerned, on the same terms and conditions under which the prior environmental clearance was initially granted, and for the same validity period (EIA Guidance Manual for Mining of Minerals, 20).

Legislation Applicable to Mining of Mineral Sector

A few important legislations are given below:

The Mines Act, 1952.

The Mines and Mineral (Development and Regulation) Act, 1957.

Mines Rules, 1955.

Mineral Concession Rules, 1960

Mineral Conservation and Development Rules, 1988.

State Minor Mineral Concession Rules, 1960.

Granite Conservation and Development Rule, 1999.

The Water (Prevention and Control of pollution) Act, 1974.

The Air (Prevention and Control of pollution) Act, 1981.

The Environment (Protection) Act, 1986.

The Forest (Conservation) Act, 1988.

The Wildlife (Protection) Act, 1972.

CHAPTER II

PROJECT DESCRIPTION

2.0 GENERAL

The Environmental Impact Assessment report has been prepared in terms of EIA notification of the MoEF dated 14-09-2006, as amended from time to time and the EIA Guideline Manual for Mining of Minerals (Feb, 2010) of MoEF, Govt. of India, for seeking environmental clearance for rough stone and gravel mining.

2.1 DESCRIPTION OF THE PROJECT

The Proponent, **Mr. M. Dhayalan** is involved in the undertaking of establishment, construction, development, and closure of opencast mines. He, through the exploration phase, identified the proposed project site as the one that has a great potential of producing an economically viable quantity of rough stone and gravel quarry. Therefore, the proponent had applied for quarry lease on 23.08.2024 to extract rough stone and gravel quarry. The precise area communication letter was issued by Department of Geology and Mining, Kancheepuram vide Rc.No.314/Q3/2024 dated 07.10.2024. Based on the precise area communication letter, mining plan was prepared. The mining plan thus prepared was approved by Deputy Director Department of Geology and Mining, Kancheepuram (Rc.No.314/Q3/2024 dated 10.10.2024). The overall view of the project site is shown in Figure 2.1.





Figure 2.1 Overall View of Proposed Project Site

2.2 TYPE OF THE PROJECT

The proposed project is excavation of rough stone and gravel from Patta land. The mining operation is opencast semi mechanized methods are adopted and on single shift basis only. The quarry operation using short hole drilling with the help of tractor mounted compressor attached with jackhammer smooth blasting and waste and are removal using hydraulic excavator.

2.3 NEED FOR THE PROJECT

Rough stone and gravel are used in almost any type of construction activity. It is also the most important input in domestic activity. Further, the material can also be used for road purposes. Thus, in current times, where the focus of the governments is on improvement of basic infrastructure like roads, railways, dams and other social infrastructure – both in rural and urban areas, there is a constant need for ensuring regular supply of these minor minerals.

2.4 LOCATION OF THE PROJECT

The proposed quarry project is located in Devariambakkam Village, Walajabad Taluk, Kancheepuram District, as shown in Figure 2.2 & 2.3. The area lies between Latitudes from 12°48'54.71"N to 12°49'01.67"N and Longitudes from 79°52'40.61"E to 79°52'47.37"E. The maximum altitude of the project area is 65m AMSL. Accessibility details to the proposed project site have been given in Table 2.1.

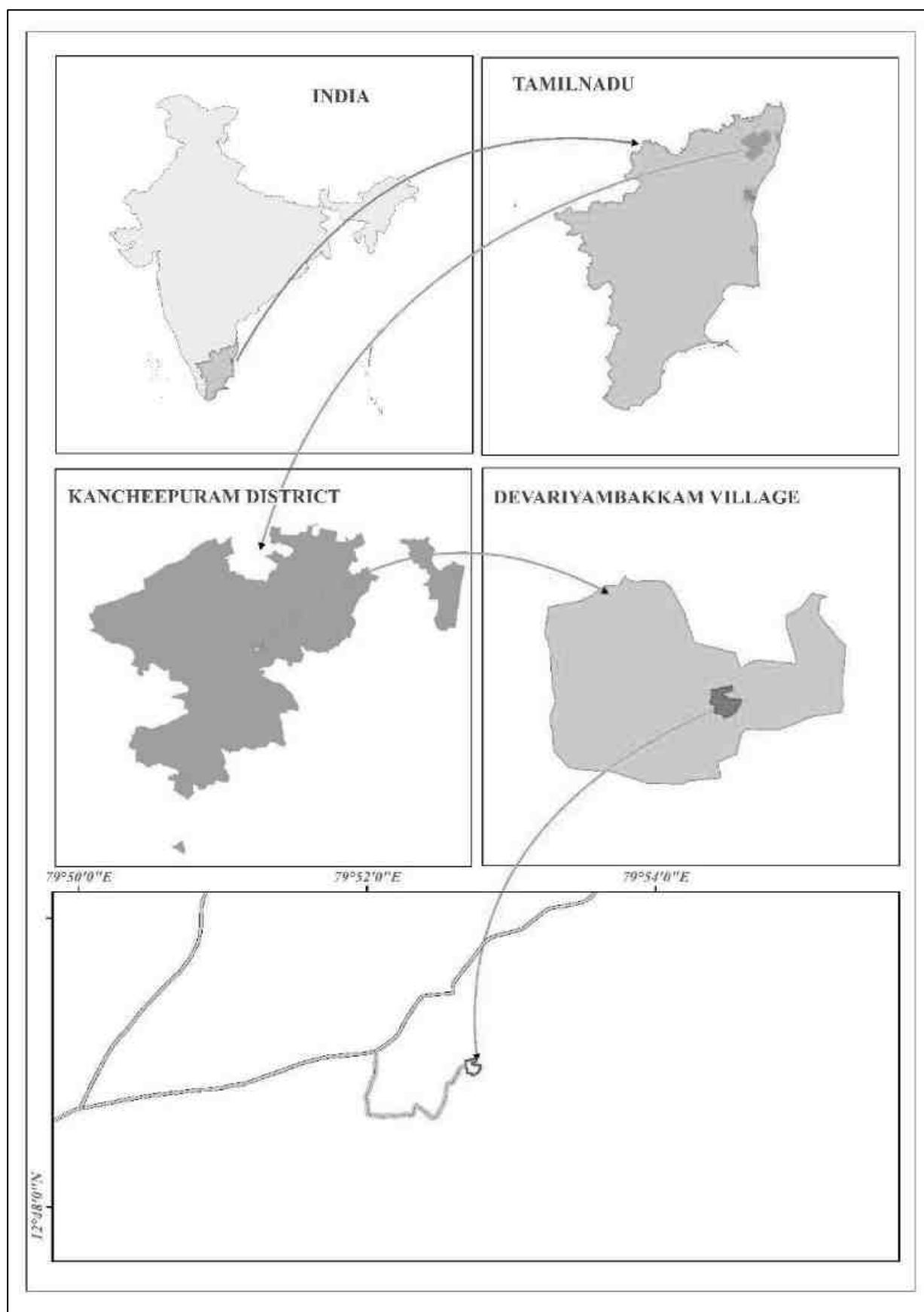


Figure 2.2 Key Map Showing Location of the Project Site

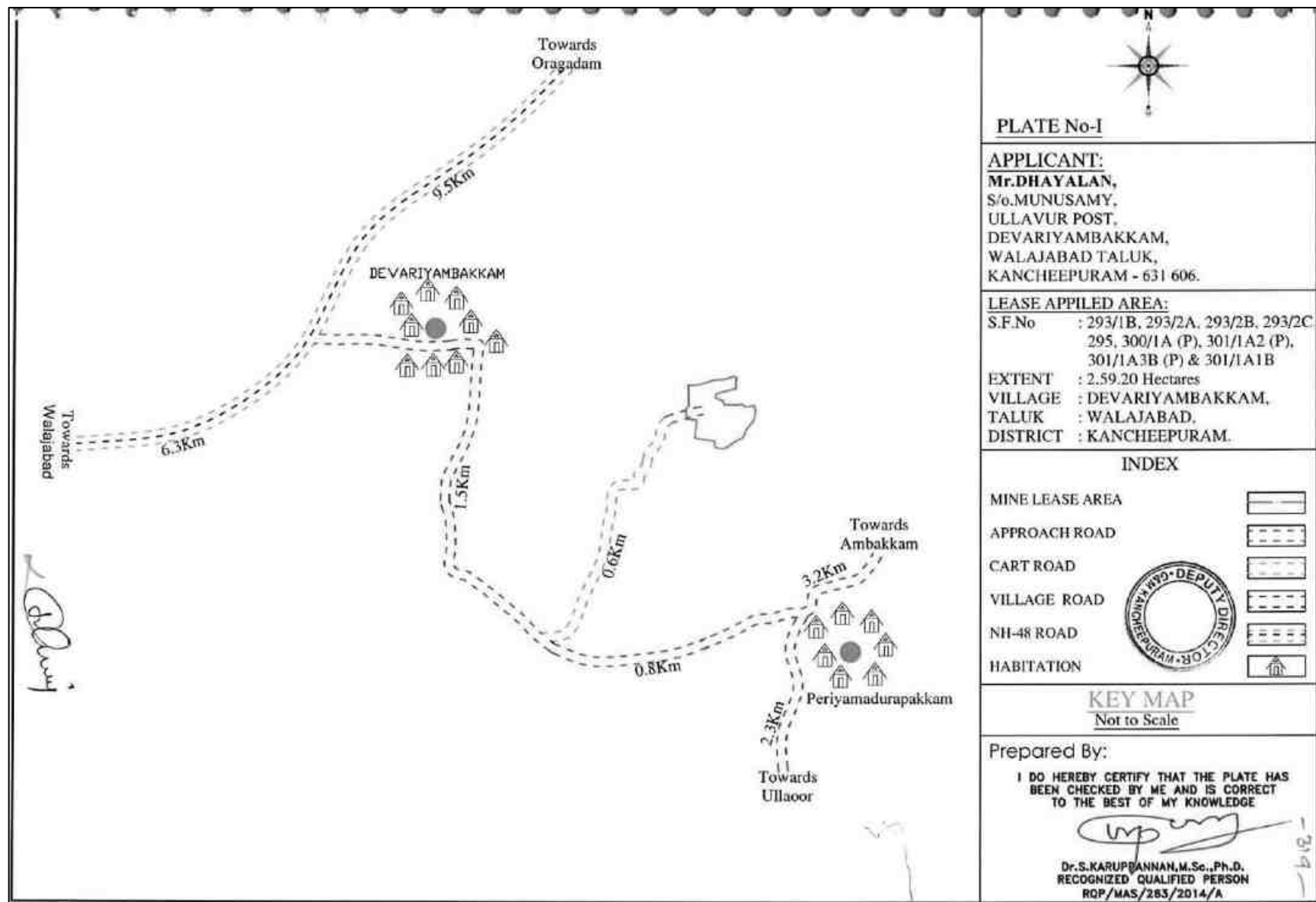


Figure 2.3 Route Map of the Project Site

Table 2.1 Site Connectivity to the Project Area

Type of Features	Name/Location	Distance (km)	Direction
Nearest Roadways	NH -132B Kancheepuram to Chengalpattu	4.5	S
	SH-48 - Walajabad -Tambaram	0.9	W
Nearest Town	Sriperumpudur	16.5	N
Nearest Railway Station	Pazhayaseevaram	4.2	S
Nearest Airport	Chennai	36.0	NE
Nearest Seaport	Chennai	54.0	NE
Nearest Villages	Varanavasi	1.4	N
	Chinna Madurampakkam	1.35	E
	Kosapattu	0.43	S
	Devariyaambakkam	0.54	W

2.4.1 Leasehold Area

- ❖ The extent of the proposed project site is 2.59.25ha.
- ❖ The proposed project is site specific.
- ❖ There is no mineral beneficiation or processing proposed inside the project area.
- ❖ There is no forest land involved in the proposed area and is devoid of major vegetation and trees.

2.4.2 Corner Coordinates

The boundary corner geographic coordinates are given in Table 2.2 and the proposed project site with boundary coordinates has been shown in Figure 2.4.

Table 2.2 Corner Coordinates of Proposed Project

Si.no	Latitude	Longitude	Si.no	Latitude	Longitude
1	12°49'1.67"N	79°52'45.24"E	17	12°48'55.78"N	79°52'46.09"E
2	12°49'1.50"N	9°52'45.51"E	18	12°48'55.54"N	9°52'45.56"E
3	12°49'0.91"N	79°52'45.42"E	19	12°48'54.71"N	79°52'44.30"E
4	12°49'0.48"N	79°52'45.45"E	20	12°48'54.82"N	9°52'43.48"E
5	12°48'59.98"N	9°52'43.52"E	21	12°48'55.47"N	9°52'43.39"E
6	12°48'59.60"N	9°52'43.50"E	22	12°48'55.76"N	79°52'41.49"E
7	12°48'59.31"N	9°52'44.21"E	23	12°48'57.07"N	79°52'41.64"E
8	12°48'58.93"N	79°52'44.31"E	24	12°48'57.50"N	79°52'41.66"E
9	12°48'58.91"N	79°52'45.75"E	25	12°48'57.59"N	9°52'40.68"E
10	12°48'59.02"N	79°52'45.94"E	26	12°48'58.53"N	79°52'40.61"E
11	12°48'58.72"N	79°52'46.34"E	27	12°48'58.82"N	79°52'40.92"E
12	12°48'58.85"N	79°52'47.25"E	28	12°49'0.81"N	9°52'40.87"E
13	12°48'58.28"N	9°52'47.37"E	29	12°49'0.83"N	79°52'41.95"E
14	12°48'57.44"N	9°52'47.17"E	30	12°49'1.27"N	9°52'43.25"E
15	12°48'56.58"N	9°52'46.48"E	31	12°49'1.35"N	9°52'44.46"E
16	12°48'56.25"N	79°52'46.35"E			

2.4.3 Geology

The lease area geologically occurs Acid to Intermediate Charnockite. Also, the lease area geomorphologically occurs Pediment Pediplain Complex.

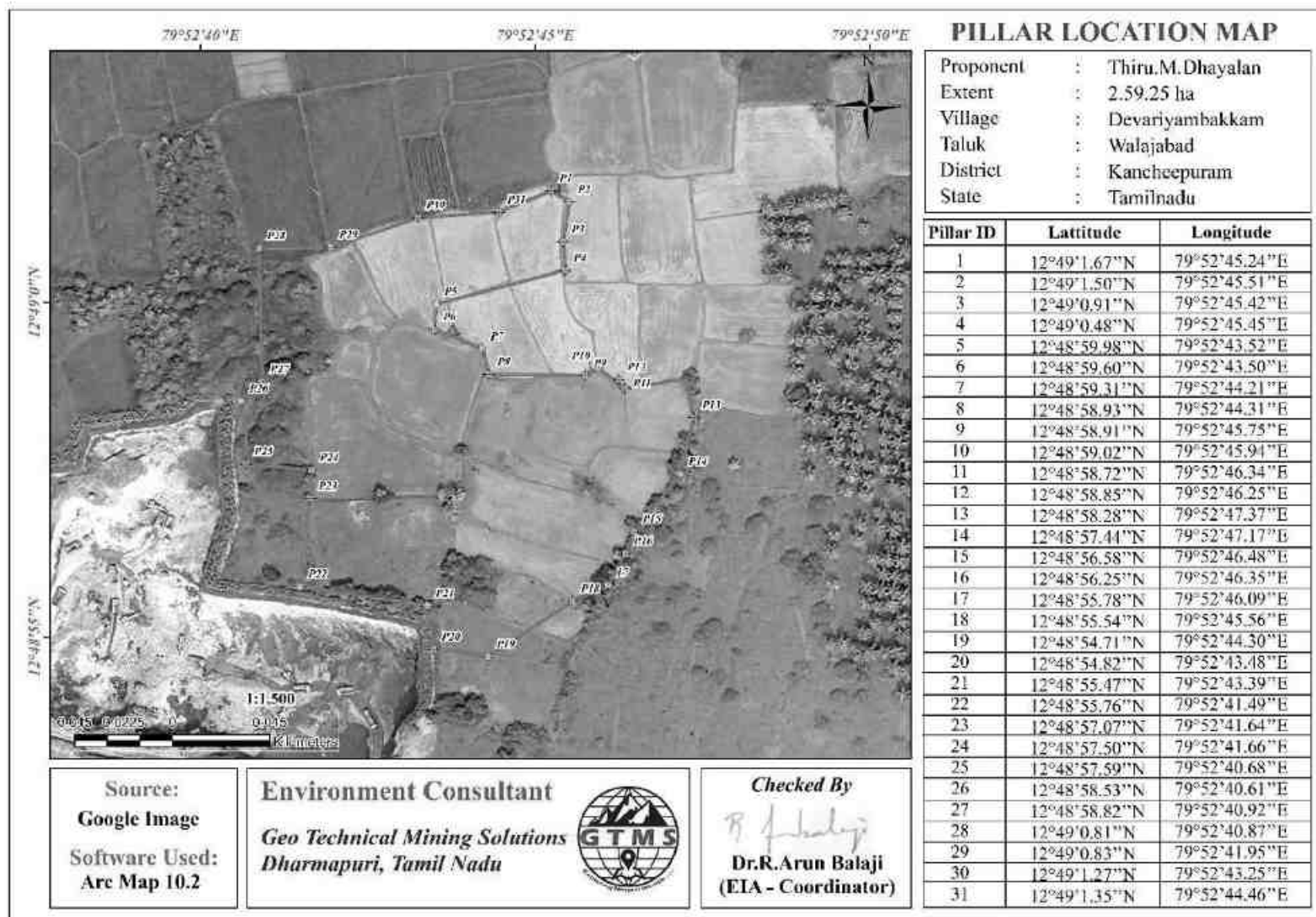
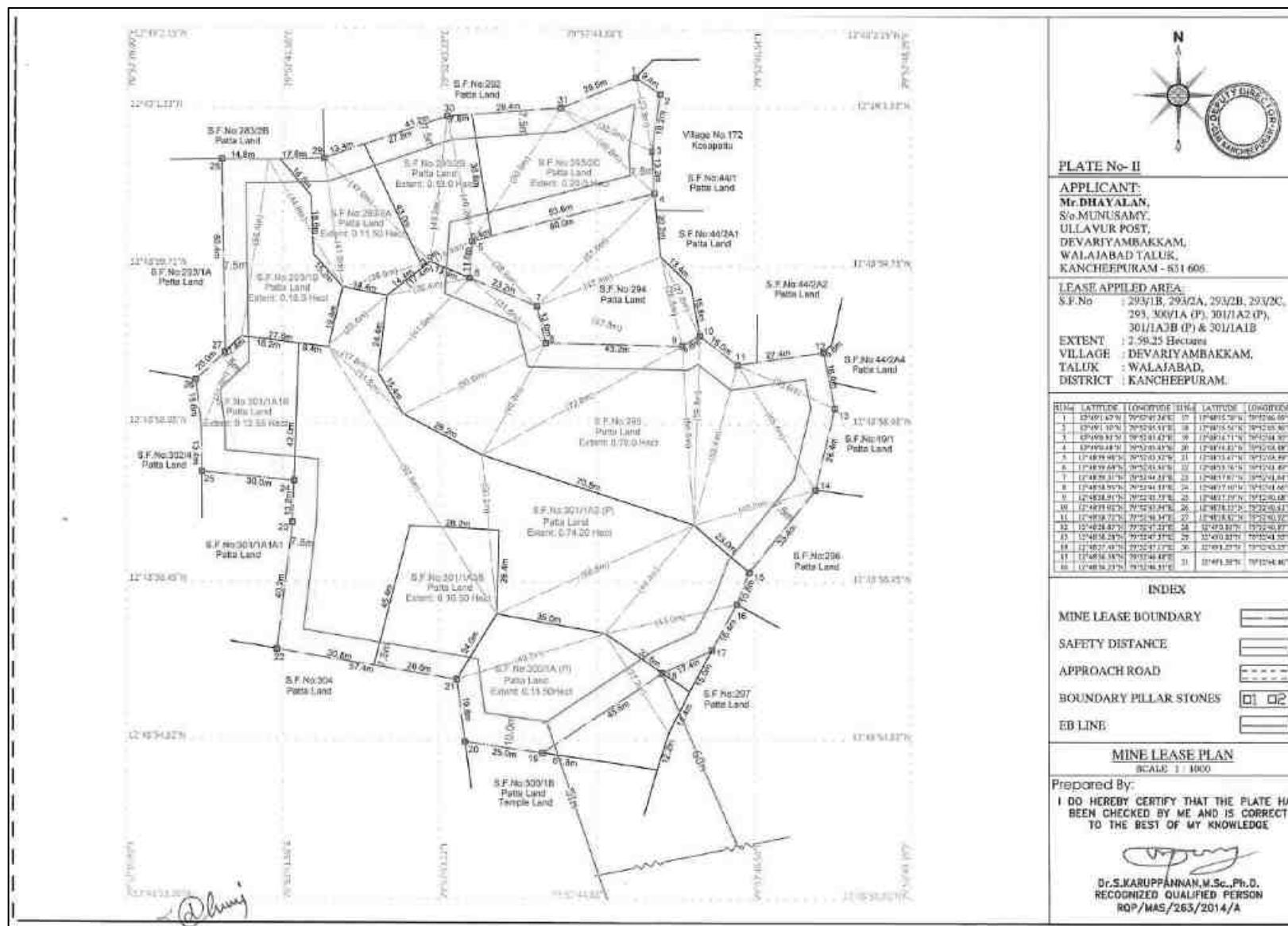


Figure 2.4 Google Earth Image Showing Lease Area with Pillars



2.5 SIZE AND MAGNITUDE OF OPERATION

The salient features of the project showing the size and magnitude of the operation is provided at Table 2.3.

2.5.1 Quantity of Reserves

The resources and reserves of rough stone and gravel were calculated based on cross-section method by plotting sections to cover the maximum lease area for the proposed project. Based on the availability of geological resources, the mineable reserves are calculated by considering excavation system of bench formation and leaving essential safety margins, as shown in Figure 2.6 and deducting the locked-up reserves during bench formation (also called as Bench Loss). The mineable reserves are calculated up to the depth of 50m BGL considering there is no waste / overburden / side burden (100% Recovery anticipated) for the proposed project. The results of geological resources and reserves have been shown in Table 2.3.

Table 2.3 Estimated Resources and Reserves of the Project

Resource Type	Rough stone in m ³	Gravel in m ³
Geological Resource in m ³	1243392	51808
Mineable Reserves in m ³	355708	38942
Proposed production in m ³	355708	38942

Based on the year wise development and production plan and sections, as exemplified in Figures 2.6, the year wise production results have been provided in Table 2.4.

Table 2.4 Year-Wise Production Details

Year	Rough stone in m ³	Gravel in m ³
I	83028	19142
II	70400	12100
III	70800	7700
IV	70095	--
V	61385	--
Total	355708	38942

Source: Approved Mining Plan

2.5.2 Magnitude of Operation

Based on the results of estimated production for the 5 years, details about the size of operation have been provided in Table 2.5.

Table 2.5 Operational Details for Proposed Project

	Rough stone in m ³	Gravel in m ³
Proposed production	355708	38942
Number of Working Days	270	270
Production /Day (m ³)	263	48
No. of Lorry Loads	44	8

2.6 PROPOSED SCHEDULE FOR APPROVAL AND IMPLEMENTATION

The precise area communication letter was issued by Department of Geology and Mining, Kancheepuram vide Rc.No.314/Q3/2024 dated 07.10.2024. Based on the precise area communication letter, mining plan was prepared.

The mining plan thus prepared was approved by Deputy Director Department of Geology and Mining, Kancheepuram (Rc.No.314/Q3/2024 dated 10.10.2024).

In compliance with ToR obtained vide ToR File No. 11378 and ToR Identification No. TO24B0108TN5756614N, Dated.11.01.2025.

The PP has applied for environment clearance as per requirements of EIA notification SO 1533(E) dated 14.9.2006 and amendments made thereof and the proposed project will be implemented after the environment clearance is granted.

2.7 TECHNOLOGY AND PROCESS DESCRIPTION

The Quarrying operation is proposed to be carried out by open cast semi-mechanized mining method with the bench height and width of 5 m each. The open cast semi-mechanized method involving drilling and blasting is proposed to extract rough stone and gravel. The extracted rough stone will be loaded manually to the trucks for dispatch to the customers. In this project, NONEL blasting will be adopted to extract rough stone.

Conceptual Blasting Design

In this project, NONEL blasting will be employed to win rough stone. This method will involve closed spaced perimeter holes to reduce the overbreak/backbreak on a blast. The objective of the blasting design is to prevent fly rocks from damaging the nearby structures.

Rules of Thumb for Blast Design

Based on practical experience and technical information, a set of rules for blasting have been provided as below ([Chapter8 \(nps.gov\)](#)). These rules will be applied to blast rocks in the proposed project.

Rule 1: The detonation velocity (VOD) of the explosive should be close to the same value of the sonic velocity (VSO) of the rock to be blasted.

The sonic velocity of a rock is considered to be a reliable indicator of its structural integrity and resistance to fragmentation. As the VOD of the explosive approaches close to the VSO of the rock, the blasting would result in relatively smaller size of fragmentation with uniformity. There is no value in using an explosive that has a VOD greatly in excess of the VSO of the rock, since there is little or no improvement in fragmentation above the VSO. When selecting an explosive to match up the VSO of a rock mass, variance of <10% in the velocities is acceptable.

Rule 2: Generally, select the densest explosive possible.

When the density of explosives is higher, the potential energy of the explosives can be greater and the more of it can be placed within a borehole of a given size.

Rule 3: Select explosives according to the characteristics of the rock formation to be blasted.

When planes of separation in the rock are smaller than the degree of fragmentation required, the rock can often be blasted by using lower density and lower detonation velocity explosives.

Rule 4: When using slurry or water gel explosives, always determine the critical temperature below which the explosive will fail to reliably detonate.

Almost all slurry explosives have a critical temperature below which they may not detonate, or may not sustain detonation in elongated columns. The explosives should not be used when the temperature of the explosive at time of loading is below that critical temperature.

Rule 5: The distance between holes (spacing) should not be greater than one-half the depth of the borehole.

When the distance between holes in a row is greater than one-half the depth of the hole, the angles of breakage intersect above the bottom of the holes. This causes both a great deal of vertical throw and a very uneven bottom.

Rule 6: Stemming should be equal to the burden.

Stemming is useful to confine and maximize efficient use of the explosive's energy. It also reduces noise as much as possible. If the stemming is greater than the burden, the rock at the top of the borehole will have less cracking from reflection and refraction of compressive and tensile waves. Therefore, stemming should be equal to burden. Drill fines can be used for loading the borehole.

Rule 7: Subdrill (if necessary) should be between 0.3 and 0.5 of spacing/burden.

Subdrill should be equal to 0.3 of burden. It will work when there is row-for-row delay. In blasts where the delay system is both row-for-row and hole-for-hole, the subdrill should be determined by the largest dimension, which can be the spacing or the burden. An average subdrill of 0.4 of spacing is best to use for planning purposes. Based on the above-mentioned rules, blasting design has been conceptualized and has been provided in Table 2.5.

Table 2.5 Conceptual Blasting Design

Blasthole Diameter (D) in mm	32
Burden (B) in m	1.5

Spacing (S) in m	1.30
Subdrill in m	0.45
Charge length (C) in m	0.64
Stemming	1.5
Hole Length (L) in m	2.6
Bench Height (BH) in m	2.1
Mass of explosive/hole in g	400
Stemming material size in mm	3.2
Burden stiffness ratio	1.43
Blast volume/hole in m ³	4.16
Production of rough stone/day in m ³	263
Number of blastholes/day	63
Blasthole pattern	Staggered
Mass of explosive /day in kg	25.35
Powder factor in kg/m ³	0.10
Loading density	0.63
Type of explosives	Slurry
Diameter of packaging in mm	25
Initiation system	NONEL
Fly rock distance in m	19

2.8 PROJECT DESCRIPTION

2.8.1 Extent of Mechanization

List of machineries proposed for the quarrying operation is given in Table 2.6.

Table 2.6 Machinery Details

S. No.	Type	No. of Unit	Size / Capacity	Make	Motive Power
1	Excavator	2	2.9-4.5m ³	--	Diesel
2	Compressor	1	Air	--	Diesel
3	Jack Hammer	3	Hand held	--	Diesel
Haulage & Transport Equipment					
4	Tipper	10	15T	-	Diesel

2.8.2 Land Requirement

The progressive quarry closure plan of the proposed project shows past, present, and future land use statistics, green belt development statistics, fencing and garland drains

establishment details. According to the land use results, as shown in Table 2.7, at present, about 2.59.25 ha of land is designated as unutilized area, whereas at the end of the mine life, about 1.98.25ha of land would have been quarried; about 0.02.00 ha of land would have been used for establishing infrastructures; about 0.05.00 ha of land would have been used for road development; about 0.45.75 ha of land would have been used for green belt development and about 0.08.25ha of land would have been used for drainage and settling tank.

Table 2.7 Land use data at present, during scheme of mining, and at the end of mine life

Description	Present Area (ha)	Area at the end of life of quarry (ha)
Area under Mining	Nil	1.98.25
Infrastructure	Nil	0.02.00
Roads	Nil	0.05.00
Green Belt	Nil	0.45.75
Unutilized area	2.59.25	Nil
Drainage & Settling tank	Nil	0.08.25
Total	2.59.25	2.59.25

2.8.3 Progressive Quarry Closure Budget

As the proposed project has the enormous potential for continuous operations even after the expiry of lease period, final mine closure plan is not proposed for now. Based on the environment management plan as discussed in Chapter X, the progressive mine closure cost is given in Table 2.8.

Table 2.8 Mine Closure Budget

Activity	Capital Cost
518 plants inside the lease area	103600
778 plants outside the lease area	233325
Wire Fencing	518500
Renovation of Garland Drain	25925
Total	881350

Source: Environment Management Plan

2.8.4 Water Requirement

Detail of water requirement in 3.0 KLD is given in Table 2.9.

Table 2.9 Water Requirement for the Project

Purpose	Quantity	Source
Dust Suppression	1.0 KLD	Existing bore wells nearby the lease area
Green Belt development	1.0 KLD	Existing bore wells nearby the lease area
Drinking & Domestic	1.0 KLD	Existing bore wells and approved water vendors
Total	3.0 KLD	

Source: Prefeasibility Report

2.8.5 Energy Requirement

As per the data shown in Table 2.10, High Speed Diesel (HSD) will be used for quarrying machineries. Around 16,40,576litres of HSD will be used for rough stone and gravel extraction during this 5 years plan period. The diesel will be brought to the site from nearby diesel pumps.

Table 2.10 Fuel Requirement Details

Fuel Requirement for Excavator			
Details	Rough Stone (355708 m³)	Gravel (38942 m³)	Total Diesel (litre)
Average Rate of Fuel Consumption (l/hr)	16	10	---
Working Capacity (m ³ /hr)	20	60	---
Time Required (hours)	17785	649	---
Total Diesel Consumption for 5 years (litre)	284566	6490	291056
Fuel Requirement for Compressor			
Average Rate of Fuel Consumption/hole (litre)	0.4	---	---
Number of Drillholes/day	63	---	---
Total Diesel Consumption for 5 years (litre)	34020	---	34020
Fuel Requirement for Tipper			
Average Rate of Fuel Consumption/Trip (litre)	20	20	---
Carrying Capacity in m ³	6	6	---
Number of Trips / days	44	8	---
Number of Trips / 5 years	59285	6490	---
Total Diesel Consumption for 5 years (litre)	1185693	129807	1315500
Total Diesel Consumption by Excavator, Compressor and Tipper			1640576

2.8.6 Capital Requirement

The project proponent will invest **Rs.1,33,66,000/-** to the project. The breakup summary of the investment has been given in Table 2.11.

Table 2.11 Capital Requirement Details

S. No.	Description	Cost (Rs.)
1	Fixed Asset Cost	82,28,000
2	Machinery cost	20,00,000
3	EMP Cost	31,38,000
Total Project Cost		1,33,66,000

Source: Approved Mining Plan

2.8.7 Manpower Requirement

The skilled, competent qualified statutory persons will be engaged for quarrying operation, preference will be given to the local community. Number of employees required for this project have been provided in Table 2.12.

Table 2.12 Employment Potential for the proposed project

S. No.	Category	Role	Nos.
1	Highly Skilled	Mines Manager	1
		Mines Engineer	1
		Mine Geologist	1
		Blaster	1
2	Unskilled	Musdoor/Labours	18
Total			22

2.9 DESCRIPTION OF MITIGATION MEASURES INCORPORATED INTO THE PROJECT TO MEET ENVIRONMENTAL STANDARDS, ENVIRONMENTAL OPERATING CONDITIONS OR OTHER EIA REQUIREMENTS.

The anticipated impacts and mitigation measures on soil, land, water, air, noise, biological, and socioeconomic environments discuss in Chapter IV in the EIA report.

2.10 ASSESSEMENT OF NEW AND UNTESTED TECHNOLOGY FOR THE RISK OF TECHNOLOGICAL FAILURE.

No new and untested technologies would be followed. The mining operations as explained in the section 2.7 above would be followed in the mining operations.

CHAPTER III DESCRIPTION OF THE ENVIRONMENT

3.0 GENERAL

This chapter presents a regional background to the baseline data at the very onset, which will help in better appreciation of micro-level field data, generated on several environmental and ecological attributes of the study area. The baseline status of the project environment is described section wise for better understanding of the broad-spectrum conditions.

3.1 STUDY AREA, PERIOD, COMPONENTS & METHODOLOGY

3.1.1 Study Area & Period

The study area has been divided into two zones: core zone and buffer zone. Core zone is considered as lease area and buffer zone as 5 km radius from the periphery of the cluster, except for ecological study, which considers 10 km as buffer zone. Both core and buffer zones are taken as the study area. The data was collected from the study area to understand the existing environment conditions of the above-mentioned environmental components. Sampling methodologies for the various environmental parameters, including frequency of sampling, method of sample analysis, etc., are briefly given in Table 3.1. Field monitoring studies to evaluate the base line status of the project site were carried out covering **December 2024 through February 2025** with CPCB guidelines.

3.1.2 Components & Methodology

The baseline environment quality represents the background environmental scenario of various environmental components such as land, water, air, noise, biological and socio-economic status of the study area. Environmental baseline data were collected by an NABL accredited and MoEF notified *Ekdant Enviro Services (P) Limited* for the environmental attributes including soil, water, air, and noise and by FAEs for ecology and biodiversity, traffic, and socio-economy are briefly given in Table 3.1.

3.2 ESTABLISHMENT OF BASELINE FOR VALUED ENVIRONMENTAL COMPONENTS AS IDENTIFIED IN THE SCOPE

Sensitive areas

Location of water bodies

Wind Rose Diagram, Upwind and Downwind direction, predominant wind direction

Nearby buildings / Nearby village

Location of Polluted Areas

Location of Ecologically Protected Areas

Table 3.1 Monitoring Attributes and Frequency of Monitoring

Attribute	Parameters	Frequency of Monitoring	No. of Locations	Protocol
Land Use/ Land Cover	Land-use Pattern within 5 km radius of the study area	Once during the study period	Study Area	Satellite Imagery & Primary Survey
*Soil	Physico- Chemical characteristics	Once during the study period	6 (1 in core & 5 in buffer zone)	IS 2720 Agriculture Handbook - Indian Council of Agriculture Research, New Delhi
*Water Quality	Physical, Chemical and Bacteriological Parameters	Once during the study period	6 (3 surface water & 3 ground water)	IS 10500& CPCB Standards
Meteorology	Wind speed Wind direction Temperature Cloud cover Dry bulb temperature Rainfall	1 hourly continuous mechanical/automatic weather station	1	Site specific primary data & secondary data from IMD Station
*Ambient Air Quality	PM ₁₀ PM _{2.5} SO ₂ NO _x	24 hours, twice a week Dec 2024-Feb 2025	7 (1 nearby core & 6 buffer)	IS 5182 Part 1-23 National Ambient Air Quality Standards, CPCB
*Noise Levels	Ambient noise	Hourly observation for 24 hours per location	7 (1 core & 6 buffer zone)	IS 9989 As per CPCB Guidelines
Ecology	Existing flora and fauna	Through field visit during the study period	Study area	Primary Survey by Quadrat & Transect Study Secondary Data – Forest Working Plan
Socio Economic Aspects	Socio-economic characteristics, Population statistics and existing infrastructure in the study area	Site visit & Census Handbook, 2011	Study area	Primary Survey, census handbook & need based assessments.

**All monitoring and testing have been carried out as per the Guidelines of CPCB and MoEF & CC.*

3.3 BASE MAP OF ALL ENVIRONMENTAL COMPONENTS

3.3.1 LAND ENVIRONMENT

Geology and Geomorphology

Study area is mainly composed of Charnockite, Sandstone, black silty clay and sandstone as shown in Figure 3.1. Among the geomorphic units, Pediment and Pediplain Complex and Flood Plain dominate the study area, as shown in Figure 3.2.

Land Use/ Land Cover

Land Use and Land Cover (LULC) map, as shown in Figure 3.3 was prepared using Sentinel II image for the study area of 5 km radius to provide a baseline status of the study area covering 5 km radius around the proposed mine site. Totally, 8 LULCs were mapped. The areal extent of each LULC is provided in Table 3.2. Of the total area, mining area covers only 106.57ha accounting for 1.23%, of which lease area of 2.59.25ha contributes only about 0.029 %. This small percentage of mining activities shall not have any significant impact on the land environment.

Table 3.2 LULC Statistics of the Study Area

S. No.	Classification	Area (ha)	Area (%)
1	Bare Ground	3.43	0.04
2	Built Area	1524.75	17.60
3	Crops	5523.89	63.77
4	Mining/Industrial area	106.57	1.23
5	Flooded Vegetation	65.82	0.76
6	Rangeland	855.19	9.87
7	Trees	44.04	0.51
8	Water	538.09	6.21
Total		8661.78	100.0

Source: Sentinel II Satellite Imagery

Topography

The proposed lease area exhibits flat topography. The maximum elevation in 65m ASML was observed in west side of the lease area. The slope is towards eastern side and falls in Toposheet No 57 P/13.

Drainage Pattern

Drainage pattern is the pattern formed by the streams, rivers, and lakes in a particular drainage basin over time that reveals characteristics of the kind of rocks and geological structures in a landscape. The proposed area shows dendritic drainage pattern indicating uniform lithology beneath the surface, as shown in Figure 3.3A.

Seismic Sensitivity

The proposed lease area is situated in a Seismic Zone III, as defined by National Centre for Seismology ([Official Website of National Centre of Seismology](#)). The Zone III is defined as the region where moderate risk zone is expected from seismic events. In this respect, the proposed lease area is located in a low earthquake hazard area.

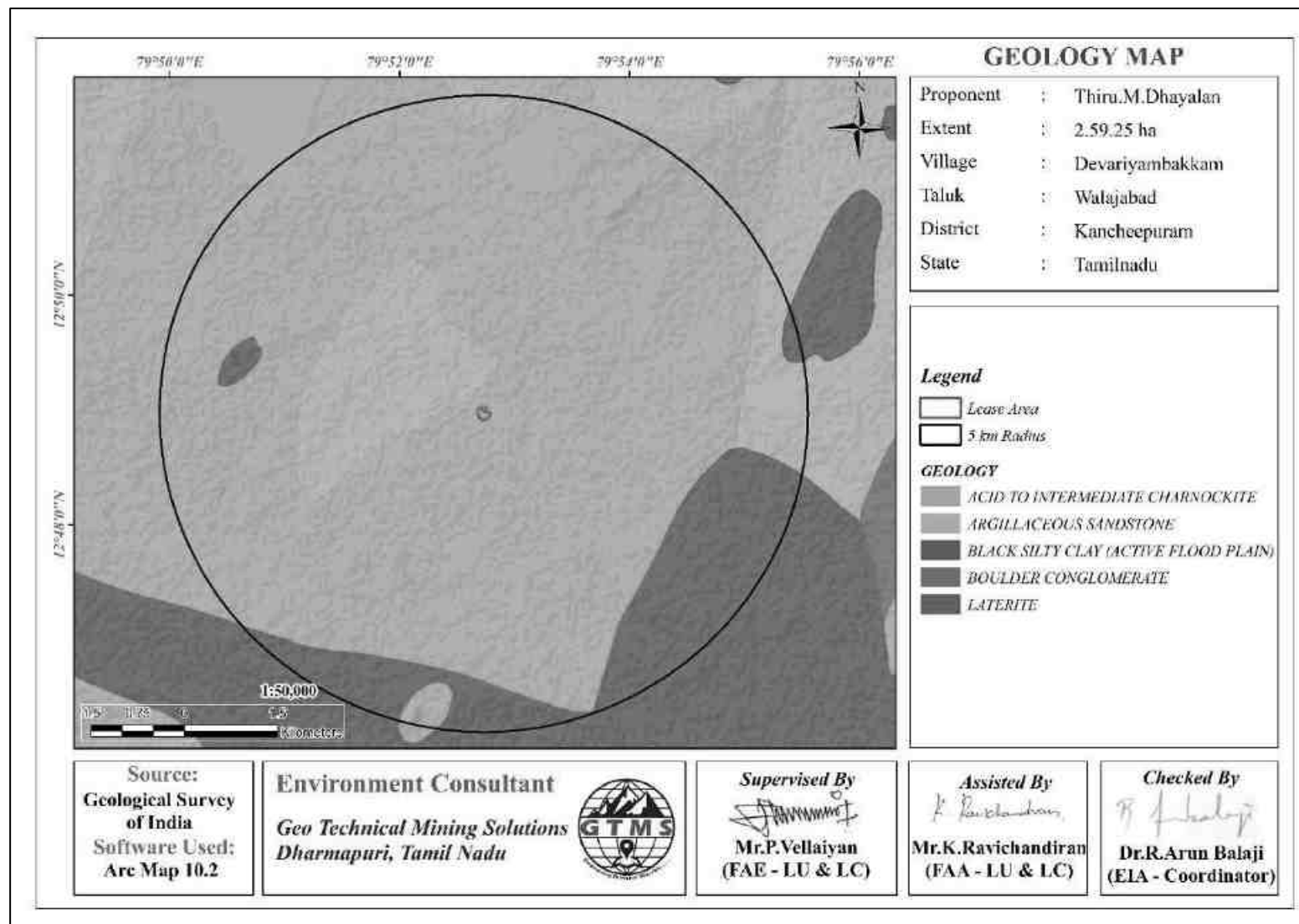


Figure 3.1 Geology Map of 5 km Radius from Proposed Project Site

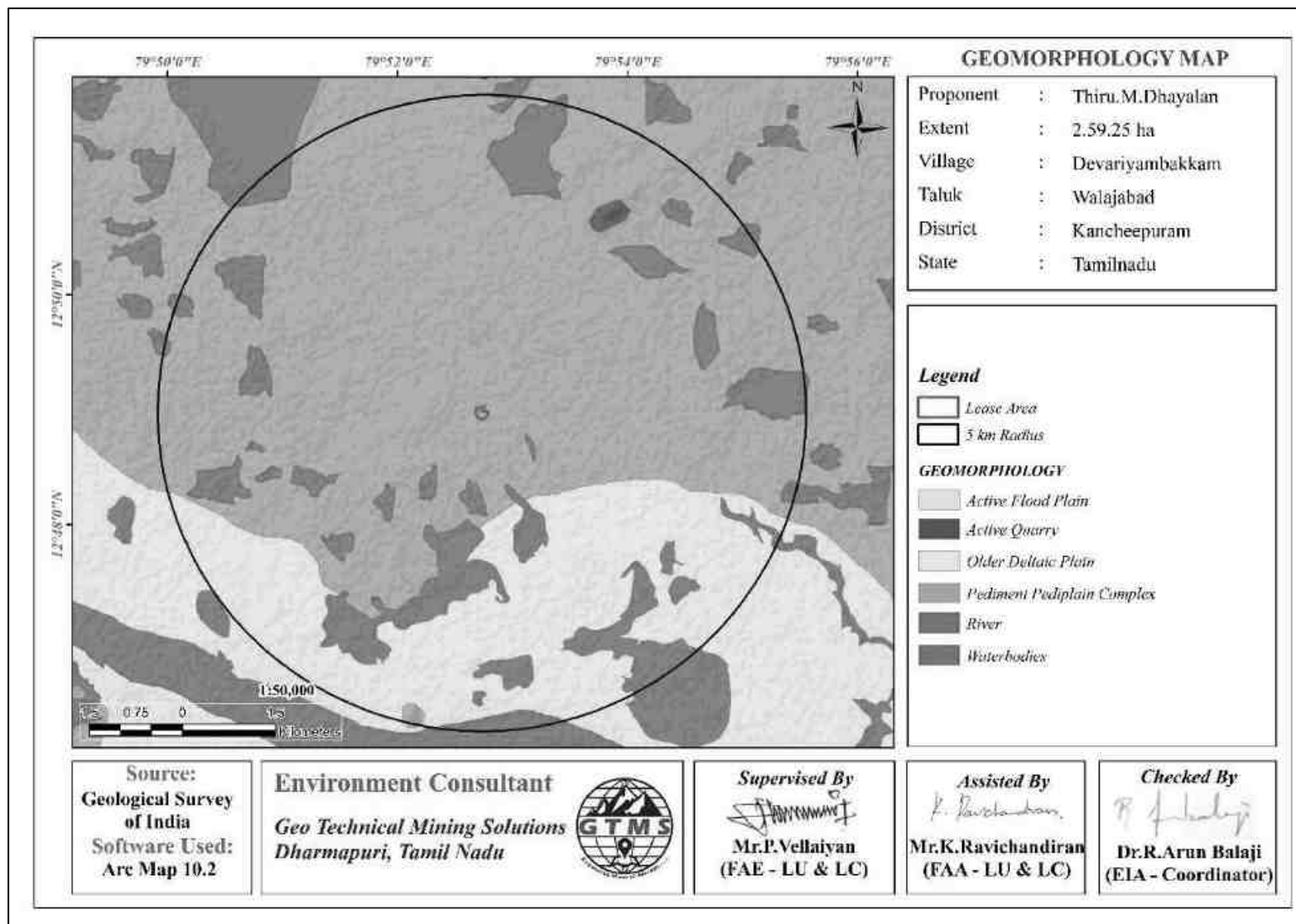


Figure 3.2 Geomorphology Map of 5 km Radius from Proposed Project Site

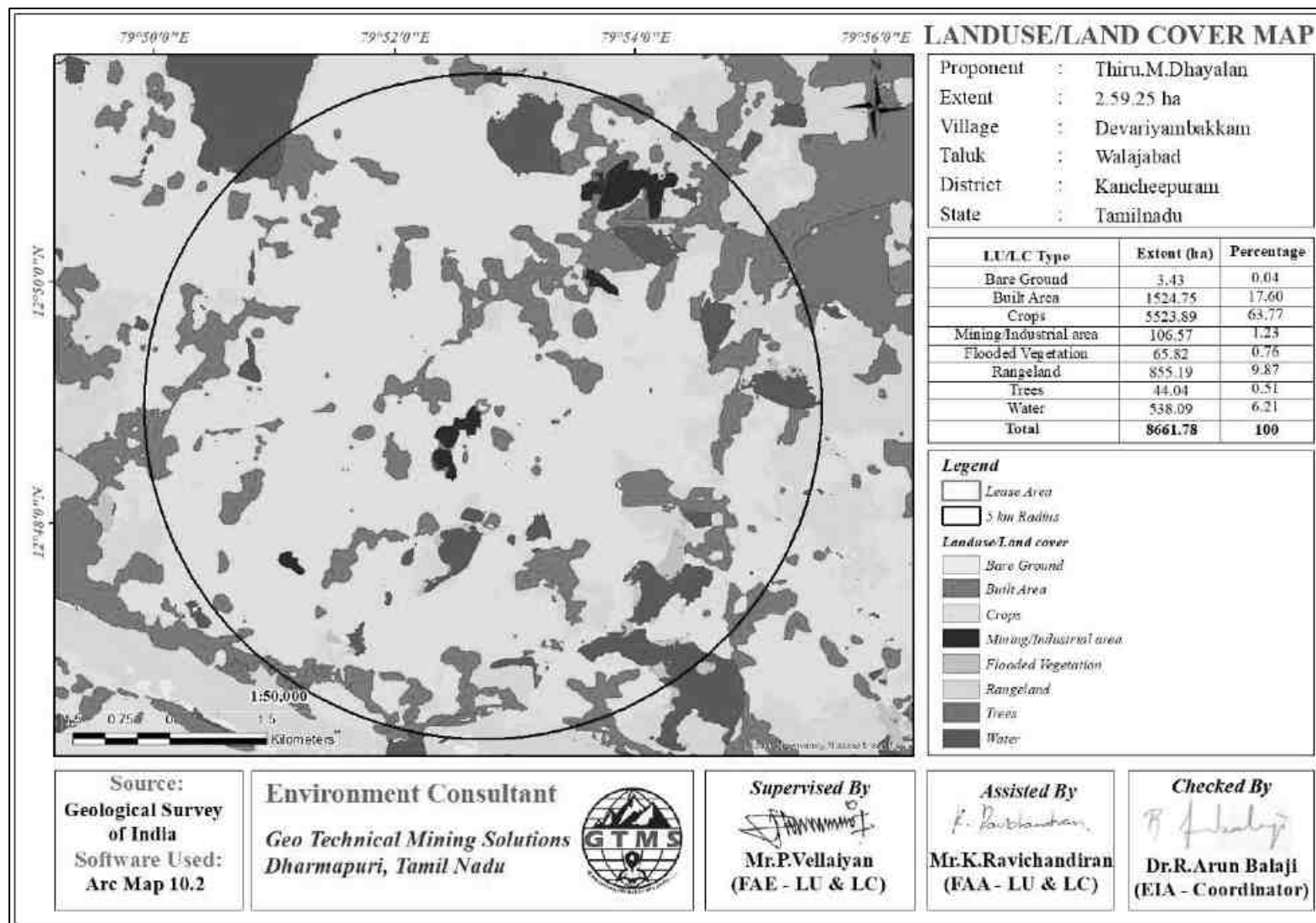


Figure 3.3 LULC Map of 5 km Radius from Proposed Project Site

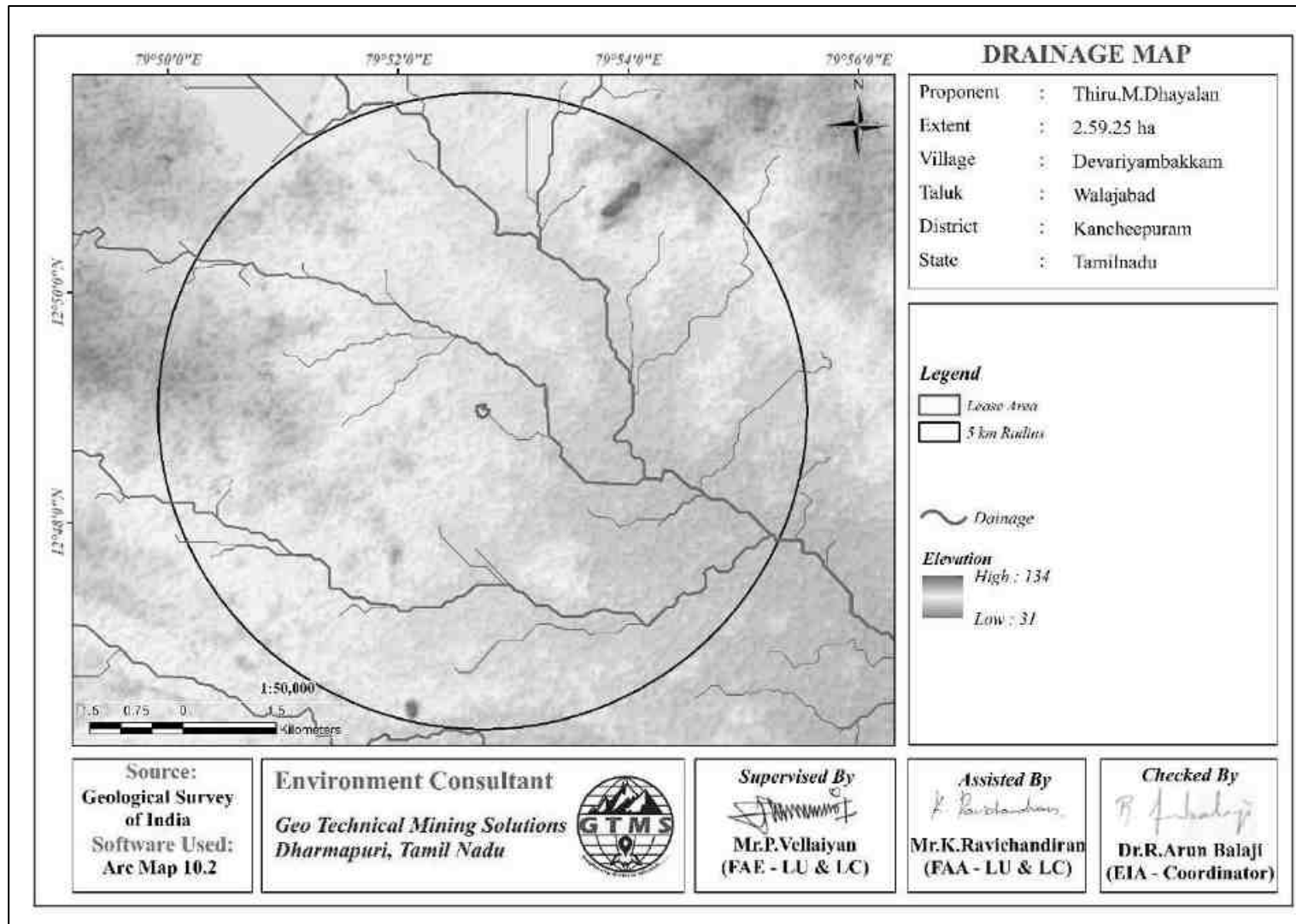


Figure 3.3A Drainage Map of 5 km Radius from Proposed Project Site

3.3.2 Soil Environment

Soil is one of the important components of the land environment. Composite soil samples were collected from the study area and analysed for different parameters to determine the baseline soil characteristics of the study area.

Methodology

Six locations were selected for soil sampling based on soil types, vegetative cover, and industrial & residential activities including infrastructure facilities. Soil samples were collected up to 90 cm depth, filled in polythene bags, coded and sent to laboratory for analysis. The locations of the sampling sites are shown in Table 3.3 and Figure 3.4. The samples thus collected were analysed for physical and chemical characteristics as per the standard methods prescribed in “Soil Chemical Analysis (M.L. Jackson, 1967) & Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India”. The physical and chemical characteristic results of soil samples are provided in Table 3.4.

Table 3.3 Soil Sampling Locations

S. No.	Sampling ID	Location	Distance (km)	Direction	Coordinates
1	S01	Core area	---	---	12°48'57.31"N,79°52'45.10"E
2	S02	Thonankulam	0.56	S	12°48'36.65"N,79°52'45.98"E
3	S03	Devariambakkam	0.42	NW	12°49'11.96"N,79°52'33.09"E
4	S04	Lingapuram	1.70	SW	12°48'30.37"N,79°51'51.33"E
5	S05	Periamadurapakkam	1.04	SE	12°48'31.71"N, 79°53'9.83"E
6	S06	Nathanallur	3.56	SW	12°47'57.91"N,79°50'59.23"E

Source: On-site monitoring/sampling *Ekdant Enviro Services (P) Limited*, in association with GTMS.

Results and Discussion

Physical Characteristics & Chemical Characteristics

The soil samples in the study area show loamy textures varying between silty clay loam, silty loam and sandy loam. pH of the soil varies from 7.35 to 8.52 indicating slightly acidic to slightly alkaline nature. Electrical conductivity of the soil varies from 42.5 to 82.30 ($\mu\text{mhos/cm}$). Density ranges between 1.03 to 1.45 g/cc. Calcium ranges between 27.0 to 47.0 mg/kg. Magnesium ranges between 14.0 to 22.0 mg/kg. Potassium ranges between 3.0 to 15.20 mg/kg. the soil results discussed in table 3.4

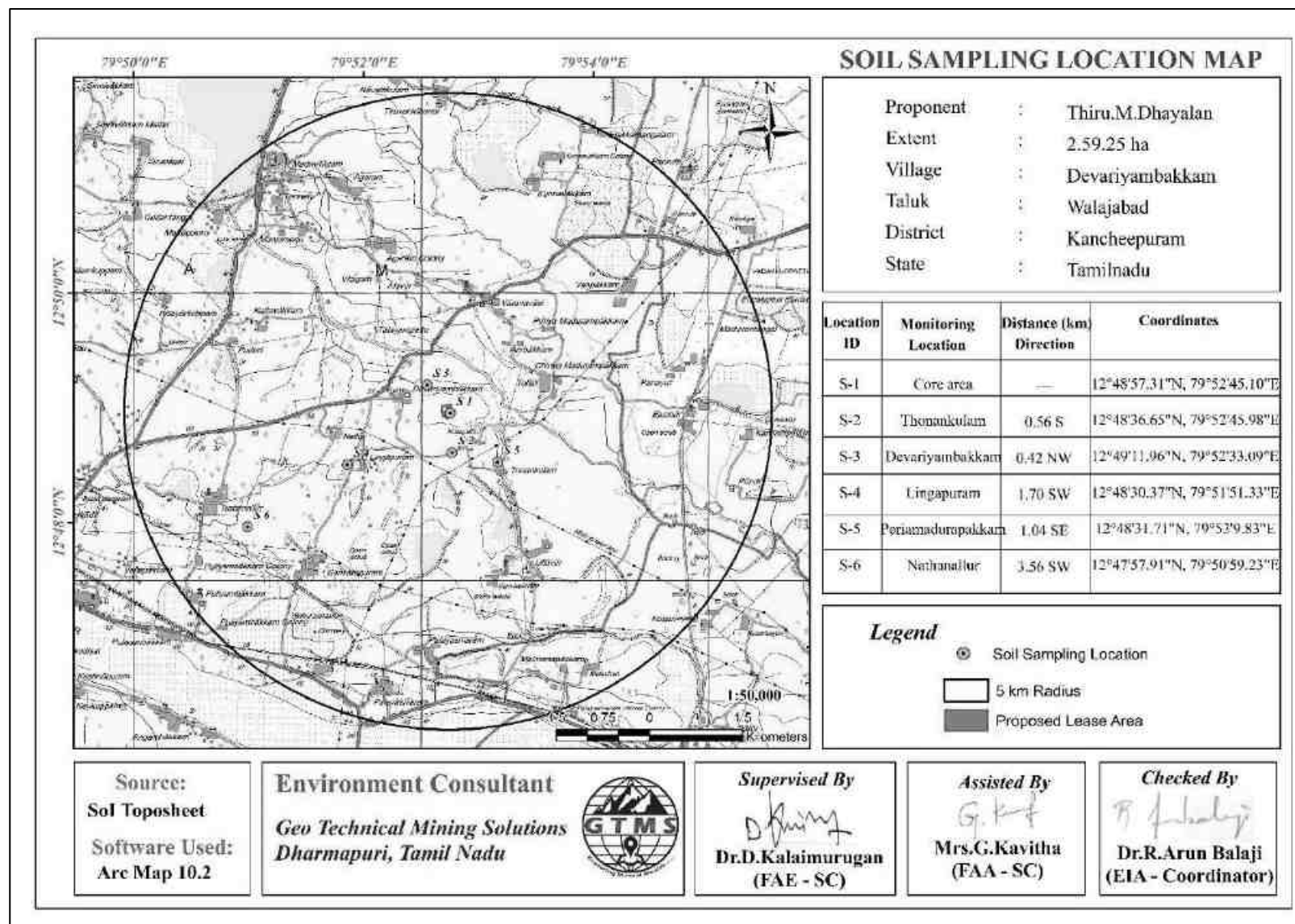


Figure 3.4 Toposheet Showing Soil Sampling Locations within 5 km Radius around Proposed Project Site

Table 3.4 Soil Quality of the Study Area

S. No	Parameters	Unit	S1-Core	S2Thonankulam	S3-Devariyaambakkam	S4-Lingapuram	S5-Periamadurapakkam	S6-Nathanallur
Physical Parameters								
1	pH	---	7.85	7.55	7.35	8.29	8.52	8.23
2	EC	Micromhos/cm	58.6	42.5	67.12	74.20	47.20	82.30
3	Moisture	%	22.50	35.5	39.60	40.10	41.50	33.50
4	Density	g/cc	1.03	1.45	1.18	1.23	1.37	1.06
5	Color	---	Dark Brownish	Light Brownish	Dark Brownish	Brownish	Brownish	Brownish
6	Consistency	---	Sticky	Sticky	Sticky	Sticky	Sticky	Sticky
7	Texture	---	Sandy loam	Sandy loam	Sandy loam	Sandy loam	Sandy loam	Sandy loam
8	Sand	%	59.70	50.70	68.80	69.18	45.90	63.08
9	Silt	%	15.20	12.80	8.70	12.30	17.70	10.12
10	Clay	%	25.10	36.50	22.50	18.52	36.40	26.8
Chemical Parameters								
11	Alkalinity	mg/kg	299	300	99.0	100	298	302
12	Sodium Absorption Ratio	meq/L	5.12	7.80	6.50	6.10	6.90	7.50
13	Chlorides	mg/kg	96.0	192	97.0	288	190	286
14	Sulphates	mg/kg	48.0	94.0	90.0	140	86.0	134
15	Total Nitrogen	mg/kg	260	232	215	28.20	310	208
16	Total Phosphorous	mg/kg	32.0	46.0	44.0	26.0	36.0	26.0
17	Organic matter	mg/kg	0.20	0.17	0.32	0.26	0.10	0.14
18	Structure	---	Structure less	Structure less	Structure less	Structure less	Structure less	Structure less
19	Cation Exchange Ratio	meq/100g	4.90	6.70	8.0	8.30	8.70	6.60
20	Calcium	mg/kg	33.0	27.0	35.0	41.0	47.0	28.0
21	Water Holding Capacity	%	47.0	49.0	51.0	53.0	49.0	48.0
22	Magnesium	mg/kg	14.0	17.0	15.0	16.0	22.0	19.0
23	Sodium	mg/kg	42.0	98.0	38.0	122	92.0	114
24	Potassium	mg/kg	3.50	8.90	3.0	8.20	13.10	15.20
25	Iron	mg/kg	2329	2210	2160	2430	2230	2180
26	Copper	mg/kg	36.0	30.0	27.0	20.0	36.0	34.0
27	Nickel	mg/kg	14.0	17.0	12.0	18.0	20.0	29.0
28	Chromium	mg/kg	3.0	2.50	1.80	2.20	2.70	2.10
29	Lead	mg/kg	22.0	2.60	32.0	27.0	35.0	19.0
30	Zinc	mg/kg	14.0	10.0	17.0	19.0	25.0	29.0

Source: Sampling Results by **Ekdant Enviro Services (P) Limited** in association with GTMS

3.3.3 Water Environment

The water resources, both surface and groundwater play a significant role in the development of the area. The purpose of this study is to assess the baseline quality of surface and ground water.

Table 3.5 Water Sampling Locations

Sample ID	Location Name	Distance (km)	Direction	Coordinates
SW-1	Thernneri Lake (Palar Canal)	0.69	E	12°49'30.97"N79°52'42.54"E
SW-2	Periamadurapakkam Lake	0.81	SE	12°48'44.63"N79°53'10.54"E
SW-3	Ullavur Lake	1.27	S	12°48'13.89"N79°52'36.99"E
OW-1	Devariyaibakkam	0.20	SW	12°48'53.11"N79°52'35.41"E
OW-2	Thonankulam	0.35	SE	12°48'49.56"N79°52'56.09"E
OW-3	Lingapuram	0.90	SW	12°48'41.74"N79°52'15.18"E

Source: On-site monitoring/sampling by **Ekdant Enviro Services (P) Limited**, in association with GTMS.

Surface Water Resources and Quality

Thernneri Lake (Palar Canal), Periamadurapakkam Lake and Ullavur Lake are the prominent surface water resources present in the study area. This river was ephemeral in nature, which convey water only after rainfall events. The proposed project area is located in 0.69 km E of Thernneri Lake (Palar Canal), and 0.81 km SE of Periamadurapakkam Lake and 1.27 km S of Ullavur Lake as shown in Table 3.5 and Figure 3.5. Three surface water sample, known as SW-1, SW-2 and SW-3 were collected and to assess the baseline water quality. Table 3.6 summarizes surface water quality data of the collected sample. Result for surface water sample in the Table 3.6 indicate that the physical, chemical and biological parameters, and heavy metals are within permissible limits in comparison with standards of IS10500:2012.

Ground Water Resources and Quality

Groundwater in the study area occurs in the crystalline rocks of Archaean age and recent alluvium. The movement of the groundwater is controlled by the intensity of weathering and fracturing of crystalline rocks. Open wells are the most common ground water abstraction structures in the area. However, in dry season, people in the study area heavily rely on bore wells for their domestic and agriculture purpose.

Three groundwater samples, known as OW-1, OW-2 and OW-3 were collected from open wells and analysed for physico-chemical conditions and bacteriological contents in order to assess baseline quality of ground water. Ground water sampling locations and their distance and direction from the lease area are provided in Table 3.5 and the spatial occurrence of water sampling locations is shown in Figure 3.5. Table 3.6 summarizes ground water quality data of the three samples. Results for ground water samples in the Table 3.6 indicate that the physical, chemical and biological parameters, and heavy metals are within permissible limits in comparison with standards of IS10500:2012.

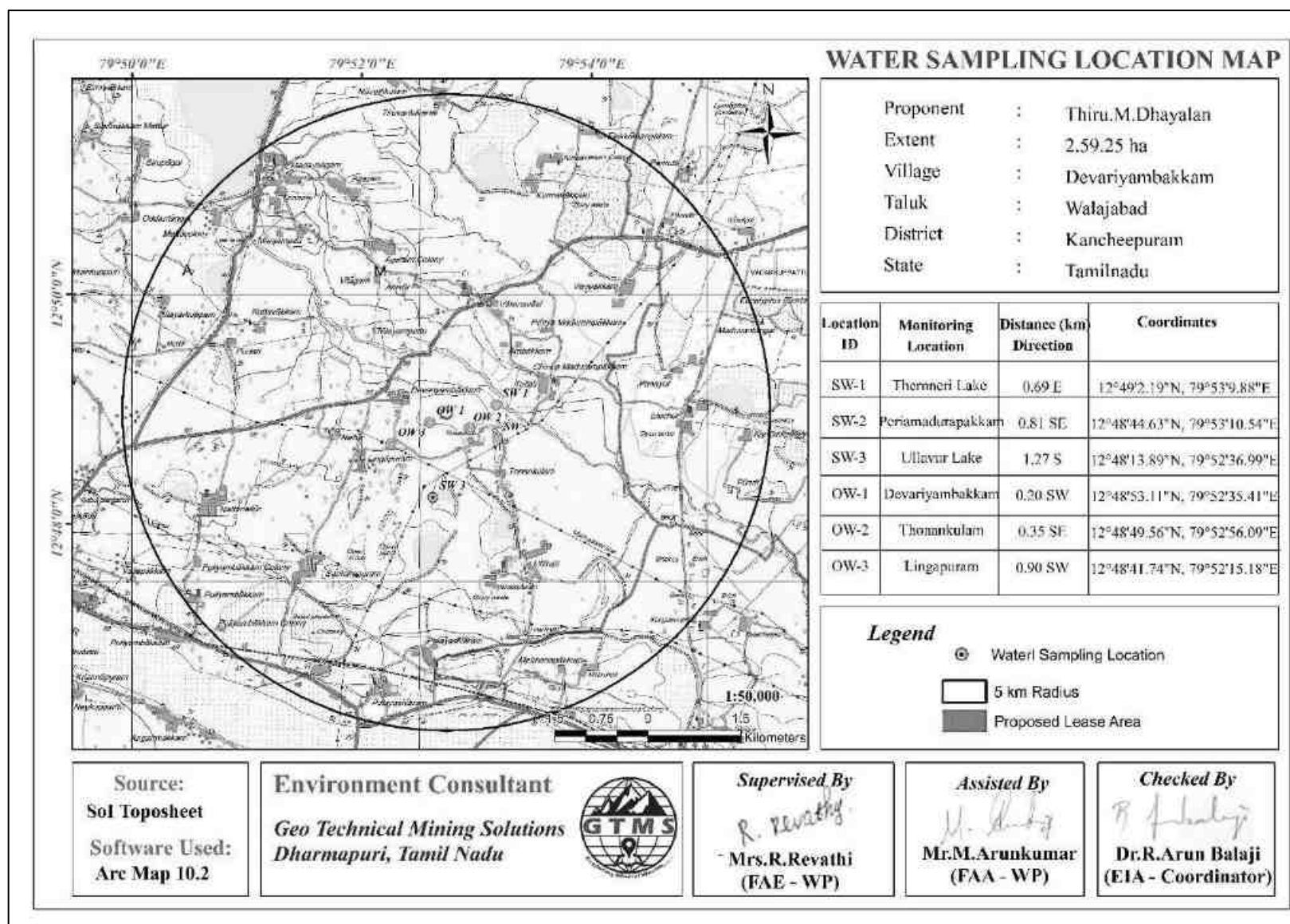


Figure 3.5 Map Showing Water Sampling Locations within 5 km Radius around Proposed Project Site

Table 3.6 Surface and Ground Water Quality Result

S. No.	Parameters	Units	Results						Permissible Limits as Per IS 10500:2012
			SW1	SW2	SW3	OW1	OW2	OW3	
Physical Parameters									
1	Appearance	-	Clear Liquid	Clear Liquid	Clear Liquid	Clear Liquid	Clear Liquid	Clear Liquid	---
2	pH value @ 25°C	-	7.6	7.05	7.82	7.90	7.56	7.78	6.5 – 8.5
3	Colour	Hazen	1.0	1.0	1.0	1.0	1.0	1.0	15
4	Odour	Qualitative	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity	NTU	BLQ (LOQ=0.1)	BLQ (LOQ=0.1)	BLQ (LOQ=0.1)	BLQ (LOQ=0.1)	BLQ (LOQ=0.1)	BLQ (LOQ=0.1)	5
6	EC @ 25°C	µS/cm	493	593	583	853	1107	1273	---
Chemical Parameters									
7	Total Suspended Solids	mg /l	BLQ (LOQ=0.1)	BLQ (LOQ=0.1)	BLQ (LOQ=0.1)	BLQ (LOQ=0.1)	BLQ (LOQ=0.1)	BLQ (LOQ=0.1)	---
8	Total Dissolved Solids	mg /l	296	356	350	512	664	764	2000
9	Total Hardness as CaCO ₃	mg/l	158	168	165	186	232	256	600
10	Calcium Hardness as CaCO ₃	mg/l	86.0	96.0	100	116	104	164	---
11	Magnesium Hardness as CaCO ₃	mg/l	72.0	72.0	65.0	70.0	128	92.0	---

12	Calcium as Ca	mg/l	34.47	38.0	40.0	46.0	42.0	66.0	200
13	Magnesium as Mg	mg/l	17.49	17.50	16.0	17.0	31.10	22.0	100
14	Phenolphthalein Alkalinity as CaCO ₃	mg/l	Nil	Nil	Nil	Nil	Nil	Nil	---
15	Total Alkalinity as CaCO ₃	mg/l	86.0	88.0	100	200	182	178	600
16	Chlorides as Cl	mg/l	70.0	90.0	70.0	110	200	260	1000
17	Sulphates as SO ₄	mg/l	40.0	62.0	30.0	40.0	80.0	70.0	400
18	Iron (Total) as Fe	mg/l	BLQ (LOQ=0.1)	BLQ (LOQ=0.1)	BLQ (LOQ=0.1)	BLQ (LOQ=0.1)	BLQ (LOQ=0.1)	BLQ (LOQ=0.1)	0.3
19	Silica (Reactive) as SiO ₂	mg/l	18.0	15.0	20.0	28.0	30.0	28.0	30.0
20	Carbonate Hardness	mg/l	86.0	88.0	100	186	182	178	---
21	Non-Carbonate Hardness	mg/l	72.0	80.0	65.0	Nil	50.0	78.0	---
22	Free Residual Chlorine	mg/l	BLQ (LOQ=0.1)	BLQ (LOQ=0.1)	BLQ (LOQ=0.1)	BLQ (LOQ=0.1)	BLQ (LOQ=0.1)	BLQ (LOQ=0.1)	1.0
Microbiological Parameters									
23	Total Coliforms	MPN	Present	Present	Present	Present	Present	Present	Absent
24	E-Coli	MPN	Present	Present	Present	Present	Present	Present	Absent

Source: Sampling Results by **Ekdant Enviro Services (P) Limited** in association with GTMS

3.3.3.1 Hydrogeological Studies

The area within 2 km radius consists of numerous open wells and deep wells. Groundwater level data were collected both from open wells and bore wells for two monsoon seasons as discussed in the following section.

Groundwater Levels and Flow Direction

Data regarding depth to groundwater levels are essential to infer the direction of groundwater movement within the study area. Knowledge of groundwater flow direction is must in choosing location for background groundwater quality monitoring well and in locating recharge and discharge areas. Therefore, data regarding groundwater elevations were collected from 9 open wells and 9 bore wells at various locations within 2 km radius around the proposed project sites for the period from March through May 2022 (Pre-Monsoon Season) and from December 2022 through February, 2023 (Post Monsoon Season).

The open well water level data thus collected onsite are provided in Tables 3.7 and 3.8. According to the data, average depths to the static water table in open wells range from 11.3 to 15.9 m BGL in pre monsoon and 6.5 to 10.5 m BGL in post monsoon. The bore well data thus collected onsite are provided in Tables 3.9 and 3.10. The average depths to static potentiometric surface in bore wells for the period of December 2022 through February, 2023 (Post Monsoon Season) vary from 55.10 to 60.0 m and from 60.2 to 70.0 m for the period of March through May, 2022 (Pre-Monsoon Season). Data on the depths to static water table and potentiometric surface were used to draw contour lines connecting groundwater elevation (also known as equipotential hydraulic head) to determine the groundwater flow direction perpendicular to the contour lines.

From the maps of open well groundwater flow direction shown in Figures 3.6-3.7, it is understood that most of the open well groundwater for the post- and pre-monsoon seasons flows towards the open well number 1 located in western direction of the proposed project site. The groundwater flow maps in Figure 3.8 - 3.9 show that most of the bore well groundwater for the post- and pre-monsoon seasons flows towards the bore well number 3. It is located in South Southwest direction of the proposed project site. On the basis of the groundwater flow information, both open wells and bore wells mentioned above can be chosen for water quality monitoring purpose as the wells may get easily affected by the contaminants resulting from the mining activities of the sites in future.

Table 3.7 Pre-Monsoon Water Level of Open Wells within 2 km Radius

Station ID	Depth to Static Water Table BGL (m)				Latitude	Longitude
	Mar-24	Apr-24	May-24	Average		
OW01	13.5	13.8	14.1	13.80	12°48'42.43"N	79°52'1.95"E
OW02	12.4	12.7	13.2	12.77	12°48'25.52"N	79°52'36.13"E
OW03	11.4	11.6	12.1	11.70	12°48'25.80"N	79°53'5.78"E
OW04	10.7	11.2	11.6	11.17	12°48'48.11"N	79°53'16.94"E
OW05	10.2	10.6	11.1	10.63	12°49'9.38"N	79°53'20.81"E
OW06	11.8	12.1	12.8	12.23	12°49'34.03"N	79°52'39.55"E
OW07	12.1	12.4	12.7	12.40	12°48'41.82"N	79°52'15.12"E
OW08	11.6	11.9	12.6	12.03	12°48'40.73"N	79°52'42.94"E
OW09	10.9	11.3	12.1	11.43	12°49'10.74"N	79°52'31.23"E

Table 3.8 Post-Monsoon Water Level of Open Wells within 2 km Radius

Station ID	Depth to Static Water Table BGL(m)				Latitude	Longitude
	Dec-24	Jan-25	Feb-25	Average		
OW01	8.4	8.9	9.1	8.80	12°48'42.43"N	79°52'1.95"E
OW02	7.6	8.2	8.5	8.10	12°48'25.52"N	79°52'36.13"E
OW03	6.5	7.1	7.5	7.03	12°48'25.80"N	79°53'5.78"E
OW04	6.4	7.2	7.6	7.07	12°48'48.11"N	79°53'16.94"E
OW05	6.2	6.8	7.2	6.73	12°49'9.38"N	79°53'20.81"E
OW06	6.8	7.4	8.1	7.43	12°49'34.03"N	79°52'39.55"E
OW07	7.8	8.2	8.9	8.30	12°48'41.82"N	79°52'15.12"E
OW08	7.2	7.6	8.4	7.73	12°48'40.73"N	79°52'42.94"E
OW09	6.8	7.4	7.6	7.27	12°49'10.74"N	79°52'31.23"E

Table 3.9 Pre-Monsoon Water Level of Bore Wells within 2 km Radius

Station ID	Depth to Static Potentiometric Surface BGL(m)				Latitude	Longitude
	Mar-24	Apr-24	May-24	Average		
BW01	47.8	48.2	49.5	48.50	12°48'38.12"N	79°52'48.62"E
BW02	49.9	50.1	50.8	50.27	12°49'44.23"N	79°52'36.50"E
BW03	46.5	47.2	48.1	47.27	12°49'12.02"N	79°53'31.28"E
BW04	51.8	52.1	53.2	52.37	12°49'4.66"N	79°52'19.03"E
BW05	50.6	51.1	51.8	51.17	12°48'25.07"N	79°52'5.99"E
BW06	51.6	52.2	53.5	52.43	12°48'46.29"N	79°51'46.61"E
BW07	50.8	51.3	52.4	51.50	12°49'34.84"N	79°53'17.56"E
BW08	49.7	50.2	51.2	50.37	12°49'55.34"N	79°52'55.95"E
BW09	47.5	48.2	49.1	48.27	12°48'26.95"N	79°53'10.89"E

Table 3.10 Post-Monsoon Water Level of Bore Wells within 2 km Radius

Station ID	Depth to Static Potentiometric Surface BGL(m)				Latitude	Longitude
	Dec-24	Jan-25	Feb-25	Average		
BW01	43.1	43.8	44.2	43.70	12°48'38.12"N	79°52'48.62"E
BW02	47.2	48.5	48.7	48.13	12°49'44.23"N	79°52'36.50"E
BW03	42.8	43.4	43.6	43.27	12°49'12.02"N	79°53'31.28"E
BW04	47.6	48.2	48.5	48.10	12°49'4.66"N	79°52'19.03"E
BW05	44.2	44.9	45.2	44.77	12°48'25.07"N	79°52'5.99"E
BW06	45.6	46.1	46.7	46.13	12°48'46.29"N	79°51'46.61"E
BW07	44.5	45.2	45.8	45.17	12°49'34.84"N	79°53'17.56"E
BW08	43.1	43.7	44.2	43.67	12°49'55.34"N	79°52'55.95"E
BW09	42.4	42.8	43.1	42.77	12°48'26.95"N	79°53'10.89"E

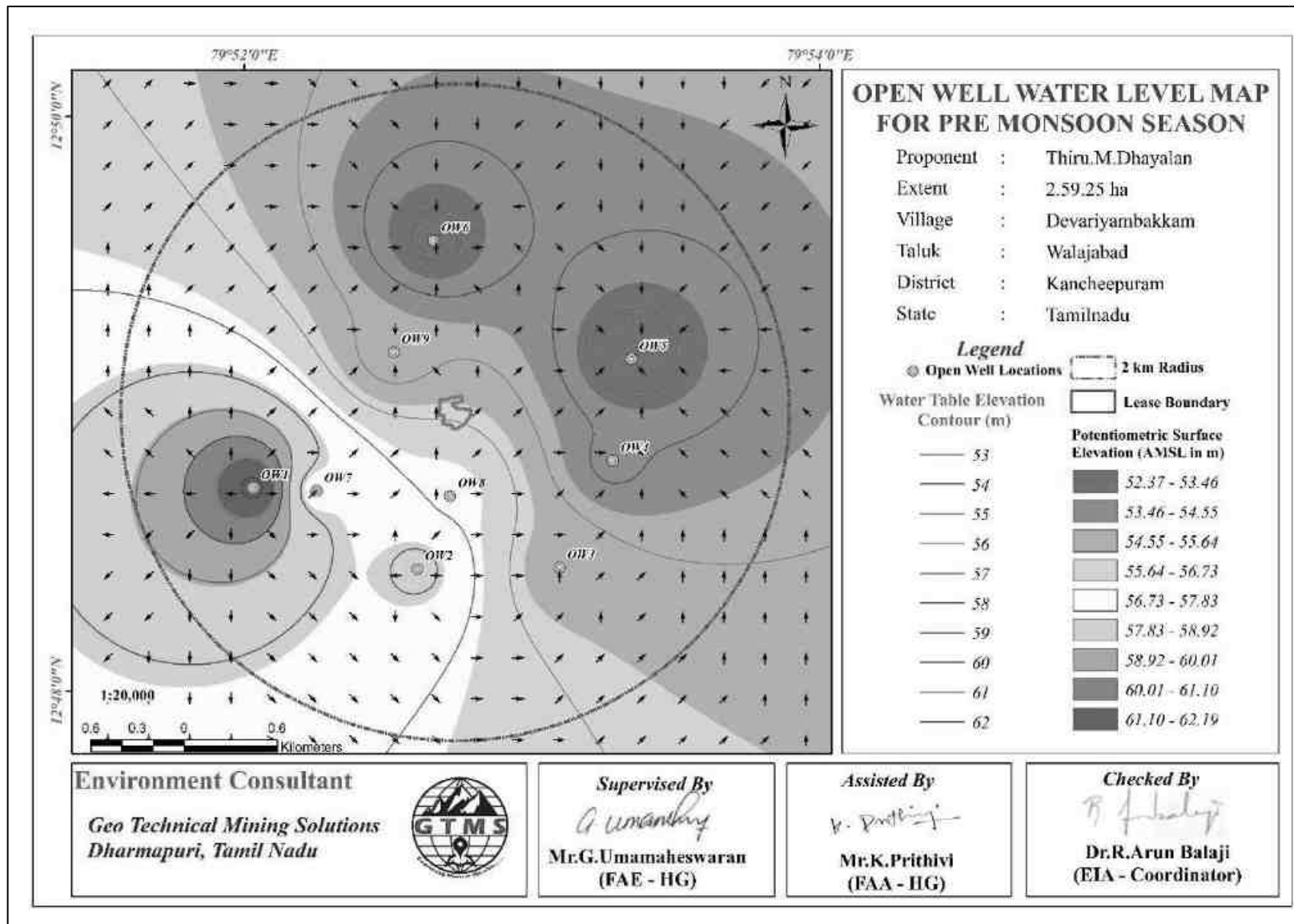


Figure 3.6 Open Well Static Groundwater Elevation Map Showing Direction of Groundwater Flow during Pre-Monsoon Season

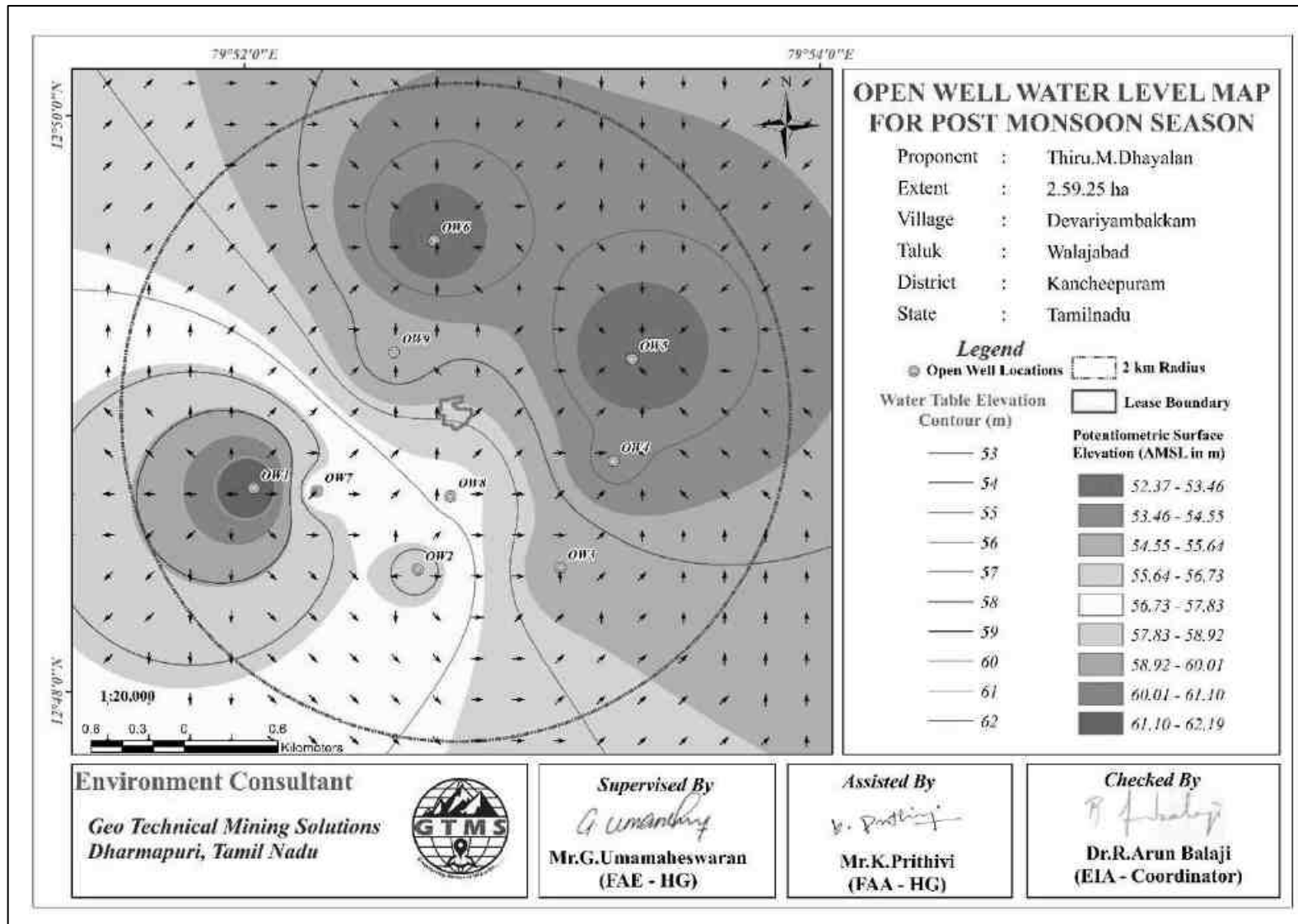


Figure 3.7 Open Well Static Groundwater Elevation Map Showing Direction of Groundwater Flow during Post-Monsoon Season

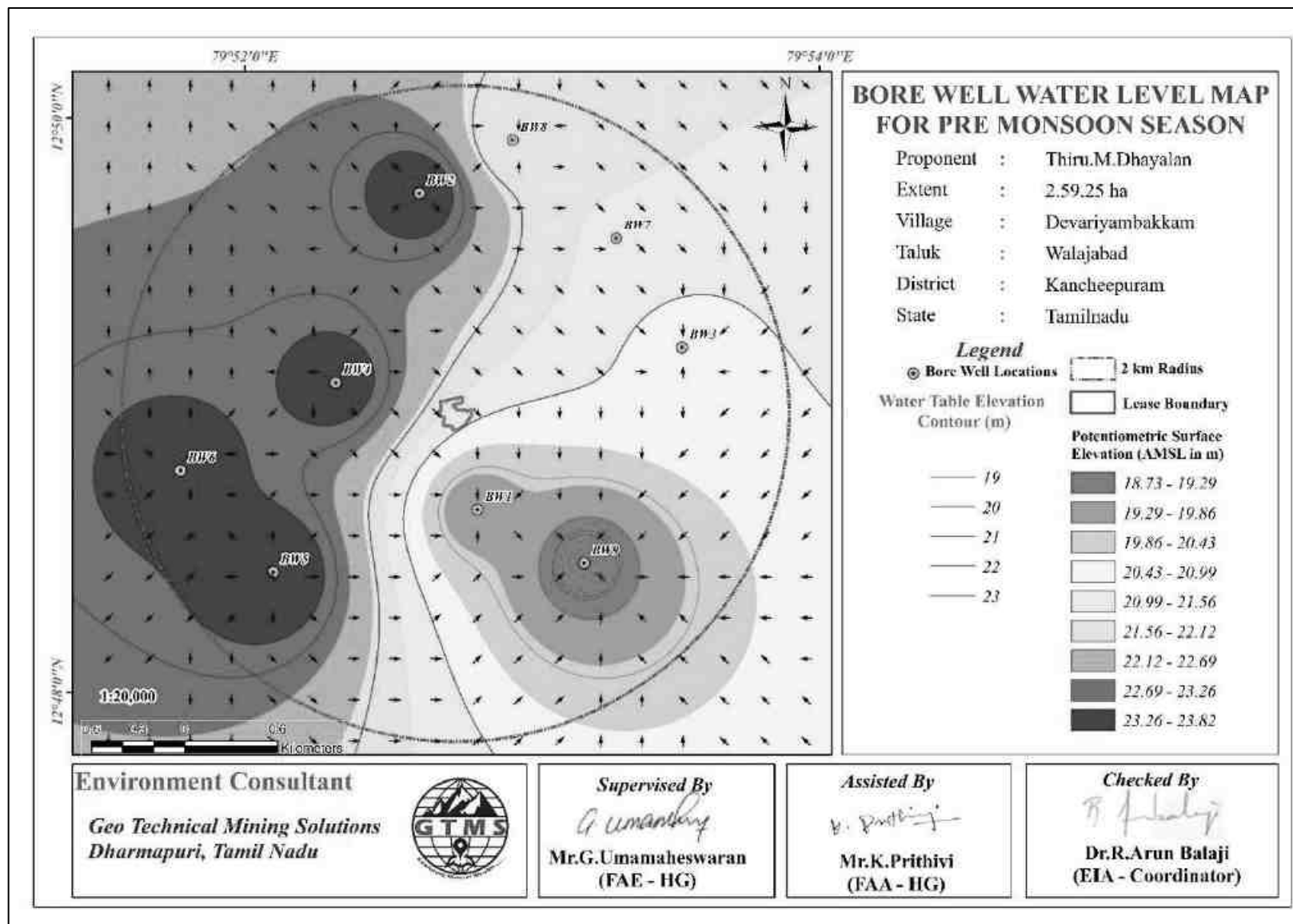


Figure 3.8 Borewell Static Groundwater Elevation Map Showing Direction of Groundwater Flow during Pre-Monsoon Season

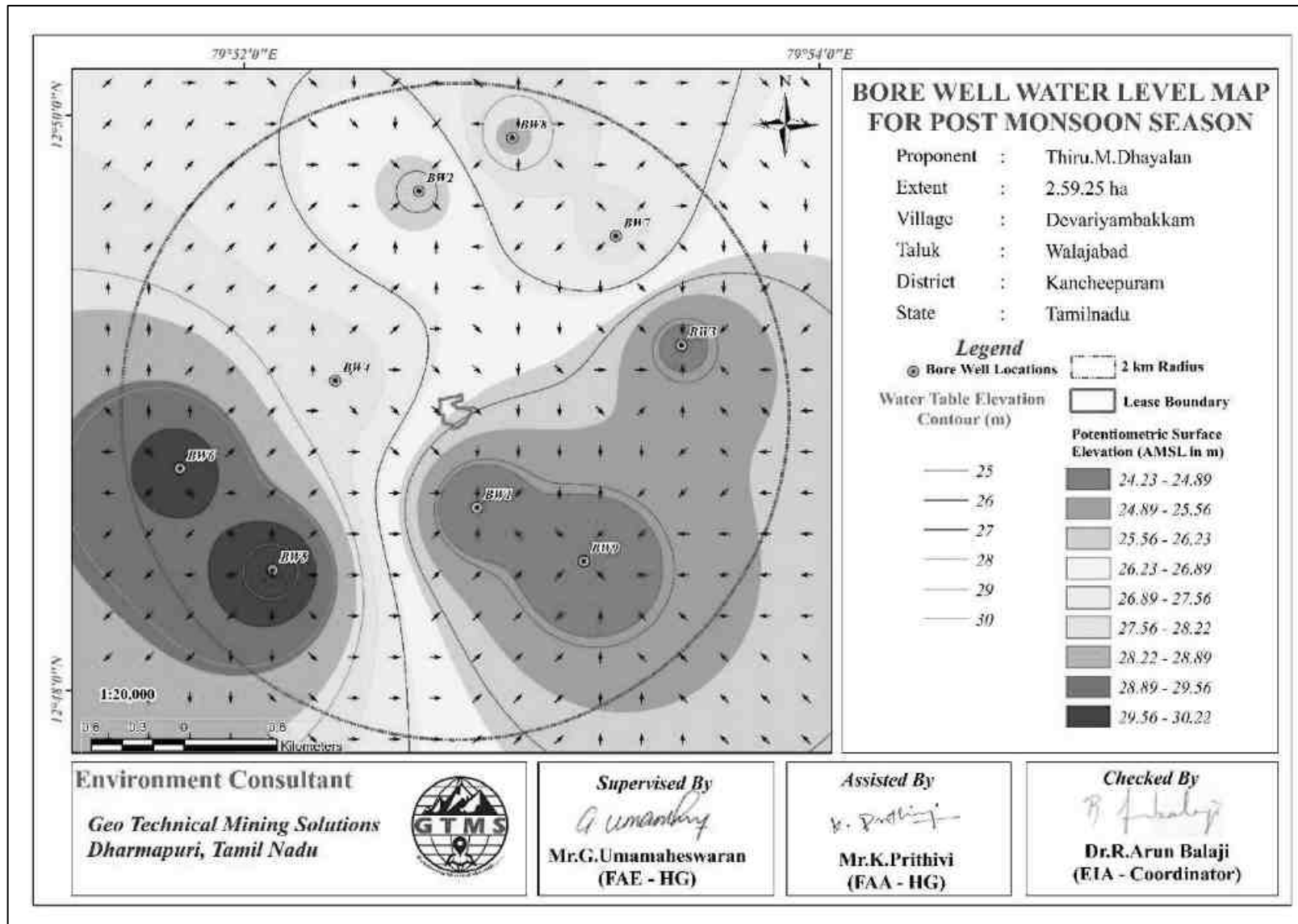


Figure 3.9 Borewell Static Groundwater Elevation Map Showing Direction of Groundwater Flow during Post-Monsoon Season

3.3.3.2 Electrical Resistivity Investigation

Electrical resistivity investigation is especially useful in the areas where there are no adequate exploratory well data about the aquifer conditions. The present study makes use of vertical electric sounding (VES) to delineate earth's subsurface layers. The electrical resistivity investigation uses four electrodes set up where current is sent through outer electrodes into the ground and the inner electrodes measure the potential difference.

Result

The Geophysical VES data obtained from the project site have been shown in Table 3.11. The field data obtained from a detailed geophysical investigation were plotted using excel spreadsheet for interpretation. The plot for the purpose of interpretation has been shown in Figure 3.10.

Table 3.11 Vertical Electrical Sounding Data

Location Coordinates - 12°48'57.93"N, 79°52'43.95"E					
S. No.	AB/2 (m)	MN/2 (m)	Geometrical Factor (G)	Resistance in Ω	Apparent Resistivity in Ωm
1	5	2	16.5	2.769	45
2	10	2	75.43	1.372	103
3	15	5	62.86	0.982	156
4	20	5	117.86	0.585	182
5	25	5	188.58	1.317	248
6	30	10	82.5	0.989	272
7	35	10	125.72	0.971	346
8	40	10	176.79	0.892	432
9	45	10	235.73	0.764	480
10	50	10	302.51	0.694	540
11	60	20	165.01	0.609	684
12	70	20	251.44	0.416	760
13	80	20	353.59	0.496	985
14	90	20	471.45	0.417	1058
15	100	20	605.03	0.366	1148
16	5	2	16.5	2.769	45

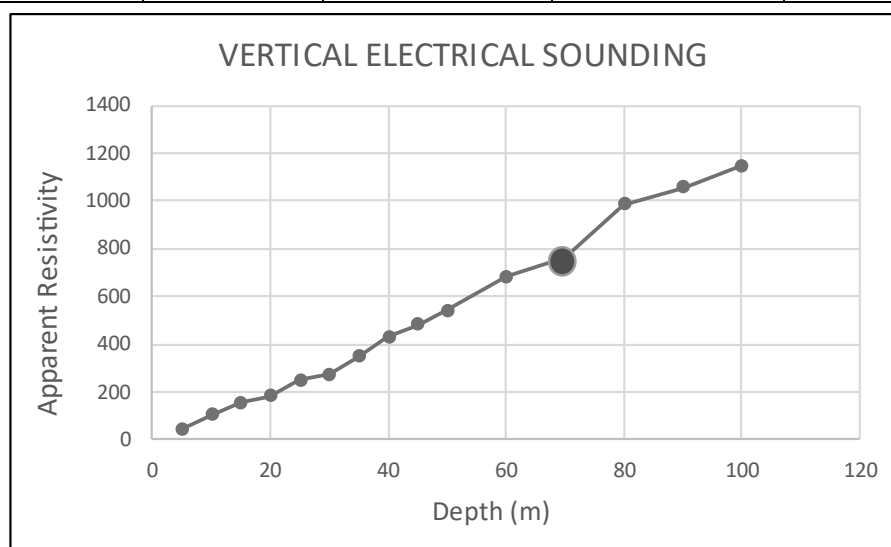


Figure 3.10 Graph Showing Occurrence of Water Bearing Fracture Zones at the Depth of 70 m Below Ground Level in Proposed Project

The rock formation of low resistivity values indicates occurrence of water at the depth of about 70 m below ground level. The maximum depth proposed for the proposed project is 50 m below ground level. Therefore, the mining operation will not affect the aquifer throughout the entire mine life period.

3.3.4 Air Environment

The baseline studies on air environment include identification of specific air pollutants and their existing levels in ambient air. The sources of air pollution in the region are mostly due to vehicular traffic, dust arising from unpaved village road and domestic & agricultural activities.

Meteorology

Climatic Variables

A temporary meteorological station was installed at the project sites by covering cluster quarries. The station was installed at a height of 3 m above the ground level as there are no obstructions facilitating flow of wind, wind speed, wind direction, humidity and temperature. Meteorological data obtained from the onsite monitoring station are provided in Table 3.12.

Table 3.12 Onsite Meteorological Data

S. No.	Parameters	DEC, 2022	JAN,2023	FEB,2023
1	Temperature (⁰ C)	22.24	19.73	22.85
		28.97	31.58	29.72
		25.88	25.17	25.83
2	Relative Humidity (%)	67.19	49.12	46.69
		92.31	100.00	89.38
		83.88	74.88	72.94
3	Wind Speed (m/s)	1.10	1.49	0.56
		12.32	8.12	8.07
		5.46	4.69	3.95
4	Wind Direction (degree)	0.00	1.16	3.41
		359.24	107.38	117.76
		83.12	51.82	70.34
5	Surface Pressure(kPa)	100.08	98.14	100.63
		101.73	101.63	101.66
		100.89	101.00	101.09

Source: On-site monitoring/sampling by **Ekdant Enviro Service (P) Limited** in association with GTMS

Rainfall

Rainfall data for the study area were collected for the period of 1981-2021([POWER | Data Access Viewer \(nasa.gov\)](#)). Long term monthly average rainfall was estimated from the data of 1981- 2021 and compared with the monthly rainfall for the year 2021. The Figure

3.11 shows that long- term monthly average rainfall shows an increasing trend from March through November during the period of 1981-2021 and is higher in November of every year. Particularly, monthly average rainfall shows an increasing trend in September through November of 2021 than the previous years and is higher in November 2021 when compared to monthly average of 30 years.

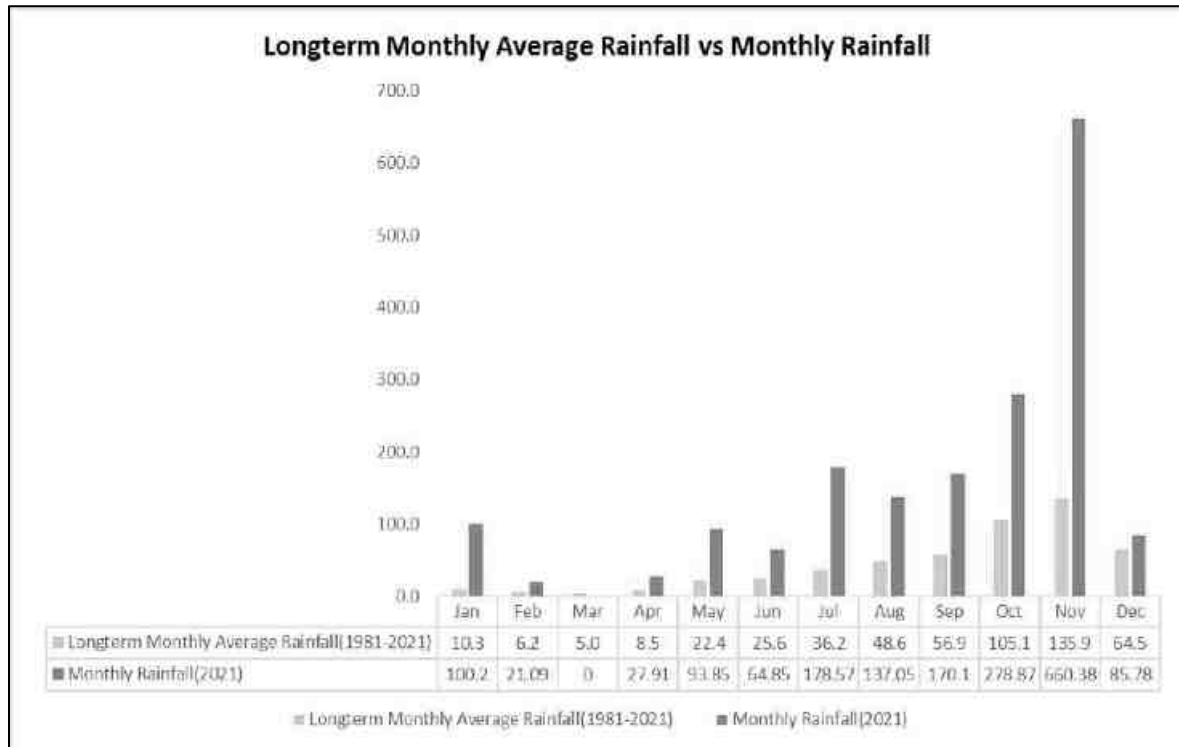


Figure 3.11 Long-term monthly average rainfall vs monthly rainfall

Wind Pattern

Wind pattern will largely influence the dispersion pattern of air pollutants and noise from the proposed project site. Analysis of wind pattern requires hourly site-specific data of wind speed and direction. Two types of wind rose were generated: historical seasonal wind rose for the period of December through February of the years from 2020 to 2024 and the seasonal wind rose for the study period of December through February 2024-2025. The wind rose diagrams thus produced are shown in Figures 3.12-3.13. Figure 3.14 reveals that:

- ❖ The measured average wind velocity during the study period is 2.85m/s.
- ❖ Predominant wind was dominant in the directions ranging from northeast to southwest.

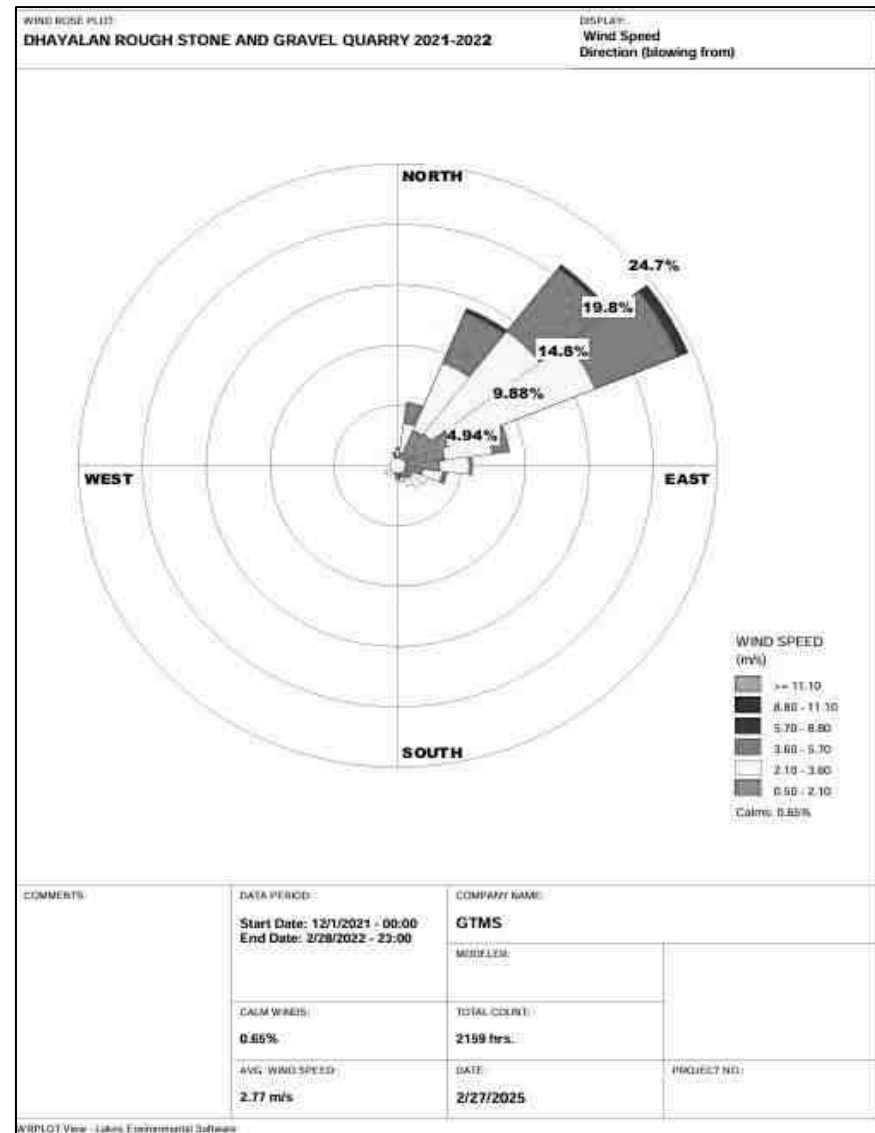
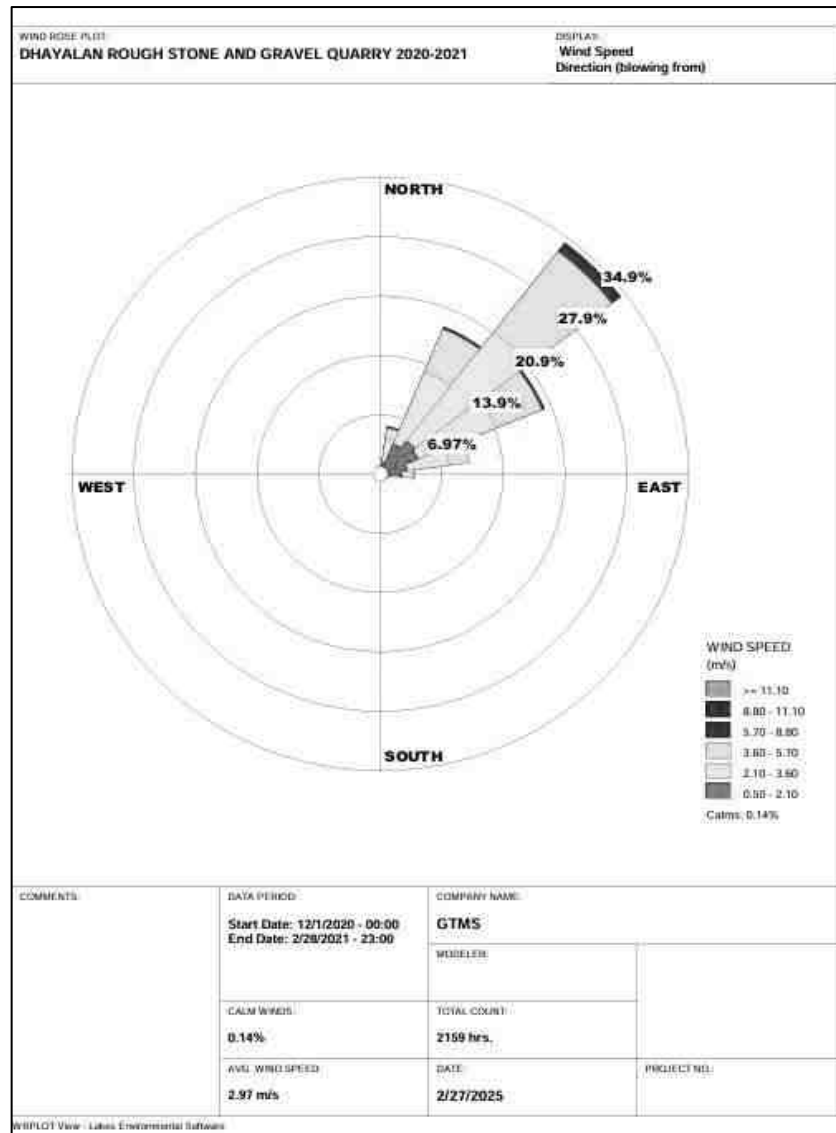


Figure 3.12 Windrose Diagram for 2020-2021 And 2021-2022 (December to February)

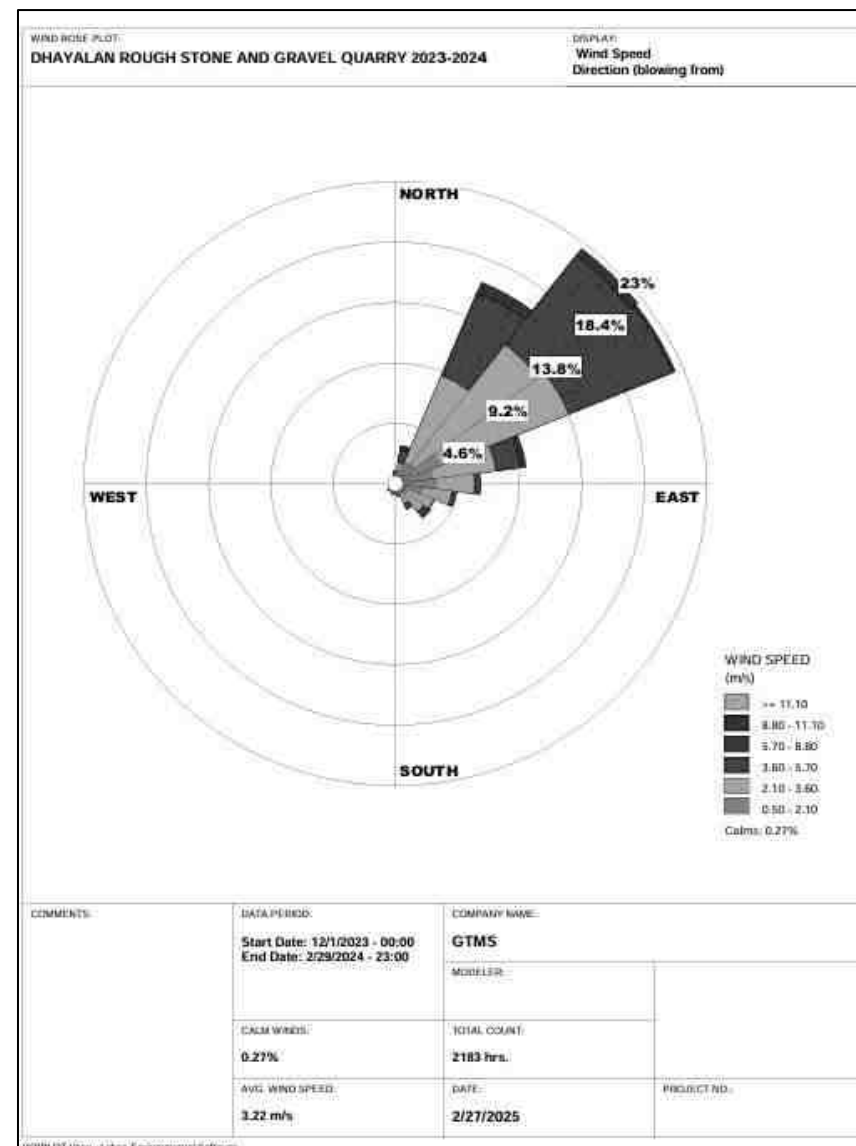
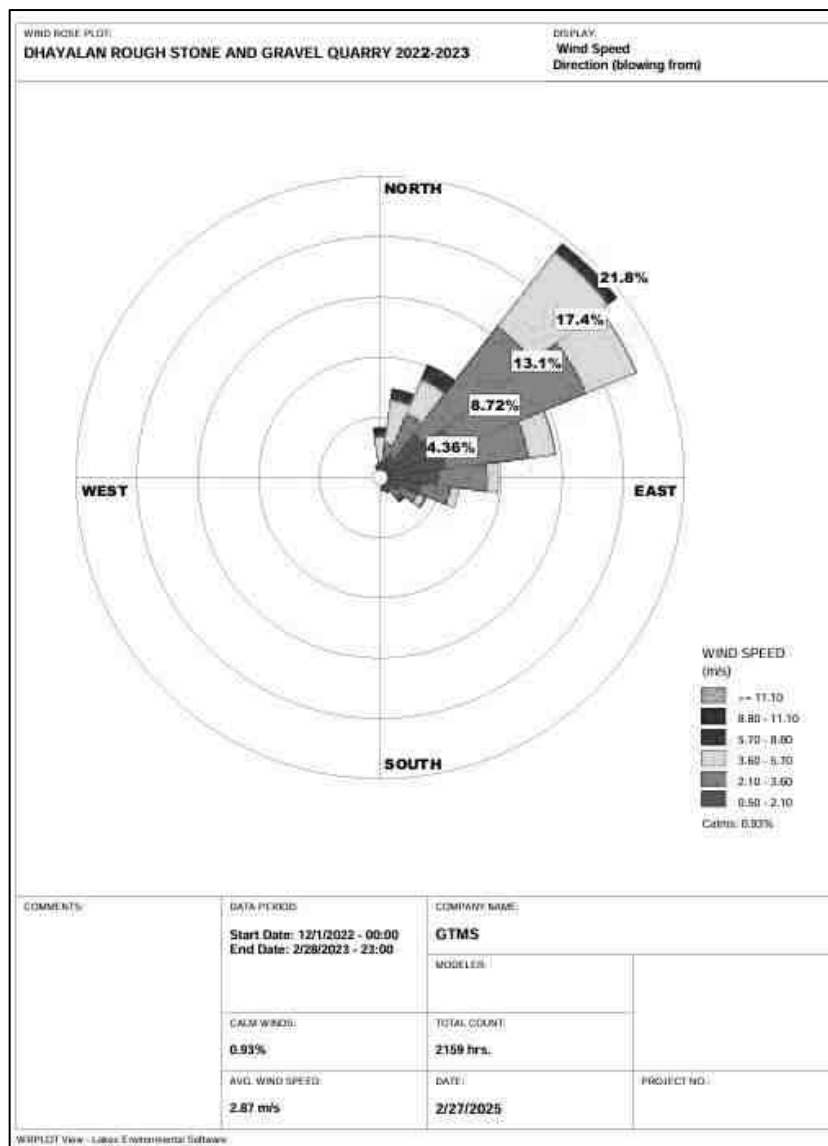


Figure 3.13 Windrose Diagram for 2022-2023 And 2023-2024 (December to February)

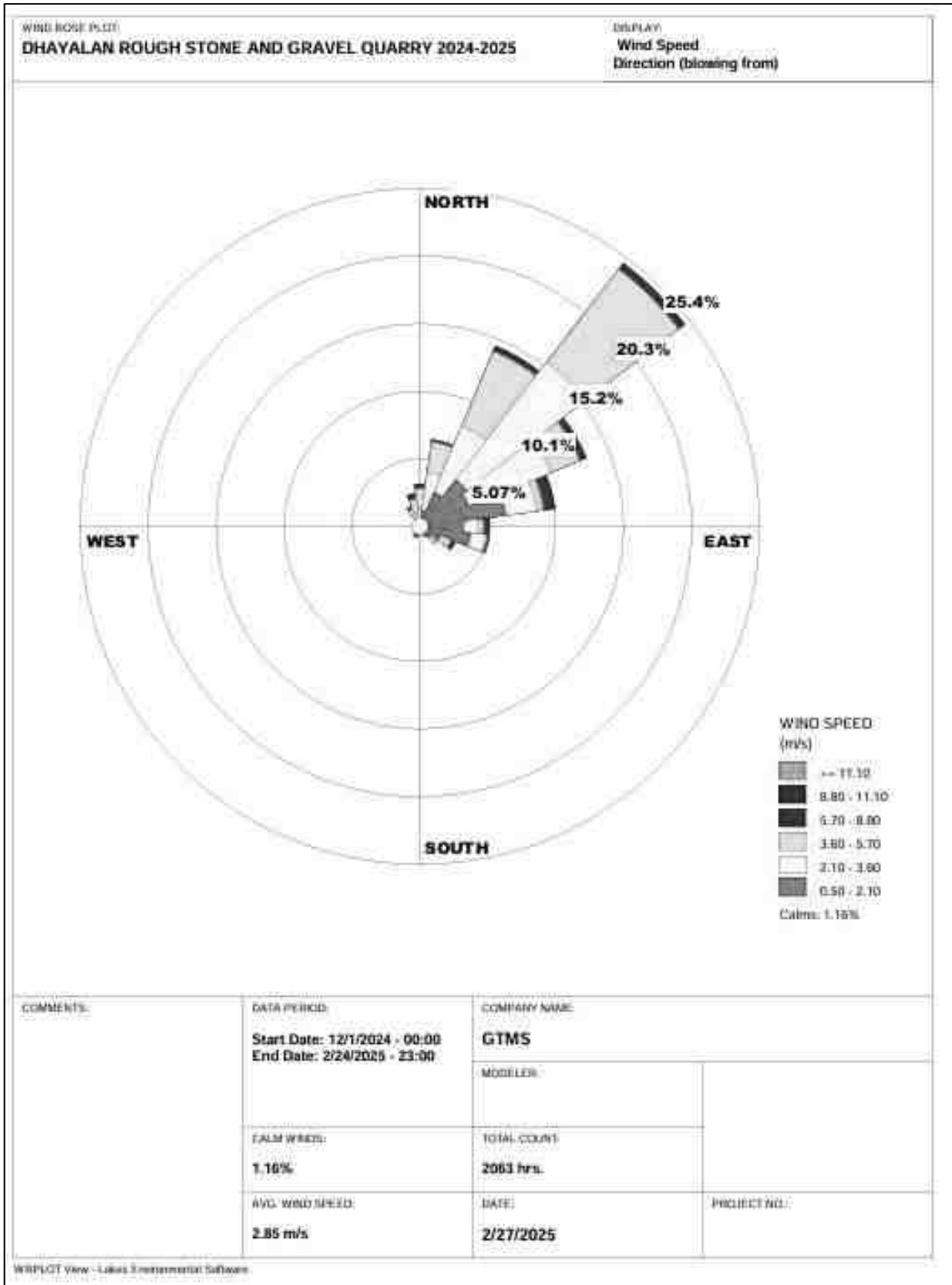


Figure 3.14 Onsite Wind Rose Diagram

Ambient Air Quality Study

The baseline ambient air quality is studied through a scientifically designed ambient air quality monitoring network considering the followings

- ❖ Meteorological condition on synoptic scale
- ❖ Topography of the study area
- ❖ Representatives of regional background air quality for obtaining baseline status
- ❖ Location of residential areas representing different activities
- ❖ Accessibility and power availability

Table 3.13 Methodology and Instrument Used for AAQ Analysis

Parameter	Method	Instrument
PM _{2.5}	Gravimetric method Beta attenuation method	Fine Particulate Sampler
PM ₁₀	Gravimetric method Beta attenuation method	Respirable Dust Sampler
SO ₂	IS-5182 Part II (Improved West & Gaeke method)	Respirable Dust Sampler with gaseous attachment
NO _x	IS-5182 Part II (Jacob & Hoch heiser modified method)	Respirable Dust Sampler with gaseous attachment
Free Silica	NIOSH – 7601	Visible Spectrophotometry

Source: Sampling Methodology based *Ekdant Enviro Service (P) Limited* & CPCB Notification

Table 3.14 National Ambient Air Quality Standards

S. No.	Pollutant	Time Weighted Average	Concentration in ambient air	
			Industrial, Residential, Rural & other areas	Ecologically Sensitive area (Notified by Central Govt.)
1	SO ₂ (µg/m ³)	Annual Avg.* 24 hours**	50.0 80.0	20.0 80.0
2	NO _x (µg/m ³)	Annual Avg. 24 hours	40.0 80.0	30.0 80.0
3	PM ₁₀ (µg/m ³)	Annual Avg. 24 hours	60.0 100.0	60.0 100.0
4	PM _{2.5} (µg/m ³)	Annual Avg. 24 hours	40.0 60.0	40.0 60.0

Source: NAAQS CPCB Notification No. B-29016/20/90/PCI-I Dated: 18th Nov 2009

Methodology

It was ensured that the equipment was placed preferably at a height of at least $3 \pm 0.5\text{m}$ above the ground level at each monitoring station for negating the effects of wind-blown ground dust. The equipment was placed at space free from trees and vegetation which otherwise act as a sink of pollutants resulting in lower levels in monitoring results. The baseline data of ambient air were generated for $\text{PM}_{2.5}$, PM_{10} , Sulphur Dioxide (SO_2) and nitrogen dioxide (NO_x). The sampling locations are shown in Figure 3.15 and average concentrations of air pollutants are summarized in Tables 3.15.

Table 3.15 Ambient Air Quality (AAQ) Monitoring Locations

Location Code	Monitoring Locations	Distance (km)	Directions	Latitude	Longitude
AAQ1	Core area	--	--	12°48'56.86"N	79°52'42.40"E
AAQ2	Thonankulam	0.32	SE	12°48'45.72"N	79°52'49.94"E
AAQ3	Devariyaambakkam Colony	0.53	W	12°48'57.99"N	79°52'23.14"E
AAQ4	Kosappattu	1.28	NE	12°49'21.87"N	79°53'22.57"E
AAQ5	Ullavur	2.40	SE	12°47'45.28"N	79°53'20.77"E
AAQ6	Sankarapuram	2.93	SW	12°47'45.62"N	79°51'35.71"E
AAQ7	Nathanallur	3.55	SW	12°48'23.10"N	79°50'47.87"E

Source: On-site monitoring/sampling by **Ekdant Enviro Service (P) Limited** in association with GTMS

Results

As per the monitoring data, $\text{PM}_{2.5}$ ranges from $15.0 \mu\text{g}/\text{m}^3$ to $19.0 \mu\text{g}/\text{m}^3$; PM_{10} from $36.9 \mu\text{g}/\text{m}^3$ to $50.9 \mu\text{g}/\text{m}^3$; SO_2 from $3.8 \mu\text{g}/\text{m}^3$ to $5.5 \mu\text{g}/\text{m}^3$; NO_x from $12.1 \mu\text{g}/\text{m}^3$ to $15.5 \text{g}/\text{m}^3$. The concentration levels of the pollutants fall within the acceptable limits of NAAQS prescribed by CPCB.

Air quality Index (AQI)

The AQI shows that the air quality of the study area falls within good category 44 causing minimal impact to human health.

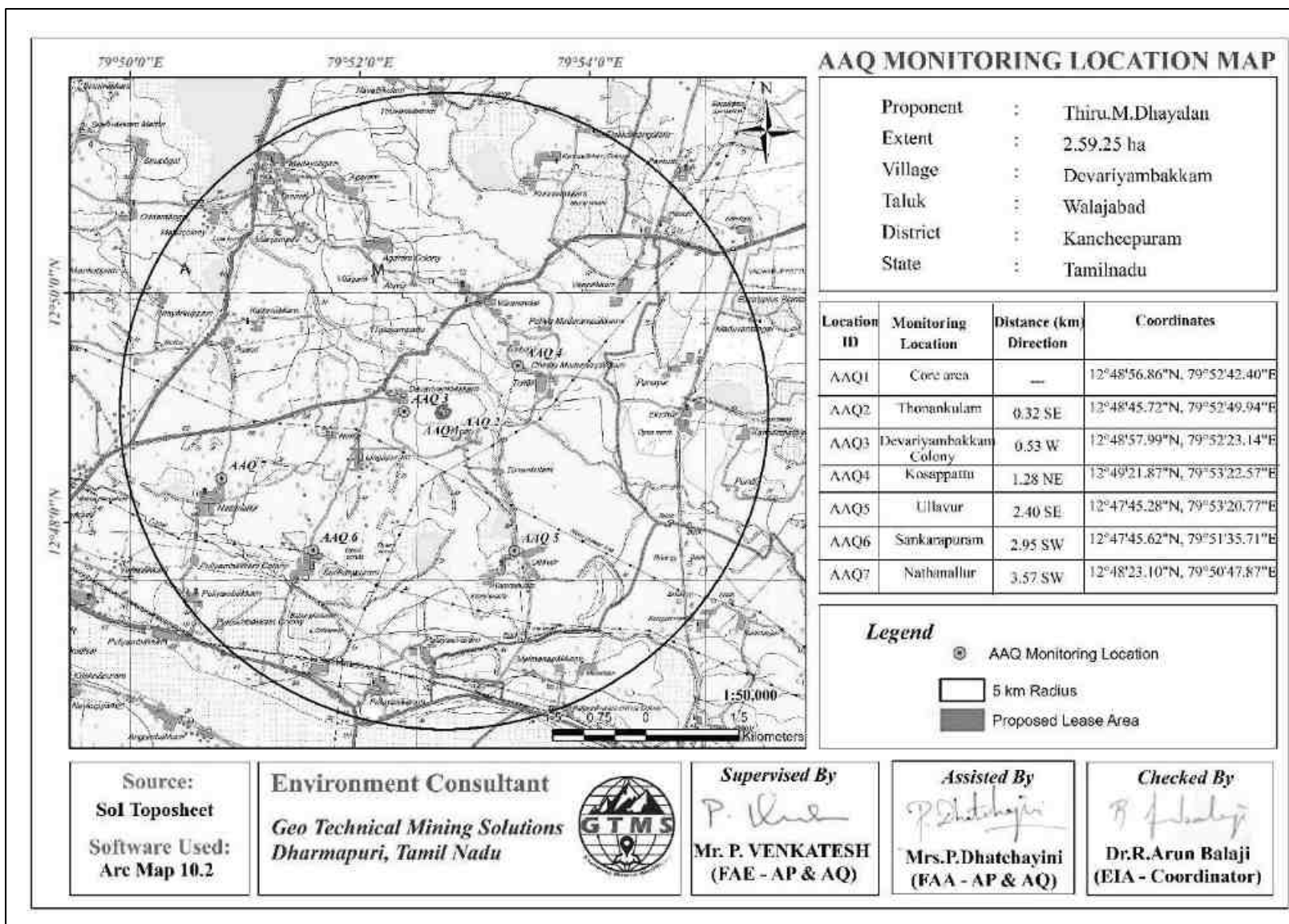


Figure 3.15 Map Showing Ambient Air Quality Monitoring Station Locations Around 5 km Radius from Proposed Project Site

Table 3.16 Summary of AAQ Result

PM _{2.5}					PM ₁₀			
Station ID	Max	Min	Mean	98 th Percentile	Max	Min	Mean	98 th Percentile
AAQ1	21.5	16.4	18.3	21.4	57.2	46.3	50.1	56.6
AAQ2	20.2	15.8	17.4	20.0	50.2	14.0	42.9	49.7
AAQ3	19.0	14.9	16.4	16.8	49.2	38.4	41.9	48.3
AAQ4	20.6	16.2	17.7	20.0	50.2	40.9	43.6	49.7
AAQ5	16.4	13.0	14.3	16.4	49.7	39.7	43.1	49.3
AAQ6	17.1	13.7	15.0	17.1	48.5	38.0	41.9	48.5
AAQ7	18.3	14.9	16.2	18.3	51.7	41.2	45.1	51.7
SO ₂					NO _x			
AAQ1	7.3	4.5	5.7	7.1	14.4	11.5	12.9	14.3
AAQ2	4.9	3.1	4.1	4.9	14.5	10.2	12.0	14.5
AAQ3	5.9	3.6	4.5	5.9	15.7	12.6	13.7	15.7
AAQ4	6.3	3.7	4.7	6.3	16.0	12.5	14.1	16.0
AAQ5	4.4	3.7	3.9	4.3	15.9	12.9	12.8	15.9
AAQ6	5.0	4.3	4.6	5.0	15.3	12.0	13.2	15.3
AAQ7	4.7	4.1	4.3	4.7	16.5	13.2	13.3	14.9

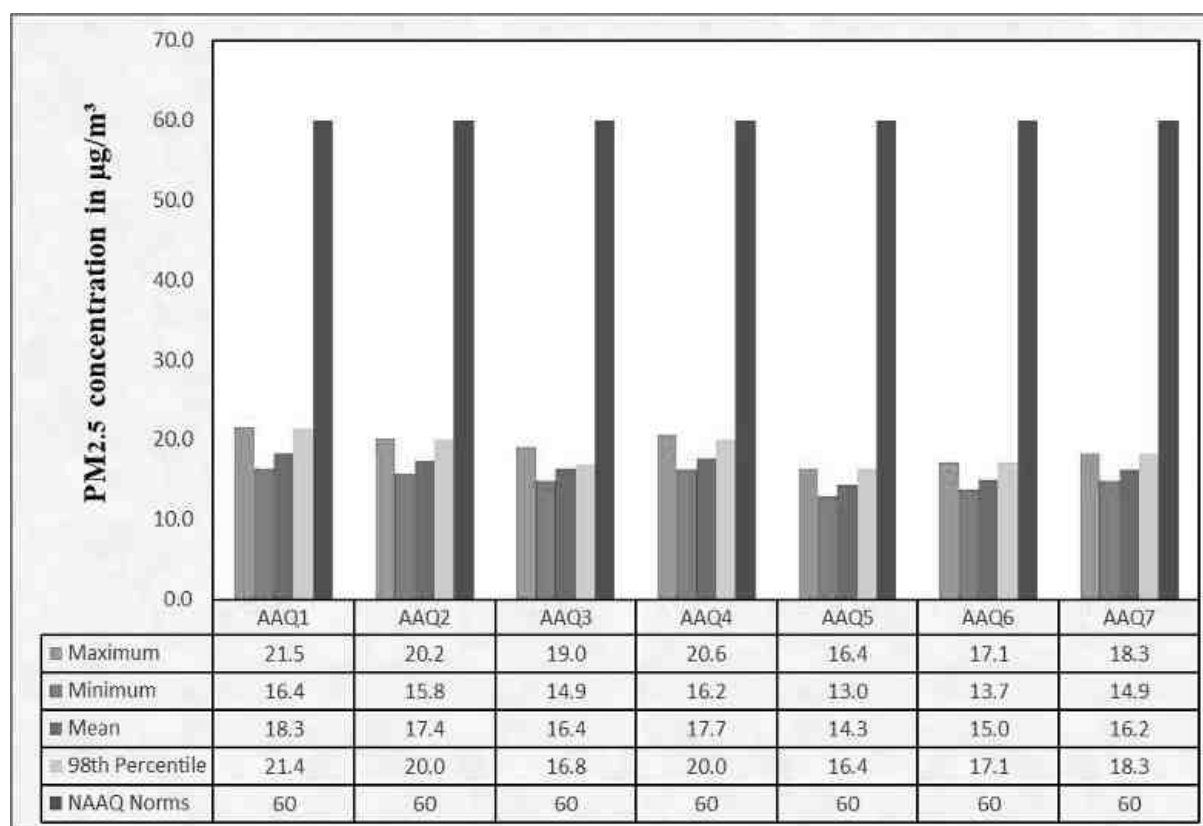


Figure 3.16 Bar Chart Showing Maximum, Minimum, and Average Concentrations of PM_{2.5} Measured from 7 Air Quality Monitoring Stations within 5 km Radius

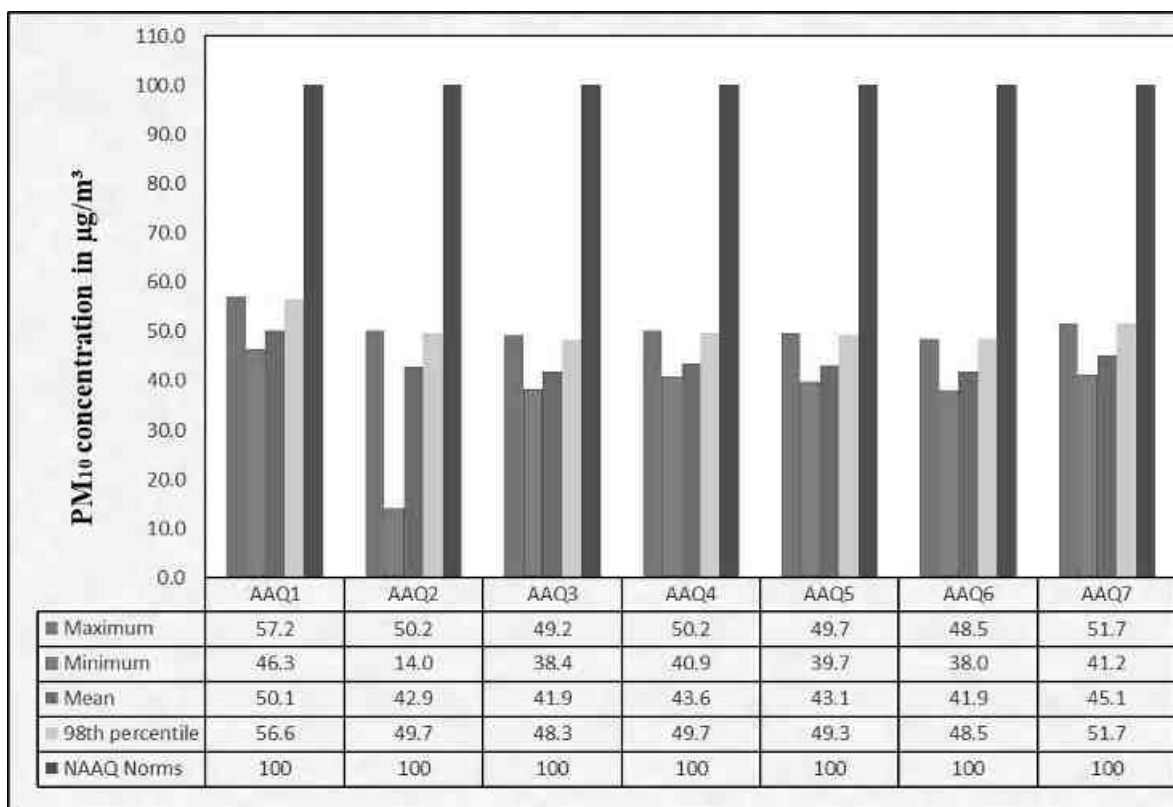


Figure 3.17 Bar Chart Showing Maximum, Minimum, and Average Concentrations of PM₁₀ Measured from 7 Air Quality Monitoring Stations within 5 km Radius

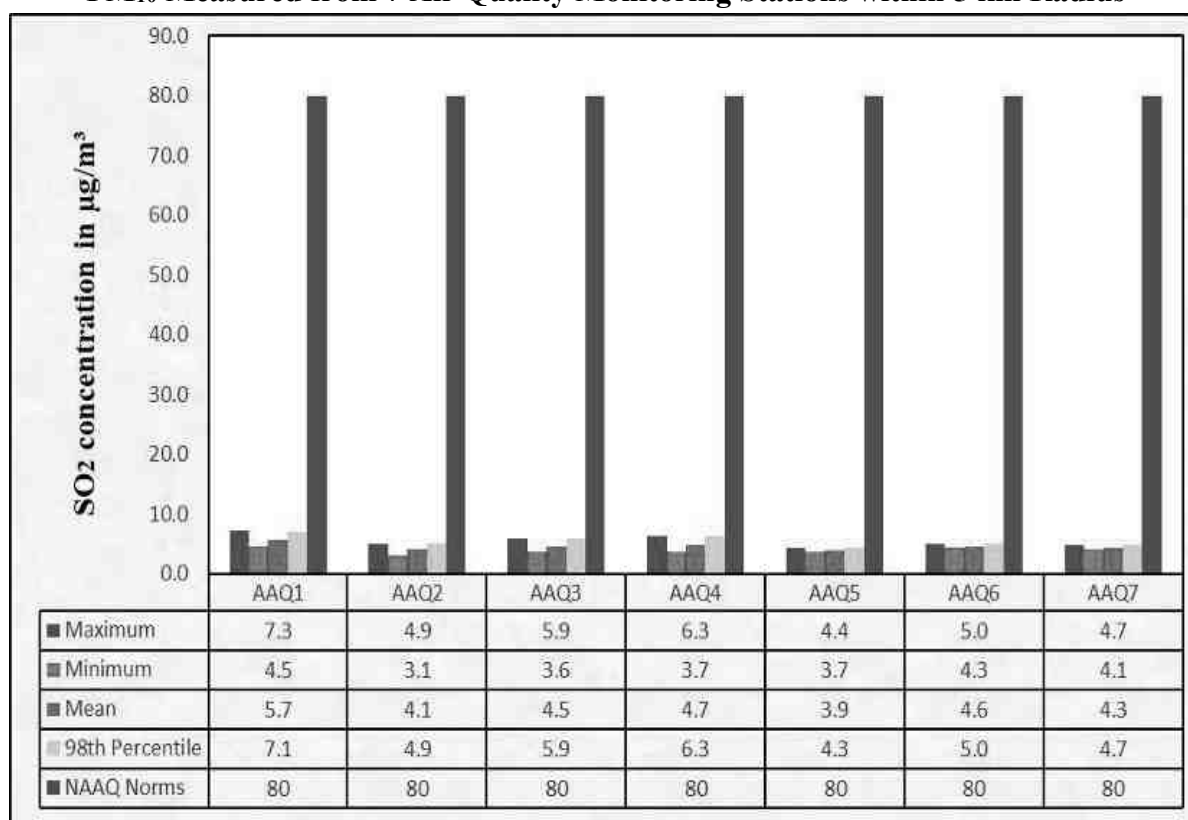


Figure 3.18 Bar Chart Showing Maximum, Minimum, and Average Concentrations of SO₂ Measured from 7 Air Quality Monitoring Stations within 5 km Radius

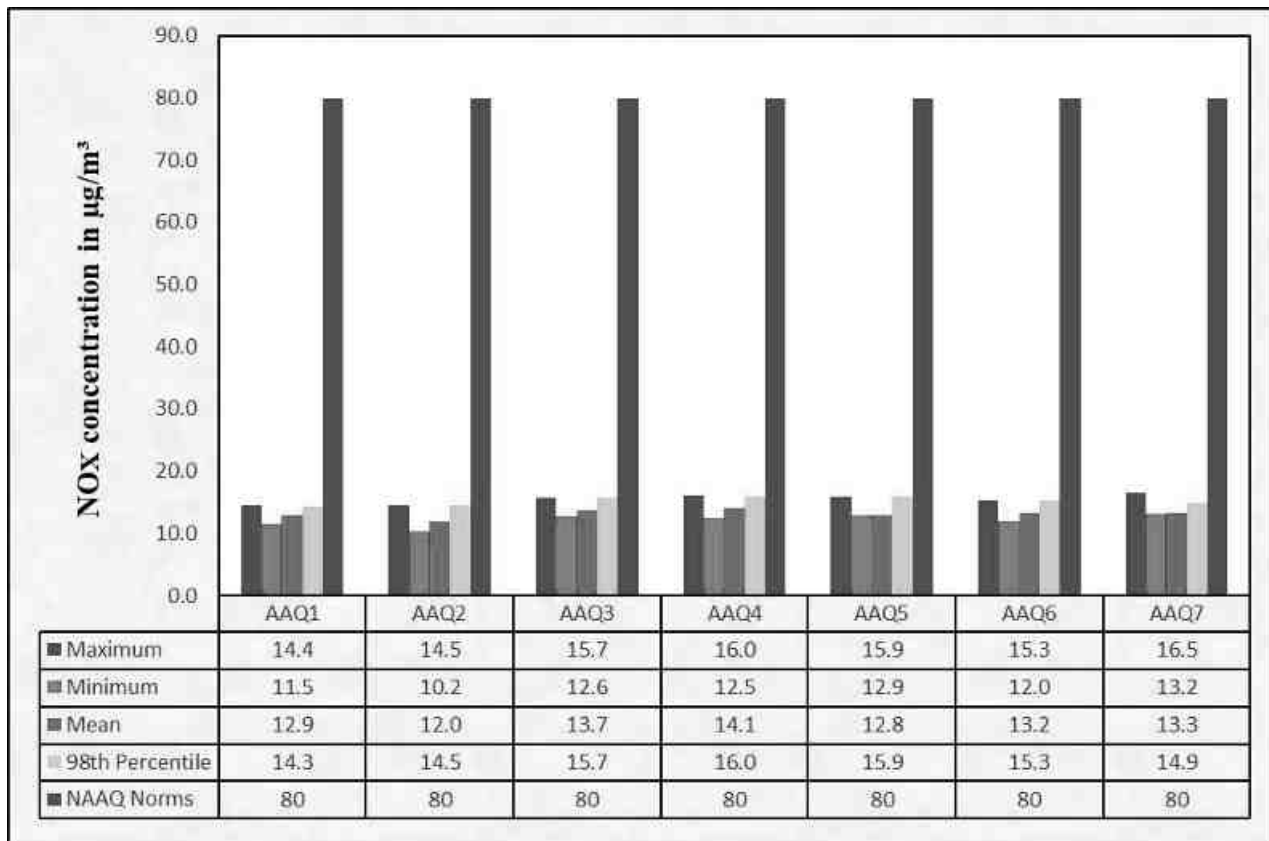


Figure 3.19 Bar Chart Showing Maximum, Minimum, and Average Concentrations of NO_x Measured from 7 Air Quality Monitoring Stations within 5km Radius

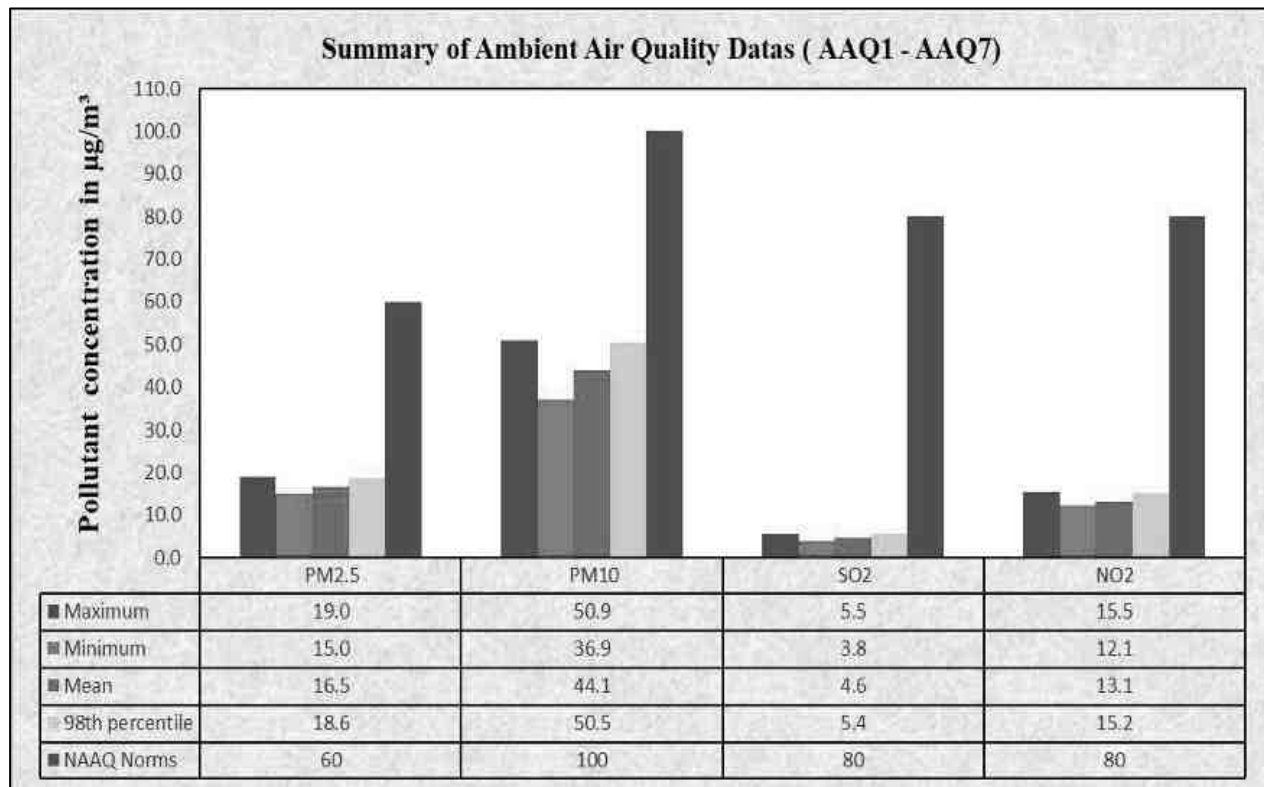


Figure 3.20 Bar Chart Showing Maximum, Minimum, And Average Concentrations of Pollutants in Atmosphere within 5 km Radius

3.3.5 Noise Environment

The vehicular movement on road and mining activities is the major sources of noise in the study area. The main objective of noise monitoring in the study area is to establish the baseline noise level, which will in turn be used to assess the impact of the total noise expected to be generated during the project operations around the project site. In order to assess the ambient noise levels within the study area, noise monitoring was carried out at seven (07) locations covering commercial, residential, rural areas within the radius of 5 km. Details of noise monitoring locations are provided in Table 3.17 and spatial occurrence of the locations are shown in Figure 3.23.

Table 3.17 Noise Monitoring Locations

Location Code	Monitoring Locations	Distance in km	Directions	Latitude	Longitude
N1	Core area	---	---	12°48'55.47"N	79°52'44.92"E
N2	Thonankulam	0.40	SE	12°48'44.22"N	79°52'51.84"E
N3	Devariyaambakkam Colony	0.38	W	12°49'1.00"N	79°52'28.16"E
N4	Kosappattu	1.38	NE	2°49'19.20"N	79°53'27.90"E
N5	Ullavur	2.51	SE	12°47'42.76"N	79°53'23.83"E
N6	Sankarapuram	3.04	SW	12°47'43.43"N	79°51'33.66"E
N7	Nathanallur	3.49	SW	12°48'27.87"N	79°50'48.83"E

Source: On-site monitoring/sampling by *Ekdant Enviro Service (P) Limited* in association with GTMS

Table 3.18 Noise Quality Result

Station ID	Location	Environmental setting	Average day noise level (dB(A))	Average night noise level (dB(A))	Day time (6.00 AM – 10.00 PM)	Night time (10.00 PM – 6.00 AM)
					Standard (L _{eq} in dB (A))	
N1	Core area	Industrial area	47.4	36.1	75	70
N2	Thonankulam	Residential area	42.7	37.9	55	50
N3	Devariyaambakkam Colony		43.5	39.7		
N4	Kosappattu		40.6	36.3		
N5	Ullavur		42.3	38.1		
N6	Sankarapuram		43.9	40.5		
N7	Nathanallur		44.8	37.8		

Source: On-site monitoring/sampling by *Ekdant Enviro Service (P) Limited* in association with GTMS

The Table 3.18 shows that noise level in core zone was 47.4 dB (A) Leq during day time and 36.1 dB(A) Leq during night time. Noise levels recorded in buffer zone during day time varied from 40.6 to 44.8 dB (A) Leq and during night time from 36.3 to 40.5dB (A) Leq. Thus, the noise level for industrial and residential area meets the requirements of CPCB. The results are also depicted below in Figures 3.21 and 3.22.

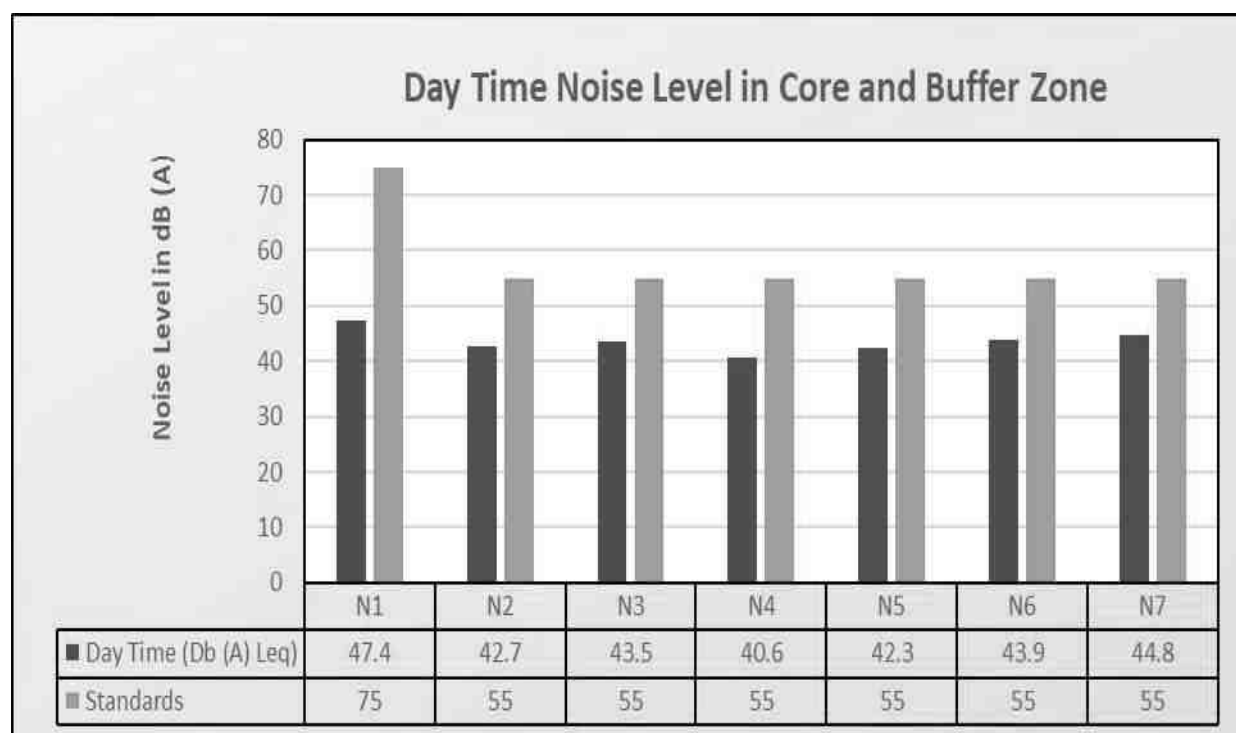


Figure 3.21 Bar Chart Showing Day Time Noise Levels Measured in Core and Buffer Zones

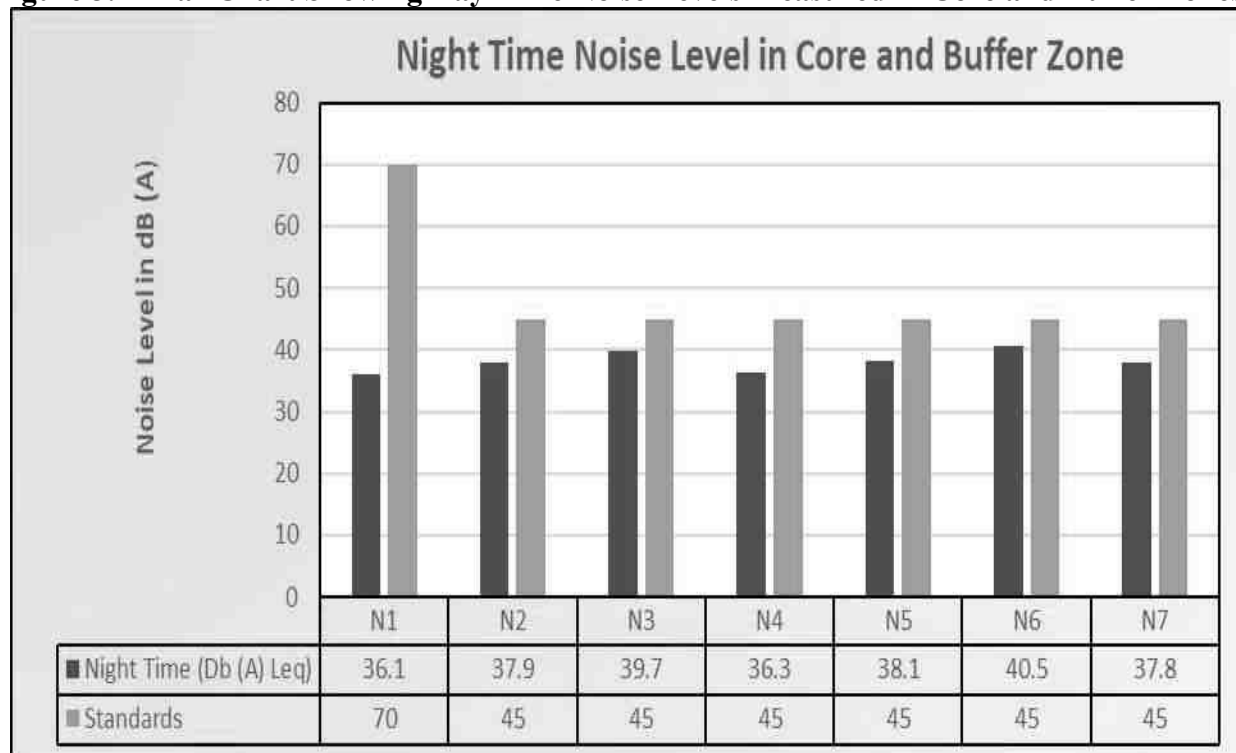


Figure 3.22 Bar Chart Showing Night Time Noise Levels Measured in Core and Buffer Zones

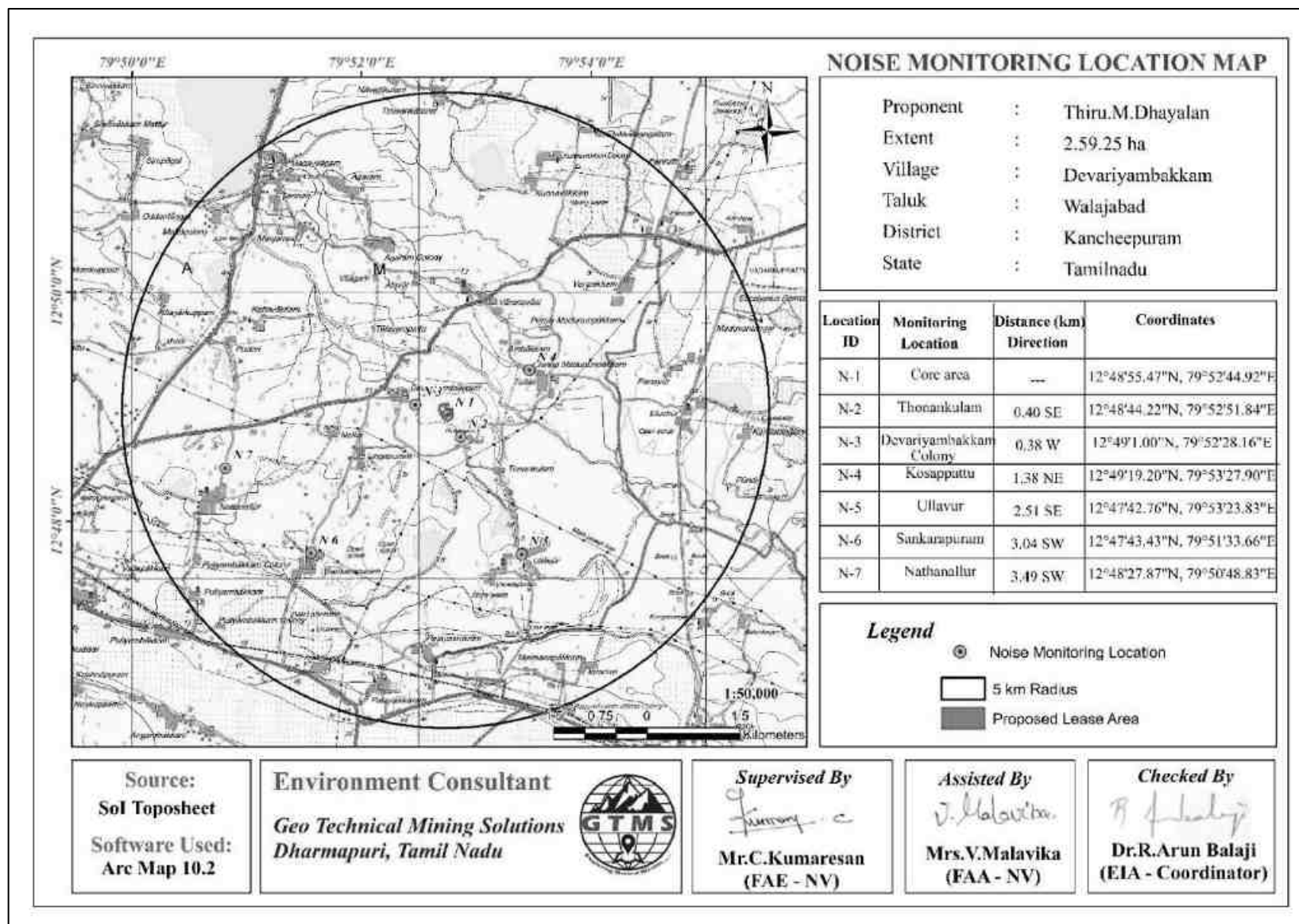


Figure 3.23 Map Showing Noise Level Monitoring Station Locations around 5 km Radius from Proposed Project Site

3.3.6 ECOLOGICAL BIODIVERSITY

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

Methodology

Nested quadrat sampling method was used for the study of community structure of the vegetation. The sampling consisted of randomly placed quadrats of 10m × 10m were laid down to assess trees, and sub quadrats of 5 m × 5 m were laid down for shrubs, 1m x 1m were laid down for herbs. The size and number of quadrats needed were determined using the species-area curve (Misra, 1968). The data on vegetation were quantitatively analysed for abundance, density, frequency as per Curtis & McIntosh (1950). The Important Value Index (IVI) for trees was determined as the sum of relative density, relative frequency and relative dominance (Curtis, 1959).



Figure 3.24 Quadrates Sampling Methods of Flora

Important Value Index (IVI)

The concept of 'Important Value Index (IVI)' has been developed for expressing the dominance and ecological success of any species, with a single value (Mishra, 1968, Sharma, 2005). This index utilizes three characteristics, they are (i) Relative frequency and (ii) Relative density. The three characteristics computed using frequency, density and abundance for all the species falling in all the quadrat by using the following formula. The relative frequency, relative density and relative abundance has been calculated to calculate the IVI value

$$\text{IVI} = \text{Relative frequency} + \text{Relative abundance} + \text{Relative density} [\text{RF} + \text{RA} + \text{RD}]$$

$$\text{Relative Value Index (RVI)} = \text{Relative Density} + \text{Relative Frequency} [\text{RD} + \text{RF}].$$

Relative Value Index used for Expressing dominance and Ecological success of Shrub and herb Species in a particular area.

Shannon – Wiener Index, Evenness and Richness

Biodiversity index is a quantitative measure that reflects how many different types of species, there are in a dataset, and simultaneously takes into account how evenly the basic entities (such as individuals) are distributed among those types of species. The value of biodiversity index increases both when the number of types increases and when evenness increases. For a given number of type of species, the value of a biodiversity index is maximized when all type of species is equally abundant.

The **Shannon Diversity Index** (sometimes called the Shannon-Wiener Index) is a way to measure the diversity of species in a community.

The species diversity index (H) for floral and faunal diversity is calculated by the use of Shannon Wiener Index (Shannon Wiener, 1963) as:

$$H = - \sum (n_i/n) \times \ln (n_i/n)$$

Where, n_i is individual density of a species and n is total density of all the species

The Evenness Index (E) is calculated by using Shannon's Evenness formula (Magurran, 2004).

The higher the value of H, the higher the diversity of species in a particular community. The lower the value of H, the lower the diversity. A value of $H = 0$ indicates a community that only has one species

$$\text{Evenness Index (E)} = H / \ln(S)$$

Where, H is Shannon Wiener Diversity index; S is number of species

The Shannon evenness Index is a way to measure the evenness of species in a community. The term “evenness” simply refers to how similar the abundances of different species are in the community.

3.3.6.1 Flora

Flora study was conducted using the above said methodology to inventory the existing terrestrial plants in both core and buffer zones. Details of plants have been described in the succeeding sections.

Flora in mine lease area (core zone)

The mine lease area contains total of 23 species belonging to 15 families have been recorded from the mine lease area. 4 shrubs, 19 herbs were identified. There are no trees in mine lease area. The floral analysis indicates that there are no threatened (Vulnerable, Endangered & Critically Endangered) species recorded from the core project site. A list of the IUCN Red List analysed plant species recorded inside the proposed project site. Details of vegetation with scientific name indicated in Table 3.19.

Table 3.19 Flora in mine lease area

S.no	Local name	Scientific name	Family name	IUCN Status
Shrubs				
1	Avaram chadi	<i>Senna auriculata</i>	Fabaceae	LC
2	Earuku	<i>Calotropis gigantea</i>	Apocynaceae	NL
3	communist pacha	<i>Chromolaena odorata</i>	Asteraceae	NL
4	Nochi	<i>Vitex negundo</i>	Lamiaceae	NL
Herbs /Climber				
1	Perandai	<i>Cissus quadrangularis</i>	Vitaceae	NL
2	Thathapondur	<i>Tridax procumbens</i>	Asteraceae	NL
3	Kolunji chadi	<i>Tephrosia purpurea</i>	Fabaceae	NL
4	Nayuruvi	<i>Achyranthes aspera</i>	Amaranthaceae	NL
5	Nearunji mull	<i>Tribulus zeyheri</i>	Zygophyllaceae	NL
6	Pulapoo	<i>Aerva lanata</i>	Amaranthaceae	NL
7	American mint	<i>Hyptis suaveolens</i>	Lamiaceae	NL
8	Veetukaayapoondur	<i>Tridax procumbens</i>	Asteraceae	NL
9	Mukkirattai	<i>Boerhaavia diffusa</i>	Nyctaginaceae	NL
10	Kuppaimeni	<i>Acalypha indica</i>	Euphorbiaceae	NL
11	Kovaikodi	<i>Coccinia grandis</i>	Cucurbitaceae	NL
12	Arivalmanaipoondur	<i>Sida acuta</i>	Malvaceae	NL
13	Amman pacharisi	<i>Euphorbia hirta</i>	Euphorbiaceae	NL
14	Karaikai	<i>Canthium coromandelicum</i>	Rubiaceae	NL
15	Keelanelli	<i>Phyllanthus amarus</i>	Phyllanthaceae	NL
16	Chevvarakupul	<i>Chloris barbata</i>	Poaceae	NL
17	Mullukkeerai	<i>Amaranthus spinosus</i>	Amaranthaceae	NL
18	Vishnukarandi	<i>Evolvulus alsinoides</i>	Convolvulaceae	NL
19	Thulasi	<i>Ocimum sanctum</i>	Lamiaceae	NL

The Flora in 300 m radius (buffer zone)

The 300m radius It contains a total of 34 species belonging to 21 families have been recorded from the buffer zone. 6 Trees (17%), 5 Shrubs (17%) and 22 Herbs and Climbers, Creeper, Grass & Cactus 20 (64%) were identified. Details of flora with the scientific name details and of diversity species Richness index were mentioned in Table 3.20-23 and Figure 3.25. There is no threatened species in 300 m radius.

Flora in 10 km radius buffer zone

Similar type of environment also in buffer area but with more flora diversity compare than core zone area. It contains a total of species belonging to 40 families have been recorded from the buffer zone. The floral (81) varieties among them 35 Trees (38%), 15 Shrubs (18%) Herbs and Climbers, Creeper, Grass & Cactus, 31 (38%) were identified. Details of flora with the scientific name details of diversity species Richness index were mentioned in Table 3.22 and figure 3.25.

Table 3.20 Flora in 300m Radius

S. No.	Local Name	Scientific name	Family name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Relative Density	Relative Frequency	IVI	IUCN Conservation Status
Trees													
1	Vembu	<i>Azadirachta indica</i>	Meliaceae	10	7	10	1.0	70	1.4	11.36	9.86	21.22	LC
2	Pongam oiltree	<i>Pongamia pinnata</i>	Fabaceae	6	5	10	0.6	50	1.2	6.82	7.04	13.86	LC
3	Thennai maram	<i>Cocos nucifera</i>	Arecaceae	7	6	10	0.7	60	1.2	7.95	8.45	16.41	NL
4	Manga	<i>Mangifera indica</i>	Anacardiaceae	4	3	10	0.4	30	1.3	4.55	4.23	8.77	NL
5	Puliyamaram	<i>Tamarindus indica</i>	Legumes	3	2	10	0.3	20	1.5	3.41	2.82	6.23	LC
6	Vadanarayani	<i>Delonix elata</i>	Fabaceae	3	3	10	0.3	30	1.0	3.41	4.23	7.63	LC
7	Thenpazham	<i>Muntingia calabura</i>	Tiliaceae	5	4	10	0.5	40	1.3	5.68	5.63	11.32	LC
8	Punnai	<i>Calophyllum inophyllum</i>	Calophyllaceae	2	2	10	0.2	20	1.0	2.27	2.82	5.09	NL
9	Ilanthai	<i>Ziziphus jujubha</i>	Rhamnaceae	7	6	10	0.7	60	1.2	7.95	8.45	16.41	NL
10	Karuvelam	<i>Acacia nilotica</i>	Mimosaceae	5	3	10	0.5	30	1.7	5.68	4.23	9.91	NL
11	Nettilinkam	<i>Polylathia longifolia</i>	Annonaceae	2	2	10	0.2	20	1.0	2.27	2.82	5.09	NL
12	Panai maram	<i>Borassus flabellifer</i>	Arecaceae	4	3	10	0.4	30	1.3	4.55	4.23	8.77	LC
13	Navalmaram	<i>Syzygium cumini</i>	Myrtaceae	2	3	10	0.2	30	0.7	2.27	4.23	6.50	NL
14	Alamaram	<i>Ficus benghalensis</i>	Moraceae	2	2	10	0.2	20	1.0	2.27	2.82	5.09	NL
15	Vazhaimaram	<i>Musa</i>	Musaceae	3	3	10	0.3	30	1.0	3.41	4.23	7.63	NL

16	Eucalyptus	<i>Eucalyptus globules</i>	Myrtaceae	5	3	10	0.5	30	1.7	5.68	4.23	9.91	NL
17	Maramalli	<i>Millingtonia hortensis</i>	Bignoniaceae	1	1	10	0.1	10	1.0	1.14	1.41	2.54	LC
18	Kuduka puli	<i>Pithecellobium dulce</i>	Mimosaceae	3	2	10	0.3	20	1.5	3.41	2.82	6.23	LC
19	Savukku	<i>Casuarina L.</i>	Casuarinaceae	5	4	10	0.5	40	1.3	5.68	5.63	11.32	NL
20	Echamaram	<i>Phoenix sylvestris</i>	Arecaceae	5	3	10	0.5	30	1.7	5.68	4.23	9.91	NL
Total				84	67								
Shrubs													
1	Avarai	<i>Senna auriculata</i>	Fabaceae	8	6	10	1	60	1.3	17.78	19.35	37.13	LC
2	Sundaika	<i>Solanum torvum</i>	Solanaceae	9	5	10	0.9	50	1.8	20.00	16.13	36.13	NL
3	Vellai Erukku	<i>Calotropis procera</i>	Asclepiadaceae	2	2	10	0.2	20	1.0	4.44	6.45	10.90	LC
4	Ponnarali	<i>Thevetia peruviana</i>	Apocynaceae	8	6	10	0.8	60	1.3	17.78	19.35	37.13	NL
5	Nochi	<i>Vitex negundo</i>	Verbenaceae	4	3	10	0.4	30	1.3	8.89	9.68	18.57	LC
6	Suraimullu	<i>Ziziphus oenoplia</i>	Rhamnaceae	5	3	10	0.5	30	1.7	11.11	9.68	20.79	NL
7	Kattukkottai	<i>Jatropha curcas</i>	Euphorbiaceae	3	3	10	0.3	30	1.0	6.67	9.68	16.34	LC
8	Karaikai	<i>Canthium coromandelicum</i>	Rubiaceae	6	3	10	0.6	30	2.0	13.33	9.68	23.01	NL
Total				45	31								
Herbs													
1	Perandai	<i>Cissus quadrangularis</i>	Vitaceae	9	6	10	0.9	60	1.5	3.18	4.00	7.18	NL
2	Thathapondur	<i>Tridax procumbens</i>	Asteraceae	17	9	10	1.7	90	1.9	6.01	6.00	12.01	NL
3	Kolunji chadi	<i>Tephrosia purpurea</i>	Fabaceae	19	8	10	1.9	80	2.4	6.71	5.33	12.05	NL
4	Nayuruvi	<i>Achyranthes aspera</i>	Amaranthaceae	26	7	10	2.6	70	3.7	9.19	4.67	13.85	NL
5	Nearunji mull	<i>Tribulus zeyheri</i>	Zygophyllaceae	10	5	10	1	50	2.0	3.53	3.33	6.87	NL

6	Pulapoo	<i>Aerva lanata</i>	Amaranthaceae	13	6	10	1.3	60	2.2	4.59	4.00	8.59	NL
7	American mint	<i>Hyptis suaveolens</i>	Lamiaceae	19	8	10	1.9	80	2.4	6.71	5.33	12.05	NL
8	Mukkirattai	<i>Boerhaavia diffusa</i>	Nyctaginaceae	12	6	10	1.2	60	2.0	4.24	4.00	8.24	NL
9	Kuppaimeni	<i>Acalypha indica</i>	Euphorbiaceae	14	9	10	1.4	90	1.6	4.95	6.00	10.95	NL
10	Kovaikodi	<i>Coccinia grandis</i>	Cucurbitaceae	6	4	10	0.6	40	1.5	2.12	2.67	4.79	NL
11	Arivalmanaipoo ndu	<i>Sida acuta</i>	Malvaceae	9	6	10	0.9	60	1.5	3.18	4.00	7.18	NL
12	Amman pacharisi	<i>Euphorbia hirta</i>	Euphorbiaceae	13	5	10	1.3	50	2.6	4.59	3.33	7.93	NL
13	Keelanelli	<i>Phyllanthus amarus</i>	Phyllanthaceae	7	7	10	0.7	70	1.0	2.47	4.67	7.14	NL
14	Chevvarakupul	<i>Chloris barbata</i>	Poaceae	17	9	10	1.7	90	1.9	6.01	6.00	12.01	NL
15	Mullukkeerai	<i>Amaranthus spinosus</i>	Amaranthaceae	10	8	10	1	80	1.3	3.53	5.33	8.87	NL
16	Vishnukarandi	<i>Evolvulus alsinoides</i>	Convolvulaceae	13	6	10	1.3	60	2.2	4.59	4.00	8.59	NL
17	Thulasi	<i>Ocimum sanctum</i>	Lamiaceae	9	7	10	0.9	70	1.3	3.18	4.67	7.85	NL
18	Eallu	<i>Sesamum indicum</i>	Pedaliaceae	6	3	10	0.6	30	2.0	2.12	2.00	4.12	NL
19	Chatai	<i>Aeschynomene indica</i>	Fabaceae	5	4	10	0.5	40	1.3	1.77	2.67	4.43	LC
20	Yanaikkitti	<i>Cyperus iria</i>	Cyperaceae	17	7	10	1.7	70	2.4	6.01	4.67	10.67	LC
21	Thuthuvalai	<i>Solanum trilobatum</i>	Solanaceae	6	5	10	0.6	50	1.2	2.12	3.33	5.45	NL
22	Chirakkuli	<i>Spermacoce tenuior</i>	Rubiaceae	15	8	10	1.5	80	1.9	5.30	5.33	10.63	NL
23	Naikkatuku	<i>Cleome viscosa</i>	Cleomaceae	11	7	10	1.1	70	1.6	3.89	4.67	8.55	NL
Total				283	150								

Table 3.21 Calculation of Species Diversity in 300m Radius

S.No.	Common name	Scientific name	No. of Species	Pi	ln (Pi)	Pi x ln (Pi)
Trees						
1	Vembu	<i>Azadirachta indica</i>	10	0.12	-2.13	-0.25
2	Pongam oiltree	<i>Pongamia pinnata</i>	6	0.07	-2.64	-0.19
3	Thennai maram	<i>Cocos nucifera</i>	7	0.08	-2.48	-0.21
4	Manga	<i>Mangifera indica</i>	4	0.05	-3.04	-0.14
5	Puliyamaram	<i>Tamarindus indica</i>	3	0.04	-3.33	-0.12
6	Vadanarayani	<i>Delonix elata</i>	3	0.04	-3.33	-0.12
7	Thenpazham	<i>Muntingia calabura</i>	5	0.06	-2.82	-0.17
8	Punnai	<i>Calophyllum inophyllum</i>	2	0.02	-3.74	-0.09
9	Ilanthai	<i>Ziziphus jujubha</i>	7	0.08	-2.48	-0.21
10	Karuvelam	<i>Acacia nilotica</i>	5	0.06	-2.82	-0.17
11	Nettilinkam	<i>Polylathia longifolia</i>	2	0.02	-3.74	-0.09
12	Panai maram	<i>Borassus flabellifer</i>	4	0.05	-3.04	-0.14
13	Navalmaram	<i>Syzygium cumini</i>	2	0.02	-3.74	-0.09
14	Alamaram	<i>Ficus benghalensis</i>	2	0.02	-3.74	-0.09
15	Vazhaimaram	<i>Musa</i>	3	0.04	-3.33	-0.12
16	Eucalyptus	<i>Eucalyptus globules</i>	5	0.06	-2.82	-0.17
17	Maramalli	<i>Millingtonia hortensis</i>	1	0.01	-4.43	-0.05
18	Kuduka puli	<i>Pithecellobium dulce</i>	3	0.04	-3.33	-0.12
19	Savukku	<i>Casuarina L.</i>	5	0.06	-2.82	-0.17
20	Echamaram	<i>Phoenix sylvestris</i>	5	0.06	-2.82	-0.17
H (Shannon Diversity Index) = 2.87						
Shrubs						
1	Avarai	<i>Senna auriculata</i>	8	0.21	-1.58	-0.32
2	Sundaika	<i>Solanum torvum</i>	9	0.23	-1.47	-0.34
3	Vellai Erukku	<i>Calotropis procera</i>	2	0.05	-2.97	-0.15
4	Ponnarali	<i>Thevetia peruviana</i>	8	0.21	-1.58	-0.32
5	Nochi	<i>Vitex negundo</i>	4	0.10	-2.28	-0.23
6	Suraimullu	<i>Ziziphus oenoplia</i>	5	0.13	-2.05	-0.26
7	Kattukkottai	<i>Jatropha curcas</i>	3	0.08	-2.56	-0.20
H (Shannon Diversity Index) = 1.83						
Herbs						
1	Perandai	<i>Cissus quadrangularis</i>	9	0.03	-3.45	-0.11
2	Thathapondu	<i>Tridax procumbens</i>	17	0.06	-2.81	-0.17
3	Kolunji chadi	<i>Tephrosia purpurea</i>	19	0.07	-2.70	-0.18
4	Nayuruvi	<i>Achyranthes aspera</i>	26	0.09	-2.39	-0.22
5	Nearunji mull	<i>Tribulus zeyheri</i>	10	0.04	-3.34	-0.12
6	Pulapoo	<i>Aerva lanata</i>	13	0.05	-3.08	-0.14

7	American mint	<i>Hyptis suaveolens</i>	19	0.07	-2.70	-0.18
8	Mukkirattai	<i>Boerhaavia diffusa</i>	12	0.04	-3.16	-0.13
9	Kuppaimeni	<i>Acalypha indica</i>	14	0.05	-3.01	-0.15
10	Kovaikodi	<i>Coccinia grandis</i>	6	0.02	-3.85	-0.08
11	Arivalmanaipoondur	<i>Sida acuta</i>	9	0.03	-3.45	-0.11
12	Amman pacharisi	<i>Euphorbia hirta</i>	13	0.05	-3.08	-0.14
13	Keelanelli	<i>Phyllanthus amarus</i>	7	0.02	-3.70	-0.09
14	Chevvarakupul	<i>Chloris barbata</i>	17	0.06	-2.81	-0.17
15	Mullukkeerai	<i>Amaranthus spinosus</i>	10	0.04	-3.34	-0.12
16	Vishnukarandi	<i>Evolvulus alsinoides</i>	13	0.05	-3.08	-0.14
17	Thulasi	<i>Ocimum sanctum</i>	9	0.03	-3.45	-0.11
18	Eallu	<i>Sesamum indicum</i>	6	0.02	-3.85	-0.08
19	Chatai	<i>Aeschynomene indica</i>	5	0.02	-4.04	-0.07
20	Yanaikkitti	<i>Cyperus iria</i>	17	0.06	-2.81	-0.17
21	Thuthuvalai	<i>Solanum trilobatum</i>	6	0.02	-3.85	-0.08
22	Chirakkuli	<i>Spermacoce tenuior</i>	15	0.05	-2.94	-0.16
23	Naikkatuku	<i>Cleome viscosa</i>	11	0.04	-3.25	-0.13
H (Shannon Diversity Index) = 3.05						

Table 3.22 Species Richness (Index) in 300 m radius

Details	H	H max	Evenness	Species Richness
Trees	2.87	3.00	0.96	4.29
Shrubs	1.83	1.95	0.94	1.64
Herbs	3.05	3.14	0.97	3.90

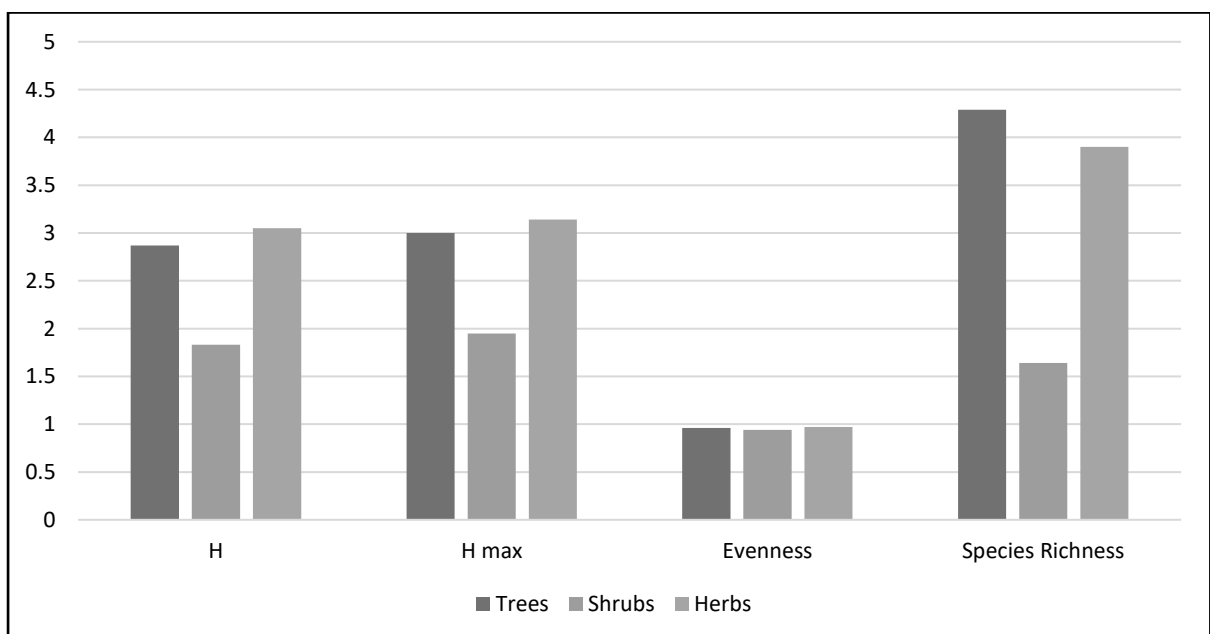


Figure 3.25 Species Richness (Index) in 300 m radius

Table 3.23 Flora in Buffer Zone

S. No	Local Name	Scientific name	Family name
TREES			
1	Vembu	<i>Azadirachta indica</i>	Meliaceae
2	Thekku	<i>Tectona grandis</i>	Verbenaceae
3	Pongam oiltree	<i>Pongamia pinnata</i>	Fabaceae
4	Thennai maram	<i>Cocos nucifera</i>	Arecaceae
5	Manga	<i>Mangifera indica</i>	Anacardiaceae
6	Puliyamaram	<i>Tamarindus indica</i>	Legumes
7	Vadanarayani	<i>Delonix elata</i>	Fabaceae
8	Thenpazham	<i>Muntingia calabura</i>	Tiliaceae
9	Punnai	<i>Calophyllu inophyllum</i>	Calophyllaceae
10	Ilanthai	<i>Ziziphus jujubha</i>	Rhamnaceae
11	Karuvelam	<i>Acacia nilotica</i>	Mimosaceae
12	Nettilinkam	<i>Polylathia longifolia</i>	Annonaceae
13	Arai nelli	<i>Phyllanthus acidus</i>	Euphorbiaceae
14	Panai maram	<i>Borassus flabellifer</i>	Arecaceae
15	Sapota	<i>Manilkara zapota</i>	Sapotaceae
16	Navalmaram	<i>Sygygium cumini</i>	Myrtaceae
17	Alamaram	<i>Ficus benghalensis</i>	Moraceae
18	Vazhaimaram	<i>Musa</i>	Musaceae
19	Karuvelam maram	<i>Vachellia nilotica</i>	Fabaceae
20	Nelli	<i>Emblica officinalis</i>	Phyllanthaceae
21	Eucalyptus	<i>Eucalyptus globules</i>	Myrtaceae
22	Maramalli	<i>Millingtonia hortensis</i>	Bignoniaceae
23	Kuduka puli	<i>Pithecellobium dulce</i>	Mimosaceae
24	Karungali	<i>Acacia sundra</i>	Legumes
25	Nochi	<i>Vitex negundo</i>	Lamiaceae
26	Karimurungai	<i>Moringa olefera</i>	Moraginaceae
27	Pappali maram	<i>Carica papaya L</i>	Caricaceae
28	Poovarasu	<i>Thespesia populnea</i>	Malvaceae
29	Arasanmaram	<i>Ficus religiosa</i>	Moraceae
30	Vilvam	<i>Aegle marmelos</i>	Rutaceae
31	Nuna maram	<i>Morinda citrifolia</i>	Rubiaceae
32	Nettilingam	<i>Polyalthia longifolia</i>	Annonaceae
33	Koyya	<i>Psidium guajava</i>	Myrtaceae
34	Seethapazham	<i>Annona reticulata</i>	Annonaceae
35	Savukku	<i>Casuarina L.</i>	Casuarinaceae
SHRUBS			
1	Avarai	<i>Senna auriculata</i>	Fabaceae
2	Sundaika	<i>Solanum torvum</i>	Solanaceae

3	Puramuttai	<i>Chrozophora rottleri</i>	Euphorbiaceae
4	Arali	<i>Nerium indicum</i>	Apocynaceae
5	Seemaigaththi	<i>Cassia alata</i>	Caesalpinaceae
6	Chemparuthi	<i>Hibiscu rosa-sinensis</i>	Malvaceae
7	Kattamanakku	<i>Jatropha curcas</i>	Euphorbiaceae
8	Chaturakalli	<i>Euphorbia antiquorum</i>	Euphorbiaceae
9	Idlipoo	<i>xoracoc cineia</i>	Rubiaceae
10	Thuthi	<i>Abutilon indicum</i>	Meliaceae
11	Nithyakalyani	<i>Cathranthus roseus</i>	Apocynaceae
12	Uumaththai	<i>Datura metel</i>	Solanaceae
13	Kundumani	<i>Abrus precatorius</i>	Fabaceae
14	Erukku	<i>Calotropis gigantea</i>	Apocynaceae
15	Neermulli	<i>Hydrophila auriculata</i>	Acanthaceae
Herbs, Climber, Creeper & Grasses			
1	Nayuruv	<i>Achyranthes aspera</i>	Amaranthaceae
2	Veetukaayapoondur	<i>Tridax procumbens</i>	Asteraceae
3	Mukkirattai	<i>Boerhaavia diffusa</i>	Nyctaginaceae
4	Kuppaimeni	<i>Acalypha indica</i>	Euphorbiaceae
5	Karisilanganni	<i>Eclipta prostrata</i>	Asteraceae
6	Korai	<i>Cyperus rotundus</i>	Cyperaceae
7	Thumbai	<i>Leucas aspera</i>	Lamiaceae
8	Nai kadugu	<i>Celome viscosa</i>	Capparidaceae
9	Parttiniyam	<i>Parthenium hysterophorus</i>	Asteraceae
10	Thulasi	<i>Ocimum tenuiflorum</i>	Lamiaceae
11	Arugampul	<i>Cynodon dactylon</i>	Poaceae
12	Thoiya keera	<i>Digeria muricata</i>	Amaranthaceae
13	Kovai	<i>Coccinia grandis</i>	Cucurbitaceae
14	Perandai	<i>Cissus quadrangularis</i>	Vitaceae
15	Mudakkotan	<i>Cardiospermum helicacabum</i>	Sapindaceae
16	Karkakartum	<i>Clitoria ternatea</i>	Fabaceae
17	Kovakkai	<i>Trichosanthes dioica</i>	Cucurbitaceae
18	Sangupoo	<i>Clitoriaternatia</i>	Fabaceae
19	Siru puladi	<i>Desmodium triflorum</i>	Fabaceae
20	Sithrapaalavi	<i>Euphorbia prostrata</i>	Euphorbiaceae
21	Thumattikai	<i>Cucumis callosus</i>	Cucurbitaceae
22	mookuthi poondur	<i>Wedelia trilobata</i>	Asteraceae
23	Kattu kanchippul	<i>Apluda mutica</i>	Poaceae
24	Musthakasu	<i>Kyllinga brevifolia</i>	Cyperaceae
25	Nagathali	<i>Opuntia dillenii</i>	Cactaceae
26	Peaiveratti	<i>Anisomeles malabarica</i>	Lamiaceae
27	Mosukkattan	<i>Passiflora foetida</i>	Passifloraceae

28	Etelepoo	<i>Ixora coccinea</i>	Rubiaceae
29	Kannadi kalli	<i>Euphorbia tithymaloides</i>	Euphorbiaceae
30	Kodi Rose	<i>Antigonon leptopus</i>	Polygonaceae
31	Peaiveratti	<i>Anisomeles malabarica</i>	Lamiaceae

Table 3.24 Aquatic Vegetation

S. No.	Scientific Name	Common Name	IUCN Red List of Threatened Species
Aquatic Flora			
1	<i>Eichornia Crassipe</i>	Water Hyacinth	NA
2	<i>Aponogeton natans</i>	Floating Lace Plant	NA
3	<i>Nymphaea Nouchali</i>	Blue Water Lily	LC
4	<i>Carex Cruciata</i>	Cross Grass	NA
5	<i>Cynodon Dactylon</i>	Scutch Grass	LC
6	<i>Cyperus Exaltatus</i>	Tall Flat Sedge	LC
Aquatic Fauna			
7	Pale carplet	Amblyupharngodon mola	NA
8	Catla catla	Labeo Catla	LC
9	Mrigal carp	Cirrhina mrigala	NA
10	Mrigel	Cirrhina reba	NA

*Lc- Least Concern, Na-Not Yet Assessed

Food chain

The food chain in aquatic ecosystems often begins with the algae or phytoplankton producers, and then the zooplankton that feed on them. This type of food chain is found in Sangarabarani River, Thiruvakkarai by phytoplankton, zooplankton, fish and Artiola gray.

Ex: Phytoplankton→Zooplankton→small fish→large fish

3.3.6.2 Fauna

The faunal survey was carried out for Mammals, Birds, Reptiles, Amphibians and Butterflies. There are no rare, endangered, threatened (RET) and endemic species present in core area. Fauna survey Methodology Mention in Table 3.25

Table 3.25 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.	Grimmett R (2011); Ali S (1941)

Fauna in Core Zone

The 21 varieties of species observed in the core zone. Among them numbers of Insects 8 (41%), Reptiles 3 (14%), Mammals 1 (4%) and Avian 9 (41%). A total of 21 species belonging to 15 families have been recorded from the core mining lease area. Number of species

decreases towards the mining area this might be due the lack of vegetation. None of these species are threatened or endemic. There is no Schedule I species and eight species are under schedule IV according to Indian wild life Act 1972. A total eight species of birds were sighted in the mining lease area. There are no critically endangered, endangered, vulnerable and endemic species were observed. Details of fauna in core zone with the scientific name were mentioned in Table. 3.26.

Fauna in Buffer Zone

A total of 47 species belonging to 34 families were recorded in the buffer zone. Based on habitat classification the majority of species were Birds 18 (40%), followed by Insects 15 (31%), Reptiles 7 (15%), 4 Mammals (8%) and amphibians 3 (6%). There are 4 schedule II species and 24 schedule IV species according to Indian wild life Act 1972.

Table 3.26 Fauna in Core Zone

S. No	Common name/English Name	Family Name	Scientific Name	Schedule list wildlife Protection act 1972	IUCN Red List data
INSECTS					
1	Common Tiger	Nymphalidae	<i>Danaus genutia</i>	NL	NL
2	Red-veined darter	Libellulidae	<i>Sympetrum fonscolombii</i>	NL	LC
3	Grasshopper	Acrididae	<i>Hieroglyphus sp</i>	NL	LC
4	Blue tiger	Nymphalidae	<i>Tirumala limniace</i>	Schedule IV	LC
5	Stick insect	Lonchodidae	<i>carausius morosus</i>	NL	LC
6	Mottled emigrant	Peridae	<i>Catopsilia pyranthe</i>	NL	LC
7	Striped tiger	Nymphalidae	<i>Danaus plexippus</i>	Schedule IV	LC
8	Acraea violae	Nymphalidae	<i>Acraea violae</i>	NL	LC
REPTILES					
1	Garden lizard	Agamidae	<i>Calotes versicolor</i>	NL	LC
2	Common house gecko	Gekkonidae	<i>Hemidactylus frenatus</i>	NL	LC
3	Fan-Throated Lizard	Agamidae	<i>Sitanaponticeriana</i>	NL	LC
MAMMALS					
1	Indian Field Mouse	Muridae	<i>Mus booduga</i>	Schedule IV	NL
AVES					
1	Asian green bee-eater	Meropidae	<i>Meropsorientalis</i>	NL	LC
2	Koel	Cuculidae	<i>Eudynamys</i>	Schedule IV	LC
3	Common myna	Sturnidae	<i>Acridotheres tristis</i>	NL	LC
4	Cattle egret	Ardeidae	<i>Bubulcus ibis</i>	NL	LC
5	House crow	Corvidae	<i>Corvus splendens</i>	NL	LC

6	Koel	Cuculidae	<i>Eudynamys scolopaceus</i>	Schedule IV	LC
7	Crow Pheasant	Cuculidae	<i>Centropus sinensis</i>	Schedule IV	LC
8	Indian pond heron	Ardeidae	<i>Ardeola grayii</i>	Schedule IV	LC
9	Grey drongo	Dicruridae	<i>Dicrurus leucophaeus</i>	Schedule IV	LC

Table 3.27 Fauna in Buffer Zone

S. No.	Common Name/English Name	Family Name	Scientific Name	Schedule List Wildlife Protection Act 1972	IUCN Red List Data
INSECTS					
1	Blue tiger	Nymphalidae	<i>Tirumala limniace</i>	Schedule IV	LC
2	Milkweed butterfly	Nymphalidae	<i>Danainae</i>	NL	LC
3	Tawny coster	Nymphalidae	<i>Danaus chrysippus</i>	Schedule IV	LC
4	Indian honey bee	Apidae	<i>Apis cerana</i>	Schedule IV	LC
5	Grasshopper	Acrididae	<i>Hieroglyphus sp</i>	NL	LC
6	Red-veined darter	Libellulidae	<i>Sympetrum fonscolombii</i>	NL	LC
7	Lime butterfly	Papilionidae	<i>Papilio demoleus</i>	Schedule IV	LC
8	Ant	Formicidae	<i>Camponotus Vicinus</i>	NL	NL
9	Dragonfly	Gomphidae	<i>Ceratogomphus pictus</i>	Schedule IV	LC
10	Common Tiger	Nymphalidae	<i>Danaus genutia</i>	Schedule IV	LC
11	Common Indian crow	Nymphalidae	<i>Euploea core</i>	Schedule IV	LC
12	Praying mantis	Mantidae	<i>mantis religiosa</i>	NL	NL
13	Striped tiger	Nymphalidae	<i>Danaus plexippus</i>	Schedule IV	LC
14	Lesser grass blue	Lycaenidae	<i>Zizina otis indica</i>	Schedule IV	LC
15	Jewel beetle	Buprestidae	<i>Eurythyrea austriaca</i>	Schedule IV	NA
REPTILES					
16	Garden lizard	Agamidae	<i>Calotes versicolor</i>	NL	LC
17	Common house gecko	Gekkonidae	<i>Hemidactylus frenatus</i>	NL	LC
18	Indian chameleon	Chamaeleonidae	<i>Chamaeleo zeylanicus</i>	Sch II (Part I)	LC
19	Olive keelback water snake	Natricidae	<i>Atretium schistosum</i>	Sch II (Part II)	LC
20	Brahminy skink	Scincidae	<i>Eutropis carinata</i>	NL	LC
21	Rat snake	Colubridae	<i>Ptyas mucosa</i>	Sch II (Part II)	LC

22	Common skink	Scincidae	<i>Mabuya carinatus</i>	NL	LC
MAMMALS					
23	Indian palm squirrel	Sciuridae	<i>Funambulus palmarum</i>	Schedule IV	LC
24	Indian hare	Leporidae	<i>Lepus nigricollis</i>	Schedule IV	LC
25	Indian Field Mouse	Muridae	<i>Mus booduga</i>	Schedule IV	LC
26	Asian Small Mongoose	Herpestidae	<i>Herpestes javanicus</i>	Schedule (Part II)	LC
AVES					
27	Indian pond heron	Ardeidae	<i>Ardeola grayii</i>	Schedule IV	LC
28	Black drongo	Dicruridae	<i>Dicrurus macrocercus</i>	Schedule IV	LC
29	Asian green bee-eater	Meropidae	<i>Meropsorientalis</i>	NL	LC
30	Red-breasted parakeet	Psittaculidae	<i>Psittacula alexandri</i>	NL	LC
31	Common Coot	Rallidae	<i>Fulica atra</i>	Schedule IV	LC
32	Common myna	Sturnidae	<i>Acridotheres tristis</i>	NL	LC
33	Shikra	Accipitridae	<i>Accipiter badius</i>	NL	LC
34	Koel	Cuculidae	<i>Eudynamys</i>	Schedule IV	LC
35	Common Quail	Phasianidae	<i>Coturnix coturnix</i>	Schedule IV	LC
36	Red-vented Bulbul	Pycnonotidae	<i>Pycnonotus cafer</i>	Schedule IV	LC
37	Brahminy starling	Sturnidae	<i>Sturnia pagodarum</i>	Schedule IV	LC
38	golden oriole	Oriolidae	<i>Oriolus kundoo</i>	Schedule IV	LC
39	Rose-ringed parakeet	Psittaculidae	<i>Psittacula kramera</i>	NL	LC
40	Common quail	Phasianidae	<i>Coturnix coturnix</i>	Schedule IV	LC
41	White-breasted waterhen	Rallidae	<i>Amaurornis phoenicurus</i>	NL	LC
42	Two-tailed Sparrow	Dicruridae	<i>Dicrurus macrocercus</i>	Schedule IV	LC
43	Grey Francolin	Phasianidae	<i>Francolinus pondicerianus</i>	Schedule IV	LC
44	House crow	Corvidae	<i>Corvus splendens</i>	NL	LC
AMPHIBIANS					
45	Indian Burrowing frog	Dicroglossidae	<i>Sphaerotheca breviceps</i>	Schedule IV	LC
46	Green Pond Frog	Ranidae	<i>Rana hexadactyla</i>	Schedule IV	LC
47	Tiger Frog	Chordata	<i>Hoplobatrachus tigerinus (Rana tigerina)</i>	Schedule IV	LC

*NL-Not listed, LC-Least concern, NT-Near threatened.

3.3.6.3 Agriculture Cropping Pattern 1km Radius

The most important crop in the 1km radius is *Saccharum officinarum*, *Arachis hypogaea*, *Benincasa hispida* and *Coccinia grandis* food crops. Important crops grown in the Vanur Taluk, Villupuram district are paddy, black gram, groundnut, cumbu, maize, watermelon, tapiaco, small onion, and sugarcane. It is cultivable under both irrigatable and rainfed condition. Agriculture cultivation is limited within a radius of 1km around the quarry lease area and the details are given in Table 3.28.

Table 3.28 Agriculture Cropping Pattern in 1km radius

S. No	Crop	Scientific Name	Family
1	Paddy	<i>Oryza sativa</i>	Poaceae
2	Cholam	<i>Sorghum</i>	Poaceae
3	Bajra	<i>Pennisetum glaucum</i>	Poaceae
4	Maize	<i>Zea mays</i>	Poaceae
5	Redgram	<i>Cajanus cajan</i>	Fabaceae
6	Ground Nut	<i>Arachis hypogaea</i>	Fabaceae
7	Gingelly	<i>Sesamum indicum</i>	Pedaliaceae
8	Sugar cane	<i>Saccharum officinarum</i>	Poaceae
9	Banana	<i>Musa</i>	Musaceae
10	Chilles	<i>Capsicum frutescens</i>	Solanaceae
11	Onion	<i>Allium cepa</i>	Amaryllidaceae

Horticulture 1km radius

Major horticulture crops cultivated in Kanchipuram district are fruit crops like mango, banana, Sapota and guava, vegetables like tomato, brinjal, ladies finger, chillies, onion and tapioca, spices like turmeric. Details of major field crops and horticulture cultivation in 1km radius is given in Table 3.29.

Table 3.29 Major Field Crops & Horticulture cultivation in 1km radius.

S. No	Common Name	Scientific Name	Family
Major Horticultural Crops			
1	Guava	<i>Psidium guajava</i>	Myrtaceae
2	Sapota	<i>Manilkara zapota</i>	Sapotaceae
3	Lemon	<i>Citrus × limon</i>	Rutaceae
4	Papaya	<i>Carica papaya</i>	Caricaceae
Vegetables			
5	Onion	<i>Allium cepa</i>	Amaryllidaceae
6	Tapioca	<i>Manihot esculenta</i>	Spurges
7	Brinjal	<i>Solanum melongena</i>	Nightshade
8	Tomato	<i>Solanum lycopersicum</i>	Nightshade

9	Bottle Gourd	<i>Lagenaria siceraria</i>	Cucurbits
10	Veandai kai	<i>Abelmoschus esculentus</i>	Mallows
11	Moringa	<i>Moringa oleifera</i>	Moringaceae

Results

Biological assessment of the site was done to identify ecologically sensitive areas and whether there are any rare, endangered, endemic or threatened (REET) species of flora & fauna in the core area as well its buffer zone to be impacted. The study has also been designed to suggest suitable mitigation measures, if necessary, for protection of wildlife habitats and conservation of REET species if any. The study found that there is no endemic, endangered migratory fauna found in the area. This area is not also a migratory path of any faunal species. Hence, this small mining operation over short period of time will not have any significant impact on the surrounding flora and fauna.

3.3.7 SOCIO ECONOMIC ENVIRONMENT

The major developmental activities in mining/Industrial sector are required for economic development as well as creation of employment opportunities (direct and indirect) and to meet the basic/modern needs of the society, which ultimately results in overall improvement of the quality of life through upliftment of social, economic, health, education and nutritional status in the project region, state as well as the country. In this manner all developmental projects have direct as well as indirect relationships with socioeconomic aspects, which also include public acceptability for new developmental projects. Thus, the study of socioeconomic component incorporating various facets related to prevailing social and cultural conditions and economic status of the rough stone and granite quarry project region is an important part of EIA study. The study of these parameters helps in identification, prediction and evaluation of the likely impacts on the socio economics and parameters of human interest due to the project

Objectives of the Study

The objectives of the socio-economic impact assessment are as follows:

- a) To study the socio-economic status of the people living in the study area of the project.
- b) To identify the basic needs of the nearby villages within the study area.
- c) To assess the impact on socio-economic environment due to the project.
- d) To provide the employment and improved living standards.
- e) To analysis of impact of socio economic and Environmental Infrastructure facilities and road accessibility.

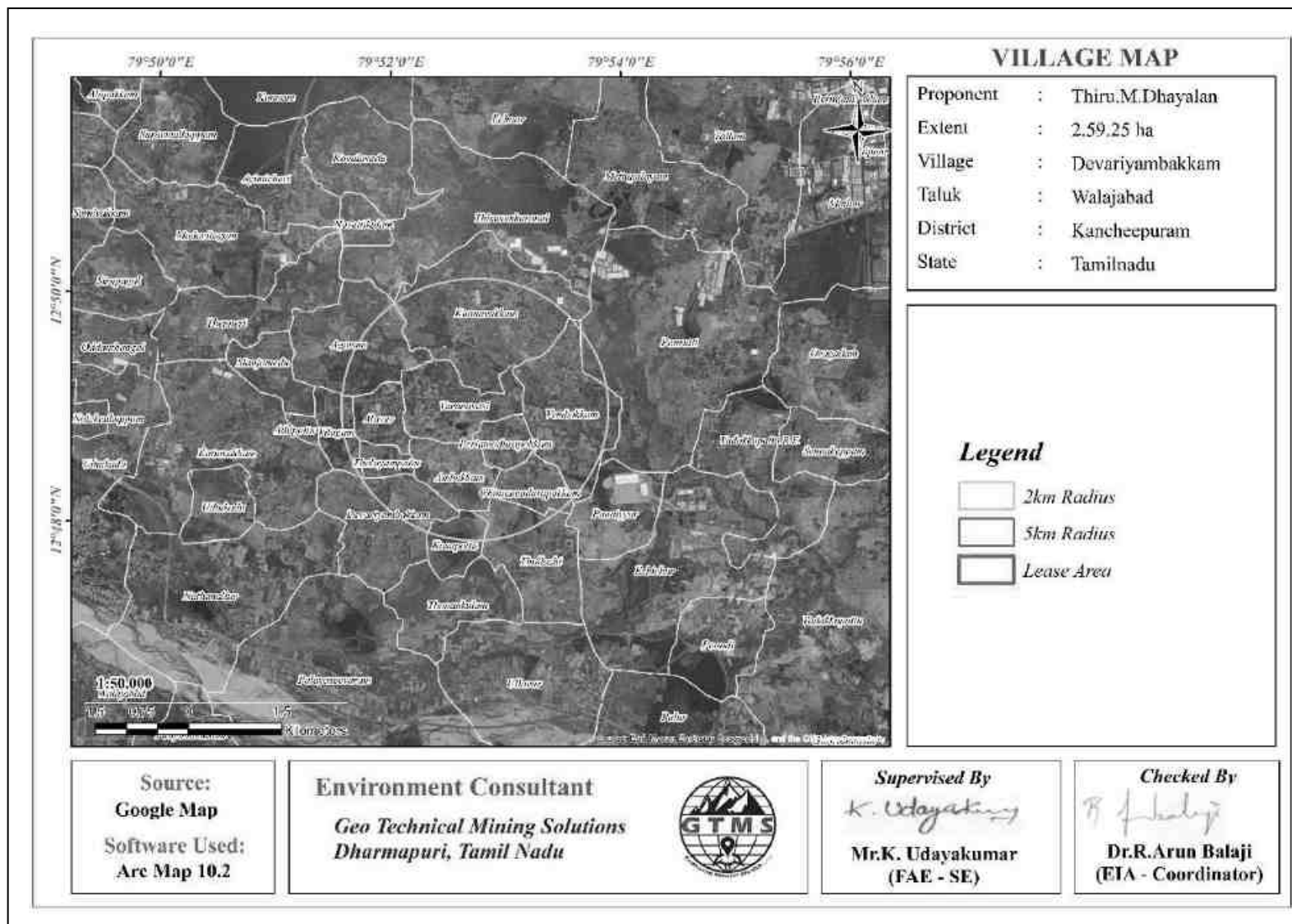


Figure 3.26 Socio Economic Village Boundary Map

Baseline Information:

The baseline information is collected in order to define the socio-economic profile of the study area. The process related database thus generated includes:

- Demographic structure
- Infrastructure base in the area
- Economic structure
- Health status
- Cultural attributes
- Public awareness and their concern about the project

Scope of Work

- To study the Socio-economic Environment of area from the secondary sources
- Primary and secondary Data Collection and Analysis
- Identification of impacts due to the mining projects
- Mitigation Measures

Methodology

The methodology adopted for the socio-economic impact assessment is as follows:

- a) Data such as number of houses, population, literacy, employment opportunities etc. will be collected directly from local people and analysed.
- b) The details of the activities and population structure have been obtained from Census 2011 and analysed.
- c) Based on the above data, impacts due to plant operation on the community have been assessed and recommendations for further improvement have been made.

Sources of Information and Data Base

To achieve the above objectives, the information has been collected from both primary and secondary sources. Both primary data and secondary data have been analysed by means of suitable statistical techniques for the purpose of verifying the above selected hypotheses concerned with the surrounding area.

Primary Survey

The primary data collection includes the collection of data through a structured interview schedule by direct observation method. The questionnaire survey includes both open and closed methods. The sample size is limited respondents, who were selected on the basis of simple random sampling from Devariyambakkam Village, Walajabad Taluk, Kancheepuram District Tamil Nadu State, in the field survey has been divided into two major segments namely Primary Zone (0 -2 km) and Secondary Zone (2 - 5 km). The questionnaires were designed to

suit the subjects considering their rural background enabling to furnish correct information and data as far as possible. Data were collected at village level and household level by questionnaires and focused group discussions.

Collection of Data from Secondary Sources

Data from secondary sources were collected on following aspects:

- Demographic profile of the area
- Economic profile of the area

Table 3.30 Type of Information and Sources

Information	Source
Demography	District Census Handbook, Govt. of India
Economic profile of the area	Census of India, Tamil Nadu State

Kancheepuram District

Kancheepuram district is situated on the northern East Coast of Tamil Nadu and is adjacent by Bay of Bengal and Chennai city and is bounded in the west by Vellore and Thiruvannamalai district, in the north by Thiruvallur district and Chennai district, in the south by Villuppuram district in the east by Bay of Bengal. The district has been divided into 2 revenue divisions comprising of 5 taluks with 520 revenue villages. For development reasons, it is divided into 5 development blocks with 274 Village Panchayats.

In 2011, Kancheepuram had population of 3,998,252 of which male and female were 2,012,958 and 1,985,294 respectively. In 2001 census, Kancheepuram had a population of 2,877,468 of which males were 1,457,242 and remaining 1,420,226 were females. Average literacy rate of Kancheepuram in 2011 were 84.49 compared to 84.49 of 2001. If things are looked out at gender wise, male and female literacy were 89.89 and 79.02 respectively. For 2001 census, same figures stood at 84.73 and 68.79 in Kancheepuram District. Total literate in Kancheepuram District were 3,013,382 of which male and female were 1,611,461 and 1,401,921 respectively. In 2001, Kancheepuram District had 1,952,198 in its district.

With regards to Sex Ratio in Kancheepuram, it stood at 986 per 1000 male compared to 2001 census figure of 975. The average national sex ratio in India is 940 as per latest reports of Census 2011 Directorate. In 2011 census, child sex ratio is 959 girls per 1000 boys compared to figure of 961 girls per 1000 boys of 2001 census data. The district had a total of 1,006,245 households. There was a total of 1,673,814 workers, comprising 74,761 cultivators, 162,494 main agricultural labourers, 41,149 in house hold industries, 1,088,974 other workers, 306,436 marginal workers, 14,582 marginal cultivators, 110,020 marginal agricultural labourers, 13,583 marginal workers in household industries and 168,251 other marginal workers.

Source: <https://www.census2011.co.in/census/city/471-kancheepuram.html>

Study area- Devariyaibakkam Village, Walajabad Taluk

Devariyaibakkam is a medium size village located in Walajabad Taluka of Kancheepuram district, Tamil Nadu with total 232 families residing. The Devariyaibakkam village has population of 875 of which 426 are males while 449 are females as per Population Census 2011.

In Devariyaibakkam village population of children with age 0-6 is 102 which makes up 11.66 % of total population of village. Average Sex Ratio of Devariyaibakkam village is 1054 which is higher than Tamil Nadu state average of 996. Child Sex Ratio for the Devariyaibakkam as per census is 1125, higher than Tamil Nadu average of 943. Devariyaibakkam village has lower literacy rate compared to Tamil Nadu. In 2011, literacy rate of Devariyaibakkam village was 73.87 % compared to 80.09 % of Tamil Nadu. In Devariyaibakkam Male literacy stands at 87.04 % while female literacy rate was 61.27 %.

Table. 3.31 Devariyaibakkam Village Population Facts

Particulars	Total	Male	Female
Total No. of Houses	232	-	-
Population	875	426	449
Child (0-6)	102	48	54
Schedule Caste	138	63	75
Schedule Tribe	-	-	-
Literacy %	73.87	87.04	61.27
Total Workers	435	263	172
Main Worker	428	-	-
Marginal Worker	7	1	6

Source: <https://www.census2011.co.in/data/village/629694-devariyaibakkam-tamil-nadu.html>

Working Population- Devariyaibakkam Village, Walajabad Taluk

In Devariyaibakkam village out of total population, 435 were engaged in work activities. 98.39 % of workers describe their work as Main Work (Employment or Earning more than 6 Months) while 1.61 % were involved in Marginal activity providing livelihood for less than 6 months. Of 435 workers engaged in Main Work, 82 were cultivators (owner or co-owner) while 202 were Agricultural labourer.

Benefits:

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 medical facilities, conveyance, free education, drinking water supply etc. The number of villages and settlements within a radius of 5 km from the project site along with population, their education level etc. are given in the table 3.32.

Table 3.32 Population and Literacy Data of Study Area

Village Name	No. of Houses	Total Population		Child (0-6)		Schedule Caste		Schedule Tribe		Literacy		Total Workers	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Agaram	251	497	506	57	47	204	214	0	0	400	352	299	178
Alavur	137	267	290	20	32	223	244	12	12	204	174	135	50
Ambakkam	269	522	495	79	60	382	350	18	13	313	255	283	136
Ayimicheri	287	541	580	60	60	465	511	0	0	347	281	330	187
Chinnamadurapakkam	80	172	146	15	9	166	138	0	0	122	91	104	83
Devariyaambakkam	232	426	449	48	54	63	75	0	0	329	242	263	172
Echoor	650	1360	1338	136	122	394	359	16	7	994	750	815	649
Ezhichur	343	658	715	74	78	447	490	0	0	457	429	381	226
Kattavakkam	269	523	540	52	51	412	412	15	23	361	296	300	172
Kosapattu	68	102	134	10	24	94	124	0	0	64	63	69	48
Kovalavedu	166	371	377	31	44	95	113	0	0	315	246	205	78
Kunnam	521	1001	1036	127	122	277	302	15	18	757	599	597	206
Kunnavakkam	334	698	699	89	88	316	302	2	3	415	309	404	345
Madavilagam	215	419	409	30	44	0	0	0	0	257	205	273	235
Manjamedu	131	221	241	21	31	201	216	6	11	161	138	150	84
Mathur	392	817	811	94	70	494	528	0	0	627	539	528	309
Mettupalayam	271	557	511	71	72	395	418	0	0	374	296	341	162
Nathanallur	520	1047	1111	113	145	319	332	35	37	690	598	630	508
Navettikulam	38	62	78	6	13	0	0	20	24	35	35	44	8
Oddanthangal	44	179	144	18	26	44	37	5	2	146	90	39	19

Oragadam	213	410	409	53	43	184	191	1	1	296	248	231	125
Palayaseevaram	1411	2792	2482	325	356	1208	1234	18	15	2013	1550	1587	571
Palur	1660	3466	3498	431	402	2189	2315	137	148	2496	2141	2118	1269
Panaaiyyur	156	328	322	35	45	211	225	0	0	246	194	184	109
Panrutti	423	1088	858	107	90	352	351	4	0	876	552	536	209
Periamadurapakkam	260	524	497	69	74	21	19	116	109	416	322	292	36
Poondi	17	37	27	4	2	0	0	0	0	27	16	21	1
Sennakuppam	227	482	483	46	48	466	463	1	4	331	312	259	111
Sirupagal	83	152	155	8	16	31	39	0	0	138	111	74	51
Thalayampattu	72	122	153	11	14	120	151	0	0	104	108	77	26
Thenneri	541	1022	1079	119	127	768	823	12	9	687	585	612	307
Thiruvénkaranaï	432	831	837	95	91	320	327	23	26	537	412	531	469
Thollazhi	272	501	479	60	48	233	210	0	0	347	240	296	176
Thonankulam	123	216	219	28	24	145	142	12	12	143	121	125	116
Ullavur	444	908	841	101	100	483	445	17	21	662	434	437	220
Uthukadu	1118	2288	2240	241	254	325	328	16	20	1723	1347	1345	742
Vallam	709	1506	1331	161	130	768	777	16	17	1149	834	977	333
Varanavasi	193	408	389	58	36	249	242	12	10	264	217	250	146
Vembakkam	253	560	539	53	64	275	254	22	23	411	292	367	217
Vilagam	334	664	646	82	78	214	202	27	18	468	372	431	239
Total	13899	28221	27957	3169	3170	14132	14488	462	474	20352	16074	16648	9292

Source: <https://www.census2011.co.in/census/district/22-kancheepuram.html>

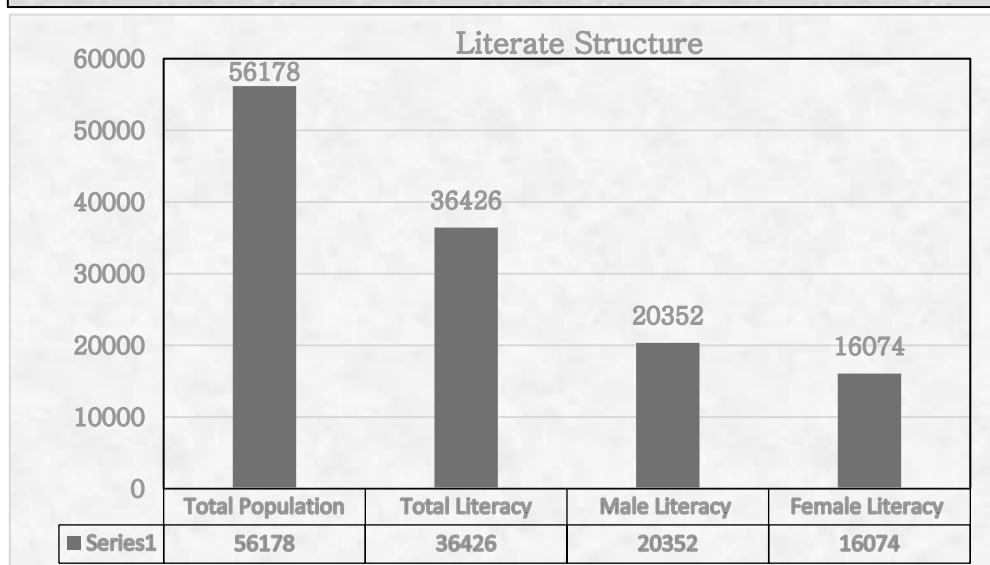
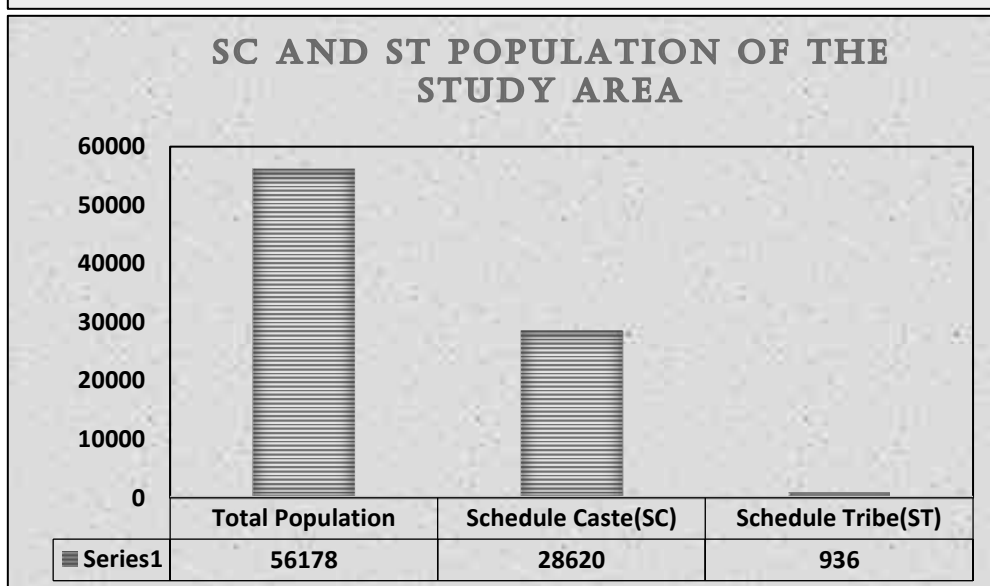
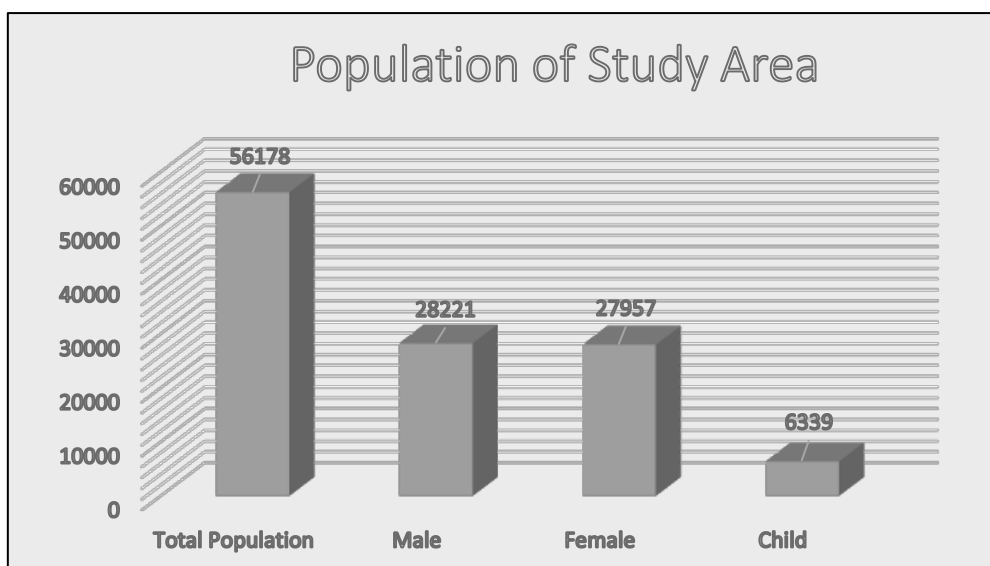


Figure 3.27 Chart Diagram about Population, SC, ST and Literacy in Surrounding Villages

Table 3.33 Workers Profile of Study Area

Village	Total Worker Population Person	Total Worker Population Male	Total Worker Population Female	Main Working Population Person	Main Cultivator Population Person	Main Agricultural Labourers Population	Main Other Workers Population Person	Non-Working Population Person
Agaram	477	299	178	358	31	100	198	526
Alavur	185	135	50	101	1	3	94	372
Ambakkam	419	283	136	182	3	2	173	598
Ayimicheri	517	330	187	490	11	267	204	604
Chinnamadurapakkam	187	104	83	187	3	103	79	131
Devariyaambakkam	435	263	172	428	82	202	135	440
Echoor	1464	815	649	1120	88	402	466	1234
Ezhichur	607	381	226	537	33	204	295	766
Kattavakkam	472	300	172	466	16	252	196	591
Kosapattu	117	69	48	100	7	49	44	119
Kovalavedu	283	205	78	108	4	2	99	465
Kunnam	803	597	206	615	55	259	252	1234
Kunnavakkam	749	404	345	296	66	141	65	648
Madavilagam	508	273	235	216	46	122	45	320
Manjamedu	234	150	84	233	0	124	108	228
Mathur	837	528	309	625	31	21	565	791
Mettupalayam	503	341	162	391	46	26	310	565
Nathanallur	1138	630	508	777	127	276	350	1020

Navettikulam	52	44	8	52	20	0	32	88
Oddanthangal	58	39	19	55	0	29	26	265
Oragadam	356	231	125	331	7	6	316	463
Palayaseevaram	2158	1587	571	1753	141	273	1318	3476
Palur	3387	2118	1269	2297	96	737	1429	3577
Panaiyyur	293	184	109	280	34	26	220	357
Panrutti	745	536	209	670	15	52	598	1201
Periamadurapakkam	328	292	36	309	37	23	19	531
Poondi	22	21	1	17	6	1	10	42
Sennakuppam	370	259	111	340	7	18	315	595
Sirupagal	125	74	51	85	1	65	15	182
Thalayampattu	103	77	26	91	3	34	53	172
Thenneri	919	612	307	792	142	168	474	1182
Thiruvankaranai	1000	531	469	516	138	107	192	668
Thollazhi	472	296	176	376	24	143	202	508
Thonankulam	241	125	116	241	4	166	69	194
Ullavur	657	437	220	369	75	153	132	1092
Uthukadu	2087	1345	742	1745	224	568	889	2441
Vallam	1310	377	333	1267	128	341	776	1527
Varanavasi	396	250	146	334	41	113	178	401
Vembakkam	584	367	217	442	47	51	319	515
Vilagam	670	431	239	478	33	287	120	640

Source: <https://www.census2011.co.in/census/district/22-kancheepuram.html>

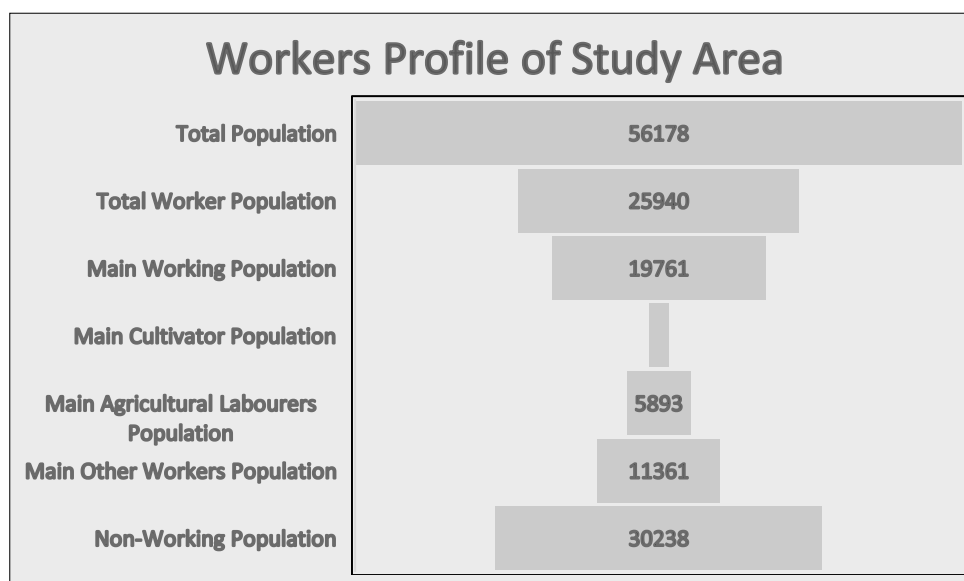


Figure 3.28 Chart Diagram about Workers Profile in Surrounding Villages

As per SEAC recommendation the project proponent should spend minimum of 5 lakhs to the nearby school from the proposed project site as part of CER cost. Also, the village panchayat will get direct benefit from the government through District mineral Resource fund (DMF) for infrastructure development activities.

Awareness and opinion of the people about the project for the assessment of awareness about the project activities and opinion about it, following salient observations were recorded, During survey it was observed that only nearby villagers are aware and other villagers are not aware about the proposed project.

People in the region expect job opportunities and improvement in educational, transportation and sanitation facility from project authority.

Recommendation and Suggestions

The village development plans are made in consultation with the community through Gram Sabha; these appear to address the needs of the community. However, it may be noted that at the implementation stage these plans often are fraught with problem of inadequate funds, lack of proper planning, corruption, vested interests and political agendas. Hence while ascertaining the scope for convergence with the government activities, care must be taken to ascertain realistic possibilities for implementation.

- Women empowerment– Home based income generation activities, vocational training programs and common education centre for increasing the literacy rate.
- Education – Free uniform, construction of common rooms and library, computer education and physical education, additional schools for girls, furniture and equipment in schools, up-gradation of existing school infrastructure.

- Agriculture/livestock – Infrastructure such as agricultural practices, electricity connections, assistance with buying improved tools and equipment, capacity building, supply and/or knowledge of better variety of seeds, pasture land development and trainings on animal husbandry & facility of veterinary doctor.
- Health – Improvements in sanitary conditions of villages, assistance with construction of latrines, improvement in drainage system, health camps and awareness campaigns for diseases like common cold, malaria, typhoid, tuberculosis, yellow fever and pneumonia. Repairing of PHCs and Anganwadi centres.
- People with disability – Establishment of centre for special education, sensitization of the community towards disabled and awareness on Government schemes.
- While Developing an Action Plan, it is very important to identify the population who falls under the marginalized and vulnerable groups. So that special attention can be given to these groups with special provisions while making action plans.
- Connectivity – Transport connectivity to easiness accessibility to the region.

Conclusion

The socio-economic study of surveyed villages gives a clear picture of its population, average household size, literacy rate and sex ratio etc. It is also found that a part of population is suffering from lack of permanent job to run their day-to-day life. To evaluate the impacts of proposed quarry project on the surrounding area, it is vital to assess the baseline status of the environmental quality in the locality of the site. Hence, it can be concluded that the present environment status of the study area will not be affected by the Devariyambakkam rough stone and gravel cluster Quarries project. Hence, we adopt adequate control measures to protect the surrounding environment and will contribute in development of the study areas. The proposed project will provide preferential of employment to the local people there by the livelihood standards will be improved.

3.4 Traffic Density

The traffic survey conducted based on the transportation route of material, the Roughstone is proposed to be transported mainly through Village Road and Walajabad-Thambaram (SH-48) as shown in Table 3.34 and in Figure 3.29. Traffic density measurements were made continuously for 24 hours by visual observation and counting of vehicles under three categories, viz., Heavy motor vehicles, light motor vehicles and two/three wheelers. As traffic densities on the roads are high, two skilled persons were deployed simultaneously at each station. During each shift one person on either direction for counting the traffic. At the

end of each hour, fresh counting and recording was undertaken. Direction for counting the traffic. At the end of each hour, fresh counting and recording was undertaken.

Table 3.34 Traffic Survey Locations

Station Code	Road Name	Distance and Direction	Type of Road
TS1	Village Road	0.76 Km-SW	Village Road
TS2	Walajabad – Thambaram	0.9 Km- W	SH-48

Source: On-site monitoring by GTMS FAE & TM

Table 3.35 Existing Traffic Volume

Station code	HMV		LMV		2/3 Wheelers		Total PCU
	No	PCU	No	PCU	No	PCU	
TS1	35	105	42	42	69	35	182
TS2	98	294	51	51	102	51	396

Source: On-site monitoring by GTMS FAE & TM

* PCU conversion factor: HMV (Trucks and Bus) = 3, LMV (Car, Jeep and Auto) = 1 and 2/3 Wheelers = 0.5

Table 3.36 Transportation Requirement

Transportation of Rough stone Per day		
Capacity of trucks	No. of Trips per day	Volume in PCU
15 tonnes	52	156

Source: Approved Mining Plan

Table 3. 37 Summary of Traffic Volume

Route	Existing traffic volume in PCU	Incremental traffic due to the project	Total traffic volume	Hourly Capacity in PCU as per IRC – 1960guidelines
Village Road	182	21	203	1200
Walajabad-Thambaram	396	21	417	1200

Source: On-site monitoring analysis summary by GTMS FAE & TM

Due to these projects the existing traffic volume will not exceed the traffic limit. As per the IRC 1960 this existing village road can handle 1,200 PCU in hour and Major District Road can handle 1500 PCU in hour. Hence there will not be any conjunction due to this proposed transportation

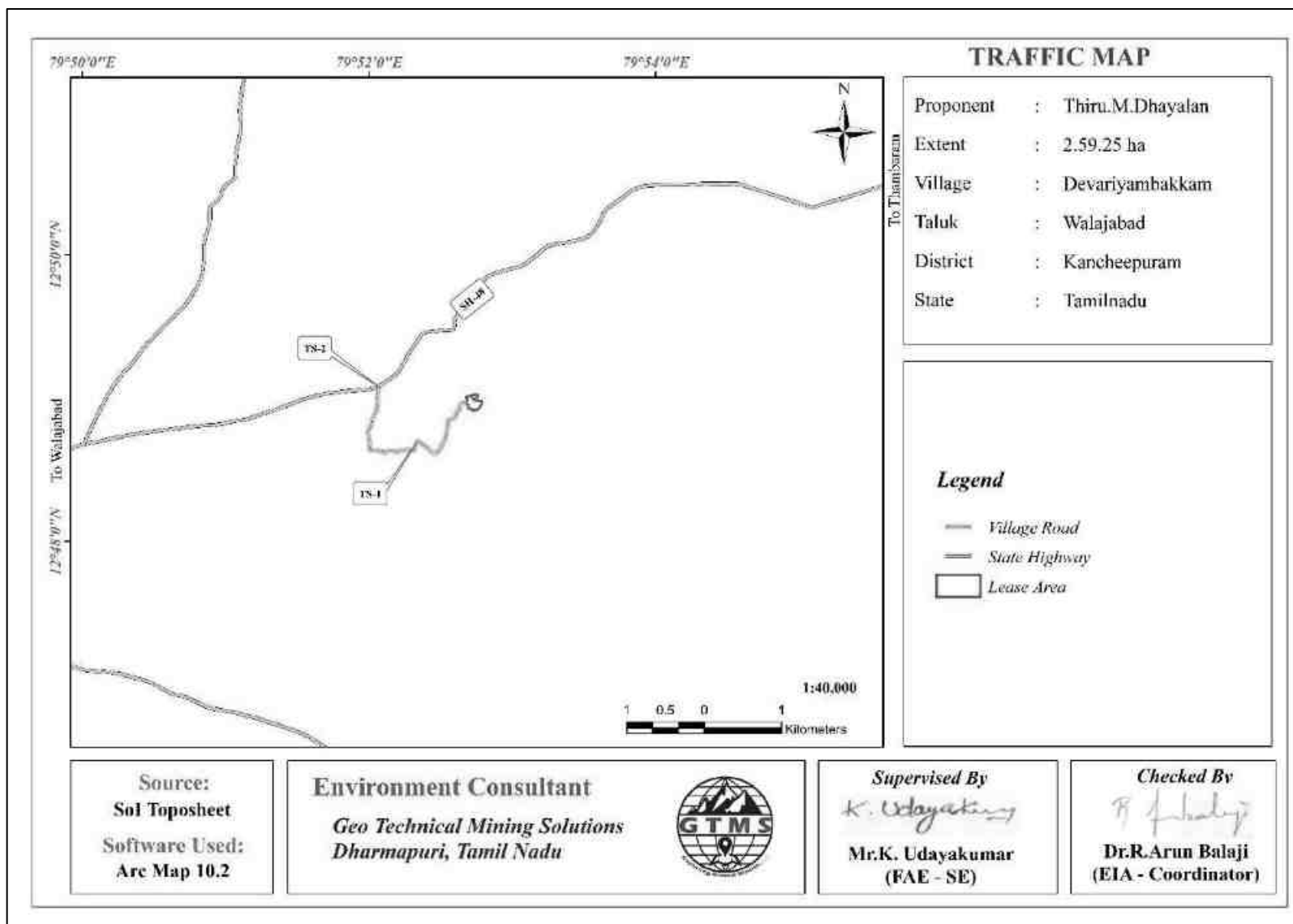


Figure 3.29 Traffic Density Map

3.5 Site Specific Features

There are no Wildlife Sanctuaries, Reserve Forest and National Park within the project area to 10 km radius. There is no Protected and Reserved Forest area is found within 10 km radius from the proposed project area. Therefore, there will be no need of acquisition/diversion of forest land. The details related to the environment sensitivity around the proposed mine lease area i.e., 10 km radius and the nearby water bodies are given in the Table 3.38.

Table 3.38 Details of Environmentally Sensitive Ecological Features in the Study Area

S. No.	Sensitive Ecological Features	Name	Areal Distance in km
1	National Park / Wild life Sanctuaries	None	Nil within 10 km radius
		None	Nil within 10 km radius
2	Reserve Forest	Vadakkupattu	4.83 km E
		Vattambakkam	8.58 km E
		Kavanipakkam	9.81 km S
		Appur	9.17 km SE
3	Lakes/Reservoirs/ Dams/Streams/Rivers	Devariampakkam	0.18 km SW
		Thenneri Lake-Palar Canal	0.69 km E
		Mel Thangal Lake	3.80 km SW
		Palar River	5.02 km S
4	Tiger Reserve/Elephant Reserve/ Biosphere Reserve	None	Nil within 10 km radius
5	Densely Polluted Areas	None	Nil within 10 km radius
6	Mangroves	None	Nil within 10 km radius
7	Mountains/Hills	None	Nil within 10 km radius
8	Centrally Protected Archaeological Sites	None	Nil within 10 km radius
9	Industries/ Thermal Power Plants	None	Nil within 10 km radius
10	Defence Installation	None	Nil within 10 km radius

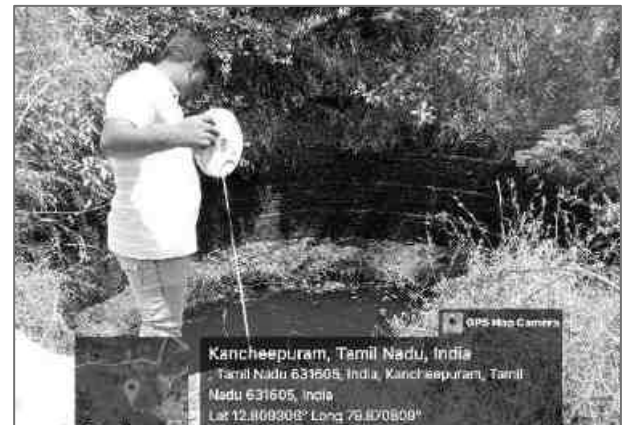


Figure 3.30 Field Study & Socio-Economic Study Photographs

CHAPTER IV

ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.0 INTRODUCTION

This chapter deals with not only the anticipated environmental impacts due to the proposed mining activities of the proposed mine lease area. Further, this chapter deals with the mitigation measures for the identified significant environmental impacts of the mining activities in quarry site.

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

Anticipated Environment Impacts Identification of all potential Environmental Impacts due to the open cast mining activity is an essential step of environmental impact assessment. These are critically examined and major impacts (both beneficial and adverse) are further examined and studied. In the mining project, the impact on air environment, noise environment, ecological environment, water environment, land environment (waste management) and social issues are significant. The significant impacts due to the mining activity are impacts on land use, drainage, air quality, ecology, noise, vibration, social impacts etc. Allied operations such as transportation of materials, operation of work shop affect the air, water and noise environment. Clearance of natural vegetation adversely affects the flora and fauna of the areas due to the changed environment and loss of habitats. There are few positive impacts like creation of employment opportunities and development of infrastructure such as roads etc due to the proposed mining activity.

4.2 MEASURES FOR MINIMIZING AND /OF OFFSETTING ADVERSE IMPACTS IDENTIFIED

4.2.1 Land Environment

Anticipated Impact

Permanent or temporary change on land use and land cover.

Change in topography of the mine lease area will change at the end of the life of the mine.

Problems to agricultural land and human habitations due to dust, and noise caused by movement of heavy vehicles

Degradation of the aesthetic environment of the core zone due to quarrying

Soil erosion and sediment deposition in the nearby water bodies due to earthworks during the rainy season

Siltation of water course due to wash off from the exposed working area

Mitigation Measures

The mining activity will be gradual confined in blocks and excavation will be undertaken progressively along with other mitigate measures like phase wise development of greenbelt etc.

Construction of garland drains all around the quarry pits and construction of check dam at strategic location in lower elevations to prevent erosion due to surface runoff during rainfall and also to collect the storm water for various uses within the proposed area.

Green belt development along the boundary within safety zone. The small quantity of water stored in the mined-out pit will be used for greenbelt

Thick plantation will be carried out on unutilized area, top benches of mined out pits, on safety barrier, etc.,

At conceptual stage, the land use pattern of the quarry will be changed into Greenbelt area and temporary reservoir.

4.2.2 Soil Environment

Anticipated Impact

This project does not result in any impact on the soil of the project site as topsoil is neither removed from the project site nor preserved in the safety margin area. However, some of the common mitigation measures have been discussed in the following sections to protect the immediate soil environment surrounding the lease area.

Soil Erosion

Low to moderate soil erosion is observed in the south side of the lease area

Mitigation Measures

Soil erosion is very low in the proposed lease area. Therefore, the lease area will not cause soil erosion in any way. but Run-off diversion – Garland drains will be constructed around the project boundary to prevent surface flows from entering the quarry works areas and will be discharged into vegetated natural drainage lines, or as distributed flow across an area stabilised against erosion. Soil Erosion Map Showing in Figure 3.6

Sedimentation ponds - Run-off from working areas will be routed towards sedimentation ponds. These trap sediment and reduce suspended sediment loads before runoff is discharged from the quarry site. Sedimentation ponds should be designed based on runoff, retention times, and soil characteristics. There may be a need to provide a series of sedimentation ponds to achieve the desired outcome.

Retain vegetation – Retain existing or re-plant the vegetation at the site wherever possible.

Monitoring and maintenance – Weekly monitoring and daily maintenance of erosion control systems so that they perform as specified specially during rainy season.

4.2.3 Water Environment

Anticipated Impact

As the water required for the mining operations, as given in Table 2.10 is obtained from the approved water supplying agency, the project does not develop any abstraction structures in the lease area. Therefore, no impact responsible for the water table declination is anticipated.

Surface and ground water resources may be contaminated due to mine pit water discharge, domestic sewage, waste water from vehicle washing, washouts from surface exposure or working areas, discharge of oil & grease, and suspended solids due to waste from washing of machineries. To address this impact, some of the important mitigation measures is provided as below.

Mitigation Measures

Garland drainage system and settling tank will be constructed along the proposed mining lease area. The garland drainage will be connected to settling tank and sediments will be trapped in the settling tanks and only clear water will be discharged to the natural drainage

Rainwater from the mining pits will be collected in sump and will be allowed to store and pumped out to surface settling tank of 15 m x 10 m x 3 m to remove suspended solids if any. This collected water will be judiciously used for dust suppression 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 rainwater harvesting system.

The water collected will be reused during storm for dust suppression and greenbelt development within the mines.

Interceptor traps/oil separators will be installed to remove oils and greases. Water from the tipper wash-down facility and machinery maintenance yard will be passed through interceptor traps/oil separators prior to its reuse.

Flocculating or coagulating agents will be used to assist in the settling of suspended solids during monsoon seasons.

Periodic (every 6 month once) analysis of ground water quality of quarry pit water and ground water of nearby villages will be conducted.

Domestic sewage from site office and urinals/latrines provided in ML is discharged in septic tank followed by soak pits.

Waste water discharge from mine will be treated in settling tanks before using for dust suppression and tree plantation purposes.

De-silting will be carried out before and immediately after the monsoon season.

Regular monitoring (once every 6 months) and analysing the quality of water in open well, bore wells and surface water.

4.2.4 Air Environment

Anticipated Impact

Emission of air pollutants such as particular matter (PM), gases such as sulphur dioxide, oxides of nitrogen at various stages of activities such as excavation and transportation of materials. The rate of emission and the incremental concentration of pollutants is estimated in the following sections before providing mitigation measures.

Emission Estimation

Emission resulting from different mining activities is estimated using relevant empirical formulae developed by Chaulya et al.,2001. The equations used for SPM emission estimation have been given in Table 4.1.

Table 4.1 Empirical Formula for Emission Rate from Overall Mine

	Pollutant	Source Type	Empirical Equation	Parameters
Overall Mine	SPM	Area	$E = [u^{0.4} a^{0.2} \{9.7 + 0.01p + b/(4 + 0.3b)\}]$	u = Wind speed(m/s); p = Mineral production (Mt/yr); b = Overburden handling (Mm ³ /yr); a = Lease area(km ²); E = Emission rate(g/s).

The emission rate thus calculated using the empirical formula is used as one of the inputs in the AERMOD modelling. It is important to note that PM₁₀ emission rate is derived from the SPM estimation in the background that PM₁₀ constitutes 52% of SPM emission. The PM_{2.5} and PM₁₀ emission results have been given in Table 4.2.

Table 4.2 Estimated Emission Rate

Activity	Pollutant	Calculated Value (g/s)	Lease Area in m ²	Calculated Value (g/s/m ²)
Overall Mine	PM _{2.5}	2.3420	259250	9.03375E-05
Overall Mine	PM ₁₀	1.1710	259250	4.51687E-05

Modelling of Incremental Concentration

Anticipated incremental concentration and net increase in emissions due to quarrying activities within 500 m around the project area is predicted by open pit source modelling using AERMOD Software and the incremental values of the air pollutants were added to the base line data monitored at the proposed site to predict total GLC of the pollutants, as shown in Tables 4.3-4.4.

Model Results

The post project resultant concentrations of PM₁₀ and PM_{2.5} (GLC) is given in Tables 4.3-4.4.

Table 4.3 Incremental & Resultant GLC of PM_{2.5}

Station ID	Distance to core area (km)	Direction	PM _{2.5} concentrations($\mu\text{g}/\text{m}^3$)			Comparison against air quality standard (60 $\mu\text{g}/\text{m}^3$)	Magnitude of change (%)	Significance
			Baseline	Predicted	Total			
AAQ1	--	--	18.3	4.94	23.24	Below standard	27.0	Not significant
AAQ2	0.32	SE	17.4	0.4	17.8		2.3	
AAQ3	0.53	W	16.4	1	17.4		6.1	
AAQ4	1.28	NE	17.7	0	17.7		0.0	
AAQ5	2.40	SE	14.3	0	14.3		0.0	
AAQ6	2.93	SW	15.0	0.4	15.4		2.7	
AAQ7	3.55	SW	16.2	0.2	16.4		1.2	

Table 4.4 Incremental & Resultant GLC of PM₁₀

Station ID	Distance to core area (km)	Direction	PM ₁₀ concentrations($\mu\text{g}/\text{m}^3$)			Comparison against air quality standard (100 $\mu\text{g}/\text{m}^3$)	Magnitude of change (%)	Significance
			Baseline	Predicted	Total			
AAQ1	--	--	50.1	9.8	59.9	Below standard	19.6	Not significant
AAQ2	0.32	SE	42.9	1	43.9		2.3	
AAQ3	0.53	W	41.9	4	45.9		9.5	
AAQ4	1.28	NE	43.6	0	43.6		0.0	
AAQ5	2.40	SE	43.1	0	43.1		0.0	
AAQ6	2.93	SW	41.9	1	42.9		2.4	
AAQ7	3.55	SW	45.1	0.4	45.5		0.9	

The values of cumulative concentration i.e., background + incremental concentration of pollutant in all the receptor locations are still within the prescribed NAAQ limits without effective mitigation measures. By adopting suitable mitigation measures, the pollutant levels in the atmosphere can be controlled further.

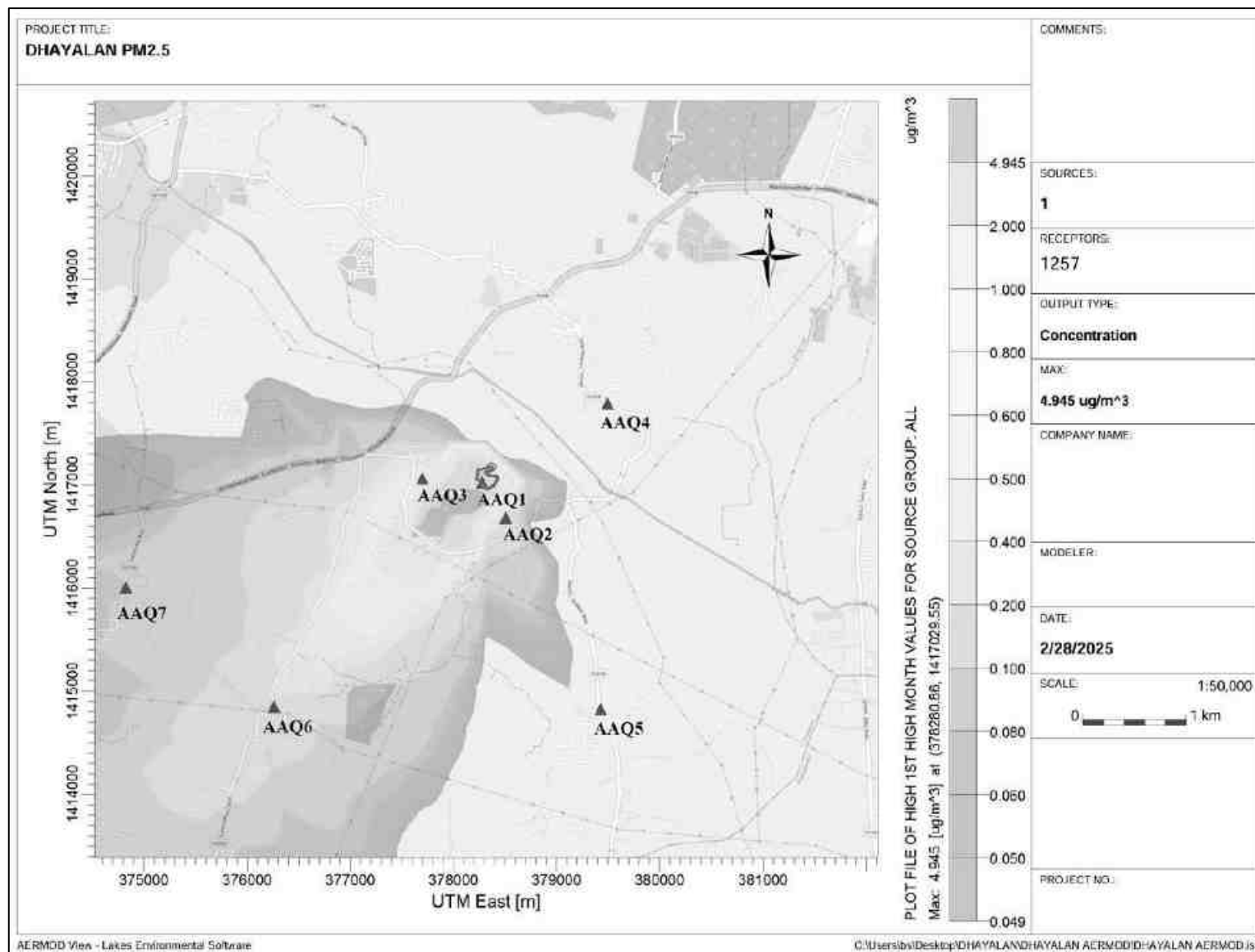


Figure 4.1 Predicted Incremental Concentration of PM_{2.5}

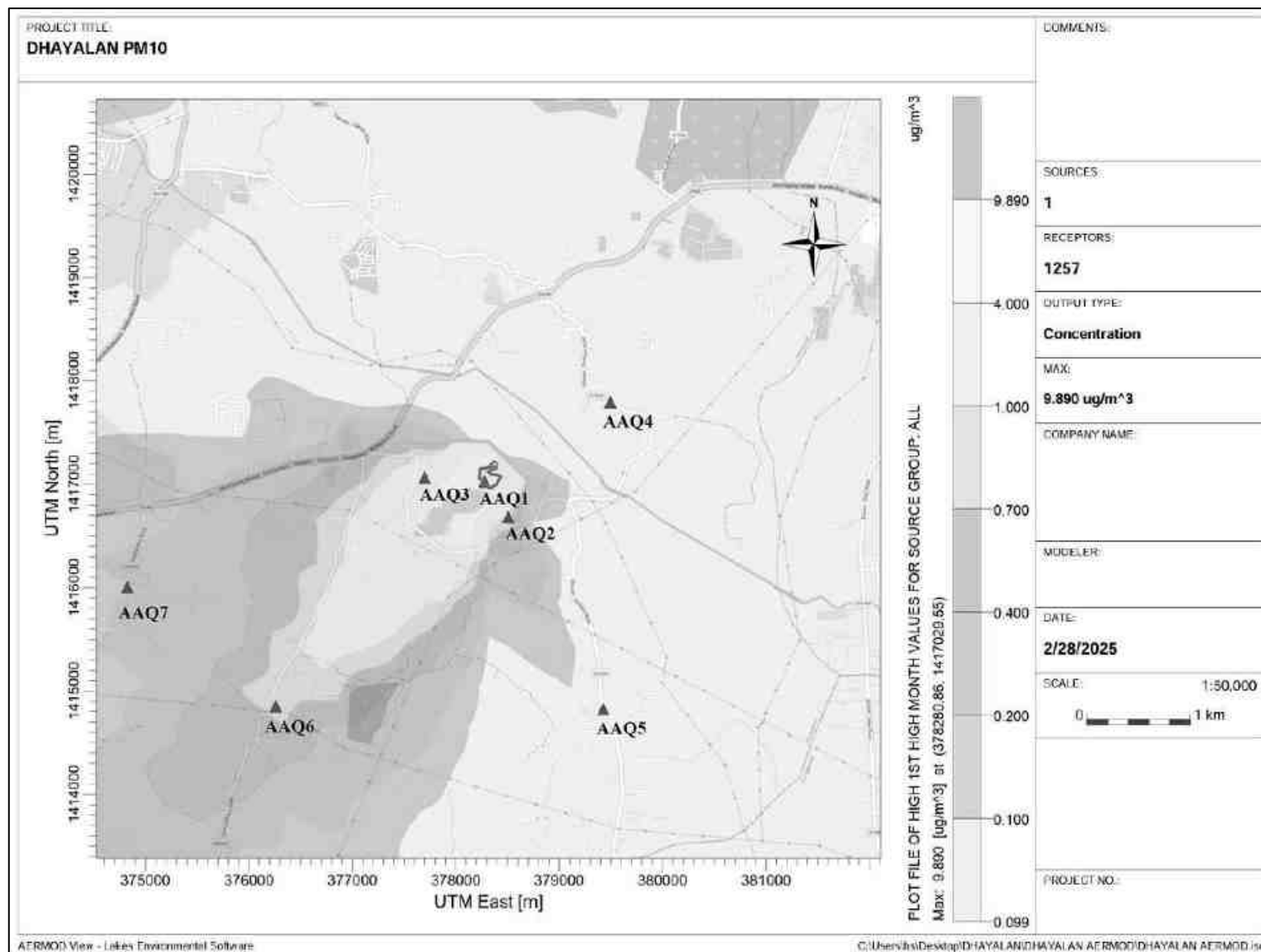


Figure 4.2 Predicted Incremental Concentration of PM₁₀

Mitigation Measures

Haul Road and Transportation

Water will be sprinkled on haul roads twice a day to avoid dust generation during transportation

Transportation of material will be carried out during day time and material will be covered with tarpaulin

The speed of tippers plying on the haul road will be limited to < 20 km/hr to avoid generation of dust

Water sprinkling on haul roads and loading points will be carried out twice a day

Main source of gaseous pollution will be from vehicle used for transportation of mineral. Therefore, weekly maintenance of machines improves combustion process and reduces pollution.

The un-metalled haul roads will be compacted weekly before being put into use.

Overloading of tippers will be avoided to prevent spillage.

It will be ensured that all transportation vehicles carry a valid PUC certificate.

Haul roads and service roads will be graded to clear accumulation of loose materials.

Green Belt

Planting of trees all along mine haul roads outside the lease and regular grading of haul roads will be practiced to prevent the generation of dust due to movement of tractors/tippers.

Green belt of adequate width will be developed around the project site.

Occupational Health

Dust mask will be provided to the workers and their use will be strictly monitored.

Annual medical checkups, trainings and campaigns will be arranged to ensure awareness about importance of wearing dust masks among all mine workers and tipper drivers.

Ambient air quality monitoring will be conducted every six months to assess effectiveness of mitigation measures proposed.

4.2.5 Noise Environment

Noise pollution is mainly due to operation like playing of trucks & HEMM. These activities will not cause any problem to the inhabitants of this area because there is no human settlement in close proximity to the project area. Noise modelling has been carried out considering transportation activities.

Predictions have been carried out to compute the noise level at various distances around the working pit due to these major noise-generating sources. Noise modelling has been carried out to assess the impact on surrounding ambient noise levels.

Basic phenomenon of the model is the geometric attenuation of sound. Noise at a point generates spherical waves which are propagated outwards from the source through the air at a speed of 1, 100 ft/sec with the first wave making an ever-increasing sphere with time. As the wave spreads the intensity of noise diminishes as the fixed amount of energy is spread over an increasing surface area of the sphere. The assumption of the model is based on point source relationship i.e., for every doubling of the distance the noise levels are decreased by 6 dB (A).

For hemispherical sound wave propagation through homogeneous loss free medium, one can estimate noise levels at various locations at different sources using a mathematical model based on first principle.

$$L_{p2} = L_{p1} - 20 \log (r_2/r_1) - A_{e1,2}$$

Where,

L_{p1} & L_{p2} are sound levels at points located at distances r_1 and r_2 from the source

$A_{e1,2}$ is the excess attenuation due to environmental conditions.

Combined effect of all sources can be determined at various locations by logarithmic addition.

$$L_{p \text{ total}} = 10 \log \{10^{(L_{p1}/10)} + 10^{(L_{p2}/10)} + 10^{(L_{p3}/10)} + \dots\}$$

Anticipated Impact

Anticipated due to Green Belt has been taken to be 4.9 dB (A). The Inputs required for the model are:

- Source data
- Receptor data
- Attenuation factor

Source data has been computed taking into account of all the machinery and activities used in the mining process. Same has been listed in Table 4.5.

Table 4.5 Activity and Noise Level Produced by Machinery

S. No.	Machinery / activity	Impact on environment?	Noise produced in dB(A) at 50 ft from source*
1	Blasting	Yes	94
2	Jack hammer	Yes	88
3	Compressor	No	81
4	Excavator	No	85
5	Tipper	No	84
Total			95.8

The total noise to be produced by mining activity is calculated to be 95.8dB (A). Therefore, we have considered equipment and operation noise levels (max) to be approx. 95.8dB (A) for noise prediction modelling.

Table 4.6 Predicted Noise Incremental Values

Noise Monitoring Location	Distance From Project Site(m)	Baseline Noise Level (dBA)m During Day Time	Predicted Noise Level (dBA)	Total (dBA)
Core area	100	47.4	44.0	49.0
Thonankulam	390	42.7	32.1	43.1
Devariyaambakkam Colony	380	43.5	32.4	43.8
Kosappattu	1390	40.6	21.1	40.6
Ullavur	2500	42.3	16.0	42.3
Sankarapuram	3040	43.9	14.3	43.9
Nathanallur	3500	44.8	13.08	44.80
NAAQ Standards	Industrial Day Time - 75 dB (A) & Night Time - 70 dB (A) Residential Day Time - 55 dB (A) & Night Time - 45 dB (A)			

From the above table, it can be seen that the ambient noise levels at all the locations near habitations are within permissible limits of Residential Area (buffer zone) as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000. Therefore, no impact is anticipated on the noise environment due to the project

Mitigation Measures

Usage of sharp drill bits while drilling which will help in reducing noise

Secondary blasting will be totally avoided and hydraulic rock breaker will be used for breaking boulders

Controlled blasting with proper spacing, burden, stemming and optimum charge/delay will be maintained

The blasting will be carried out during favourable atmospheric condition and less human activity timings by using nonelectrical initiation system

Proper maintenance, oiling and greasing of machines will be done every week to reduce generation of noise

Provision of sound insulated chambers for the workers working on machines (HEMM) producing higher levels of noise

Silencers / mufflers will be installed in all machineries

Greenbelt/Plantation will be developed around the project area and along the haul roads. The plantation minimizes propagation of noise

Personal Protective Equipment (PPE) like ear muffs/ear plugs will be provided to the operators of HEMM and persons working near HEMM and their use will be ensured through training and awareness

Regular medical check-up and proper training to personnel to create awareness about adverse noise level effects

4.2.6 Ground Vibrations

Ground vibrations due to the proposed mining activities are anticipated due to operation of mining machines like excavators, drilling and blasting, transportation vehicles, etc., however, the major source of ground vibration from the quarry is blasting. The major impact of the ground vibrations is observed on the domestic houses located in the villages nearby the mine lease area. The kutchha houses are more prone to cracks and damage due to the vibrations induced by blasting whereas RCC framed structures can withstand more ground vibrations. Apart from this, the ground vibrations may develop a fear factor in the nearby settlements.

Another impact due to blasting activities is fly rocks. These may fall on the houses or agricultural fields nearby the mining lease area and may cause injury to persons or damage to the structures. Nearest habitation from the proposed project areas is listed in below table. The ground vibrations due to the blasting in the quarry are calculated using the empirical equation.

The empirical equation for assessment of peak particle velocity (PPV) is given below:

$$V = K [R/Q^{0.5}]^{-B}$$

Where,

V = Peak Particle Velocity (mm/s)

K = Site and Rock Factor Constant (500)

Q = Maximum Instantaneous Charge (kg)

B = Constant Related to the Rock and Site (usually 1.6)

R = Distance from Charge (m)

Table 4.7 Predicted PPV Values due to Blasting

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in mm/s	Fly rock distance in m	Air Blast	
					Pressure (kPa)	Sound Level (dB)
P1	25.35	380	0.49	19	0.13	136

Table 4.8 Predicted PPV Values due to Blasting at 100-500 m radius

Location ID	Maximum Charge in kgs	Radial Distance in m	PPV in mm/s	Fly rock distance in m	Air Blast	
					Pressure (kPa)	Sound Level (dB)
P1	25.35	100	4.18	19	0.64	150
		200	1.38		0.28	143
		300	0.72		0.17	139
		400	0.45		0.12	136
		500	0.31		0.09	133

Common Mitigation Measures

- ❖ The blasting operations in the cluster quarries are carried out without deep hole drilling and blasting using delay detonators which reduce the ground vibrations
- ❖ Proper quantity of explosives, suitable stemming materials and appropriate delay system will be adopted to avoid overcharging and for safe blasting
- ❖ Adequate safe distance from blasting will be maintained as per DGMS guidelines
- ❖ Blasting shelter will be provided as per DGMS guidelines
- ❖ Blasting operations will be carried out only during day time
- ❖ The charge per delay will be minimized and preferably a greater number of delays will be used per blasts
- ❖ During blasting, other activities in the immediate vicinity will be temporarily stopped
- ❖ Drilling parameters like depth, diameter and spacing will be properly designed to give proper blast
- ❖ A fully trained explosives blast man (Mining Mate, Mines Foreman, 2nd Class Mines Manager/ 1st Class Mines Manager) will be appointed
- ❖ A set of shot firing rules will be drawn up and blasting shall commence outlining the detailed operating procedures that will be followed to ensure that shot firing operations on site take place without endangering the workforce or public
- ❖ Sufficient angular stemming material will be used to confine the explosive force and minimise environmental disturbance caused by venting / misfire
- ❖ The detonators will be connected in a predetermined sequence to ensure that only one charge is detonated at any one time and a NONEL or similar type initiation system will be used
- ❖ The detonation delay sequence shall be designed so as to ensure that firing of the holes is in the direction of free faces so as to minimise vibration effects.
- ❖ Appropriate blasting techniques shall be adopted in such a way that the predicted peak particle velocity shall not exceed 0.251mm/s.
- ❖ Vibration monitoring will be carried out every 6 months to check the efficacy of blasting practices.

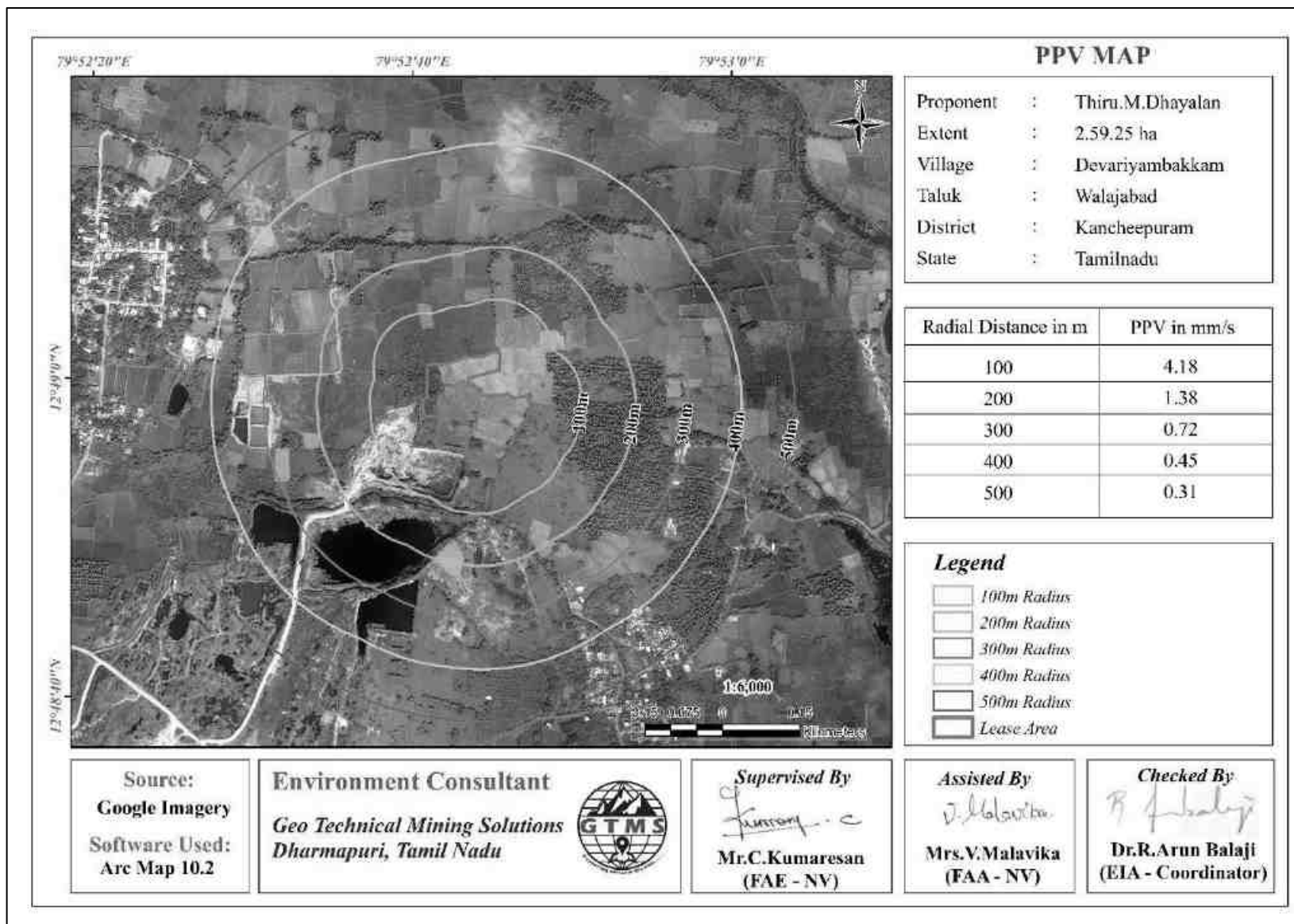


Figure 4.3 Predicted PPV Values due to Blasting at 100-500 m radius

4.2.7 Ecology and Biodiversity

Impact on Ecology and Biodiversity

Quarry leases have a large number of *Acacia holoseicea* plants whose seeds are wind-dispersed so that they are abundant both inside and outside the quarry leases area. It contains a total of 18 species belonging to 16 families have been recorded from the buffer zone. 3 Trees (16%), 6 Shrubs (33%) and 9 Herbs (50%) were identified in mine lease area.

There shall be negligible air emissions or effluents from the project site. During loading the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly

Most of the land in the buffer zone is undulating terrain with croplands, patches of grass and small shrubs. Therefore, excavation of the soil will also affect the vegetation of the croplands, grass patches and small shrubs in the area.

Carbon released from quarrying machineries and tippers during quarrying would be 3257 kg per day, 879349 kg per year and 4396746 kg for five years, as provided in Table 4.7.

Table 4.9 Carbon Released During Five Years of Rough Stone Production

	Per day	Per year	Per two years
Fuel consumption of excavator	216	58211	291057
Fuel consumption of compressor	25.2	6804	34020
Fuel consumption of tipper	974	263100	1315500
Total fuel consumption in liters	1215	328115	1640577
Co ₂ emission in kg	3257	879349	4396746

Mitigation Measures on Flora

During conceptual stage, the top bench will be re-vegetated by planting local /native species and lower benches will be converted into rainwater harvesting structure following completion of mining activities, which will replace habitat resources for fauna species in this locality over a longer time.

Existing roads will be used; new roads will not be constructed to reduce impact on flora.

None of the plants in the lease area will be cut during operational phase of the mine. We recommend uprooting and planting 3 trees in the 7.5-meter safety zone to prevent general damage during quarrying. As the survival rate due to uprooting was only 30%, 90 seedlings were procured at the rate of 10 seedlings per tree. Seedlings are planted and protected in 7.5- meter safety zone.

Carbon Sequestration

To mitigate carbon emission due to mining activities, we recommend planting trees around the quarry to offset the carbon emission during quarrying. A tree can sequester 23197 kg of carbon per year. Therefore, we recommend planting large number of trees around the quarry and near school campuses, government wasteland, roadsides etc.

As per the greenbelt development plan as recommended by SEAC (Table 4.13), about 1296 trees will be planted within three months from the beginning of mining. These trees, when grown up would sequester carbon of 35345 about kg of the total carbon, as provided in Table 4.8.

Table 4.10 CO₂ Sequestration

CO ₂ sequestration in kg	115	31079	155394
Remaining CO ₂ not sequestered in kg	3142	848270	4241351
Trees required for environmental compensation	35345		
Area required for environmental compensation in hectares	71		

Table 4.11 Recommended Species for Greenbelt Development Plan

S. No	Botanical Name of the Plant	Family Name	Common Name	Category	Dust Capturing Efficiency Features
1	<i>Azadirachta indica</i>	Meliaceae	Vembu	Tree	Well distinct thick at both the layer Well distinct in Palisade & Spongy parenchyma. Spongy parenchyma is present at lower epidermis Many vascular bundles arranged almost parallel series
2	<i>Tectona grandis</i>	Lamiaceae	Teak	Tree	
3	<i>Polyalthia longifolia</i>	Annonaceae	Nettilling	Tree	
4	<i>Albizia lebbeck</i>	Fabaceae	Vagai	Tree	
5	<i>Delonix regia</i>	Fabaceae	Cemmayir-konrai	Tree	
6	<i>Bauhinia racemose</i>	Fabaceae	Aathi	Tree	
7	<i>Cassia fistula</i>	Fabaceae	Sarakondrai	Tree	
8	<i>Aegle marmelos</i>	Rutaceae	Vilvam	Tree	
9	<i>Pongamia pinnata</i>	Fabaceae	Pungam	Tree	
10	<i>Thespesia populnea</i>	Malvaceae	Puvarasu	Tree	

Table 4.12 Greenbelt Development Plan

	No. of trees proposed for plantation	No. of trees expected to survive @ 80%	Area to be covered(m²)
Plantation in the construction phase (3 months)	Number of plants inside the mine lease area		
	518	415	4666
	Number of plants outside the mine lease area		
	778	622	7000
Total	1296	1037	11666

Table 4.13 Budget for Greenbelt Development Plan

Activity	Plantation in the construction phase(3Months)	Cost	Capital Cost (Rs.)	Recurring Cost-per annum
Plantation inside the mine lease area (in safety margins)	518	Site clearance, preparation of land, digging of pits / trenches, soil amendments, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring))"	103700	15555
Plantation outside the area	778	Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	233325	23332.5
Total			3,37,025	38,887

Source: EMP budget

After complete extraction of mineral, the excavated pits will be allowed to collect rainwater and seepage water to serve as a reservoir to charge the nearby wells. Fish culture will also be attempted. A bund will be constructed around the pits. In order to minimize the impact of mining on the vegetation outside the mine lease area, it is recommended that adequate protection measures must be implemented. As mining involves movement of vehicles and increased anthropogenic activities, some of the areas can be fenced by involving local people and educating them about increased benefits of such activities.

Anticipated Impact on Fauna

No rare, endemic & endangered species are reported in mine lease area. However, during the course of mining, the management will practice scientific method of mining with proper Environmental Management Plan including pollution control measures

especially for air and noise, to avoid any adverse impact on the surrounding wildlife.

Fencing around all the proposed mine lease areas will be constructed to restrict the entry of stray animals

Green belt development will be carried out which will help in minimizing adverse impact on the flora found in the area.

Measures for Protection and Conservation of Wildlife Species

Undertaking mitigative measures for conducive environment to the flora and fauna in consultation with Forest Department.

Dust suppression system will be installed within mine and periphery of mine for proposed project.

Plantation around mine area will help in creating habitats for small faunal species and to create better environment for various fauna. Creating and developing awareness for nature and wildlife in the adjoining villages.

Mitigation Measures

All the preventive measures will be taken for growth & development of fauna.

Creating and development awareness for nature and wildlife in the adjoin villages.

The workers shall be trained to not harm any wildlife, should it come near the project site.

No work shall be carried out after 6.00 pm.

Artificial Nest or Man-made Nest

Since the area is also declared as IBA (Important Bird and Biodiversity Area), it is important to have habit management for birds. Man-made nests should be installed on near water bodies, railway cabin and villages that provide suitable conditions for the existence and reproduction of birds and at the same time. Many species of birds find their homes in artificial nests mostly Common Kestrels, Black kite, Owls, parakeets, sparrows etc. By accepting the offered artificial nesting opportunities, these birds make it possible for ornithologists to study their lives and behaviour. Apart from this to cope up with the habitat loss due to clearance of vegetation in the project site, artificial nest should be put up on big trees for other birds for nesting. Artificial nest can also be put up in the houses in the villages around the project site. Awareness and training programme will be organised for birds and installation of nest in their houses for conservation of avifauna as mitigation measures.

Impact on Aquatic Biodiversity

Mining activities will not disturb the existing aquatic ecology as there is no effluent discharge proposed from the Ordinary Earth quarry. There is no natural perennial surface water body within the mine lease area. Hence, aquatic biodiversity is not observed in the mine lease area.

Impact on agriculture and horticulture crops in 1km Radius

Problems to agricultural and horticulture land due to dust caused by movement of heavy vehicles.

Soil erosion and sediment deposition in the nearby water bodies due to earthworks during the rainy season.

The fugitive dust released from the mining operations may cause effect on the agricultural and horticulture land who are directly exposed to the fugitive dust.

Dust from the quarries is likely to affect reproductive systems in nearby agricultural and horticulture lands.

Dust from quarries can affect plant growth and reduce vegetable yields.

Mitigation Measures on agriculture and horticulture crops.

The main objective of the green belt is to provide a barrier between the source of pollution and the surrounding areas. In order to compensate the loss of vegetation cover, it is suggested to carry out afforestation program mainly inside and outside of the lease area in different phases.

Quarry approach roads are sprayed with water 3 times a day to control dust. Thus, the damage to the nearby farmlands is controlled.

A green belt will be created in 7.5 safety zone around the quarry to contain the dust from the quarry and prevent the dust from spreading to the adjacent agricultural land.

Transportation of material will be carried out during day time and material will be covered with tarpaulin

The speed of tippers plying on the haul road will be limited to < 20 km/hr to avoid generation of dust.

4.2.8 Socio Economic Environment

Anticipated Impact

Dust generation from mining activity can have negative impact on the health of the workers and people in the nearby area.

Approach roads can be damaged by the movement of tippers

Increase in Employment opportunities both direct and indirect thereby increasing economic status of people of the region.

Mitigation Measures

Good maintenance practices will be adopted for all machinery and equipment, which will help to avert potential noise problems.

Green belt will be developed in and around the project site as per Central Pollution Control Board (CPCB) guidelines.

Air pollution control measure will be taken to minimize the environmental impact within the core zone.

For the safety of workers, personal protective appliances like hand gloves, helmets, safety shoes, goggles, aprons, nose masks and ear protecting devices will be provided as per mines act and rules.

Benefit to the State and the Central governments through financial revenues by way of royalty, tax, duties, etc., from this project directly and indirectly.

From above details, the quarry operations will have highly beneficial positive impact in the area

4.3 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF ENVIRONMENTAL COMPONENTS

The commitments under the mining plan will be followed.

The conditions as per "Consent to Operate" (CTO) will be followed.

All conditions in Environmental Clearance and other statutory approvals will be followed.

4.4 ASSESSEMENT OF SIGNIFICANCE OF IMPACT (CRITERIA FOR DETERMINING SIGNIFICANCE, ASSIGNING SIGNIFICANCE)

The criteria involved in mine closure are discussed below:

Physical Stability

All anthropogenic structures, which include mine workings, buildings, rest shelters etc., remaining after mine decommissioning should be physically stable. They should present no hazard to public health and safety as a result of failure or physical deterioration and they should continue to perform the functions for which they were designed. The design periods and factors of safety proposed should take full account of extreme events such as floods, hurricane, winds or earthquakes, etc. and other natural perpetual forces like erosion, etc.,

Chemical Stability

The solid wastes on the mine site should be chemically stable. This means that the consequences of chemical changes or conditions leading to leaching of metals, salts or organic compounds should not endanger public health and safety nor result in the deterioration of environmental attributes. If the pollutant discharges likely to cause adverse impacts is predicted in advance, appropriate mitigation measures like settling of suspended solids or passive treatment to improve water quality as well as quantity, etc., could be planned. Monitoring should demonstrate that there is no adverse effect of pollutant concentrations exceeding the statutory limits for the water, soil and air qualities in the area around the closed mine.

Biological Stability

The stability of the surrounding environment is primarily dependent upon the physical and chemical characteristics of the site, whereas the biological stability of the mine site itself is closely related to rehabilitation and final land use. Nevertheless, biological stability can significantly influence physical or chemical stability by stabilizing soil cover, prevention of erosion/wash off, leaching, etc.,

A vegetation cover over the disturbed site is usually one of the main objectives of the rehabilitation programme, as vegetation cover is the best long-term method of stabilizing the site. When the major earthwork components of the rehabilitation programme have been completed, the process of establishing a stable vegetation community begins. For re-vegetation, management of soil nutrient levels is an important consideration. Additions of nutrients are useful under three situations.

Where the nutrient level of spread topsoil is lower than material in-situ e.g., for development of social forestry

Where it is intended to grow plants with a higher nutrient requirement than those occurring naturally.

Where it is desirable to get a quick growth response from the native flora during those times when moisture is not a limiting factor. For example, development of green barriers

The Mine closure plan should be as per the approved mining plan. The mine closure is a part of approved mine plan and activities of closure shall be carried out as per the process described in mine closure plan.

4.5 MITIGATION MEASURES

Occupational Health and Safety

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

- Respiratory hazards
- Noise
- Physical hazards

Respiratory Hazards

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

Cabins of excavators and tippers will be enclosed with AC and sound proof

Use of personal dust masks will be made compulsory

Noise

No employee will be exposed to a noise level greater than 85 dB(A) for a duration of more than 8 hours per day without hearing protection

The use of hearing protection will be enforced actively when the equivalent sound level over 8 hours reaches 85 dB(A), the peak sound levels reach 140 dB(C), or the average maximum sound level reaches 110 dB(A)

Ear muffs provided will be capable of reducing sound levels at the ear to at least 85 dB(A)

Periodic medical hearing checks will be performed on workers exposed to high noise levels.

Physical Hazards

The following measures are proposed for control of physical hazards

Specific personnel training on work-site safety management will be taken up;

Natural barriers, temporary railing, or specific danger signals will be provided along rock benches or other pit areas where work is performed at heights more than 2m from ground level;

Maintenance of yards, roads and footpaths, providing sufficient water drainage and preventing slippery surfaces with an all-weather surface, such as coarse gravel will be taken up.

Occupational Health Survey

All the persons will undergo pre-employment and periodic medical examination. Employees will be monitored for occupational diseases by conducting the following tests

General physical tests

Audiometric tests

Full chest, X-ray, Lung function tests, Spirometric tests

Periodic medical examination – yearly

Lung function test – yearly, those who are exposed to dust

Eye test

Essential medicines will be provided at the site. The medicines and other test facilities will be provided at free of cost. The first aid box will be made available at the mine for immediate treatment. First aid training will be imparted to the selected employees regularly. The lists of first aid trained members shall be displayed at strategic places.

CHAPTER V

ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

5.0 INTRODUCTION

Consideration of alternatives to a proposed project is a requirement of EIA process. During the scoping process, alternatives to a proposed project 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 environmentally friendly and cost-effective options.

Factors Behind the Selection of Project Site

The proposed project is site specific and has the following advantages:

The mineral deposit occurs in a non-forest area.

There is no habitation within the project area; hence no R & R issues exist.

There is no river, stream, nallah and water bodies in the applied mine lease area.

Availability of skilled, semi-skilled and unskilled workers in this region.

All the basic amenities such as medical, firefighting, education, transportation, communication and infrastructural facilities are well connected and accessible.

The mining operations will not intersect the ground water level. Hence, no impact on ground water environment.

As the proposed project area falls in seismic zone III, there is no major history of landslides, earthquake, subsidence etc., recorded in the past history.

Analysis of Alternative Site

No alternatives are suggested as the mine site is mineral specific.

Factors Behind Selection of Proposed Technology

The proposed mining lease areas have following advantages:

As the mineral deposition is homogeneous and batholith formation, open cast method of working is preferred over underground method.

The material will be loaded with the help of excavators into tractors/tippers and transported to the need by customers.

Semi-skilled labours fit for quarrying operations are easily available around the nearby villages.

Analysis of Alternative Technology

Open cast mechanized method has been selected for this project. This technology is having least gestation period, economically viable, safest and less labour intensive. The method has inbuilt flexibility for increasing or decreasing the production as per market condition.

CHAPTER VI

ENVIRONMENTAL MONITORING PROGRAMME

6.0 GENERAL

The monitoring and evaluation of environmental parameters indicates potential changes occurring in the environment, which paves way for implementation of rectifying measures wherever required to maintain the status of the natural environment. Evaluation is also a very effective tool to judge the effectiveness or deficiency of the measures adopted and provides insight for future corrections. The main objective of environmental monitoring is to ensure that the obtained results in respect of environmental attributes and prevailing conditions during operation stage are in conformity with the prediction during the planning stage. In case of substantial deviation from the earlier prediction of results, this forms as base data to identify the cause and suggest remedial measures. Environmental monitoring is mandatory to meet compliance of statutory provisions under the Environment (Protection) Act, 1986, relevant conditions regarding monitoring covered under EC orders issued by the SEIAA-TN as well as the conditions set forth under the order issued by Tamil Nadu Pollution Control Board while granting CTE/CTO.

6.1 TECHNICAL ASPECTS OF MONITORING THE EFFECTIVENESS OF MITIGATION MEASURES (INCL. MEASUREMENT METHODOLOGIES, FREQUENCY, LOCATION, DATA ANALYSIS, REPORTING SCHEDULES, EMERGENCY PROCEDURES, DETAILED BUDGET & PROCUREMENT SCHEDULES)

Methodology of Monitoring Mechanism

Implementation of EMP and periodic monitoring will be carried out by respective project proponents. A comprehensive monitoring mechanism has been devised for monitoring of impacts due to proposed project; Environmental protection measures like dust suppression, control of noise maintenance of machinery and vehicles, housekeeping in the mine premises, plantation, implementation of Environmental Management Plan and environmental clearance conditions will be monitored by the respective mine management. On the other hand, implementation of area level protection measures like green belt development, environmental quality monitoring etc., are taken up by a senior executive who reports to their Mine Management.

An Environment monitoring cell (EMC) will be constituted to monitor the implementation of EMP and other environmental protection measures in the proposed quarry. The responsibilities of this cell will be:

Implementation of pollution control measures

Monitoring programme implementation

Post-plantation care

To check the efficiency of pollution control measures taken

Any other activity as may be related to environment

Seeking expert's advice when needed.

The environmental monitoring cell will co-ordinate all monitoring programs at site and data thus generated will be regularly furnished to the State regulatory agencies as compliance status reports.

The sampling and analysis report of the monitored environmental attributes will be submitted to the Tamil Nadu Pollution Control Board (TNPCB) at a frequency of half-yearly and yearly by the proposed project proponent. The half-yearly reports are submitted to Ministry of Environment and Forest, Regional Office and SEIAA-TN as well.

The sampling and analysis of the environmental attributes will be as per the guidelines of Central Pollution Control Board (CPCB)/Ministry of Environment, Forest and Climate Change (MoEF & CC). The Environmental Monitoring Cell will be formed for the proposed project. The structure of the cell will be as shown in Figure 6.1.

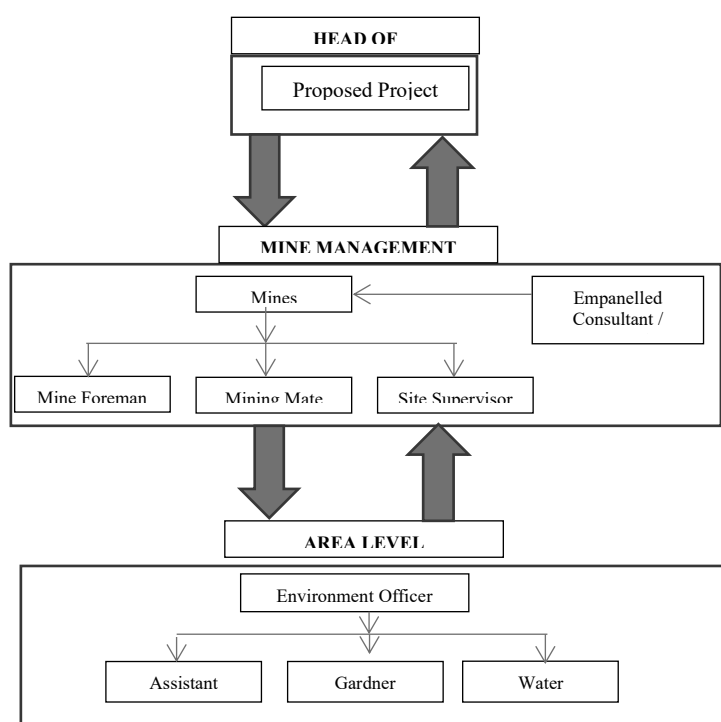


Figure 6.1 Proposed environmental monitoring chart

Implementation Schedule of Mitigation Measures

The mitigation measures proposed in chapter IV will be implemented so as to reduce the impact on the environment due to the operations of the proposed project. Implementation schedule of mitigation measures is given in Table 6.1.

Table 6.1 Implementation Schedule for Proposed Project

S. No.	Recommendations	Time Period	Schedule
1	Land Environment Control Measures	Before commissioning of the project	Immediately after the commencement of project
2	Soil Quality Control Measures	Before commissioning of the project	Immediately after the commencement of project
3	Water Pollution Control Measures	Before commissioning of the project and along with mining operation	Immediately and as project progress
4	Air Pollution Control Measures	Before commissioning of the project and along with mining operation	Immediately and as project progress
5	Noise Pollution Control measures	Before commissioning of the project and along with mining operation	Immediately and as project progress
6	Ecological Environment	Phase wise implementation every year along with mine operations	Immediately and as project progress

Monitoring Schedule and Frequency

Monitoring shall confirm that commitments are being met. This may take the form of direct measurement and recording of quantitative information, such as amounts and concentrations of discharges, emissions and wastes, for measurement against statutory standards. Monitoring may include socio-economic interaction, through local liaison activities or even assessment of complaints.

The environmental monitoring will be conducted in the mine operations as follows:

- Air quality
- Water and wastewater quality
- Noise levels
- Soil quality and
- Greenbelt development

The details of proposed monitoring schedule have been provided in Table 6.2.

Table 6.2 Proposed Monitoring Schedule Post EC for the Proposed Quarry

S. No.	Environment Attributes	Location	Monitoring		Parameters
			Duration	Frequency	
1	Air Quality	2 Locations (1 Core & 1 Buffer)	24 hours	Once in 6 months	Fugitive Dust, PM _{2.5} , PM ₁₀ , SO ₂ and NO _x .
2	Meteorology	At mine site before start of Air Quality Monitoring & IMD Secondary Data	Hourly / Daily	Continuous online monitoring	Wind speed, Wind direction, Temperature, Relative humidity and Rainfall
3	Water Quality Monitoring	2 Locations (1SW & 1 GW)	-	Once in 6 months	Parameters specified under IS:10500, 1993 & CPCB Norms
4	Hydrology	Water level in open wells in buffer zone	-	Once in 6 months	Depth in m BGL

		around 1 km at specific wells			
5	Noise	2 Locations (1 Core & 1 Buffer)	Hourly – 1 Day	Once in 6 months	Leq, Lmax, Lmin, Leq Day & Leq Night
6	Soil	2 Locations (1 Core & 1 Buffer)	–	Once in six months	Physical and chemical characteristics
7	Greenbelt	Within the project area	Daily	Monthly	Maintenance

Source: Guidance of manual for mining of minerals, February 2010

Budgetary Provision for Environment Monitoring Program

The cost in respect of monitoring of environmental attributes, parameter to be monitored, sampling/monitoring locations with frequency and cost provision against each proposal is shown in Table 6.3. Monitoring work will be outsourced to external laboratory approved by NABL / MoEF. The proposed recurring cost for Environmental Monitoring Programme is **Rs 1,45,000 /-** per annum for the proposed project site.

Table 6.3 Environment Monitoring Budget

S. No.	Parameter	Capital Cost	Recurring Cost per annum
1	Air Quality	-	Rs 60,000/-
2	Meteorology	-	Rs 15,000/-
3	Water Quality	-	Rs 20,000/-
4	Water Level Monitoring	-	Rs 10,000/-
5	Soil Quality	-	Rs 20,000/-
6	Noise Quality	-	Rs 10,000/-
7	Greenbelt	-	Rs 10,000/-
Total		-	Rs 1,45,000 /-

Source: Field Data

Reporting Schedules of Monitored Data

The monitored data on air quality, water quality, noise levels and other environmental attributes will be periodically examined by the Cluster Mine Management Coordinator and Respective Head of Organization for taking necessary corrective measures. The monitoring data will be submitted to Tamil Nadu State Pollution Control Board in the Compliance to CTO Conditions & environmental audit statements every year to MoEF & CC and Half-Yearly Compliance Monitoring Reports to MoEF & CC Regional Office and SEIAA.

Periodical reports to be submitted to:

MoEF & CC – Half yearly status report

TNPCB - Half yearly status report

Department of Geology and Mining: quarterly, half yearly annual reports

Besides the Mines Manager/Agent of respective project will submit the periodical reports to:

Director of mines safety

Labour enforcement officer

Controller of explosives as per the norms stipulated by the department.

CHAPTER VII

ADDITIONAL STUDIES

7.0 GENERAL

Additional studies deal with:

- ❖ Public Consultation for Proposed Project
- ❖ Risk Assessment
- ❖ Socio Economic Environment

7.1 PUBLIC CONSULTATION FOR PROPOSED PROJECT

Application to the Member Secretary of the Tamil Nadu Pollution Control Board (TNPCB) to conduct Public Hearing in a systematic, time bound and transparent manner ensuring widest possible public participation at the project site or in its close proximity in the district was made and the public opinions on the proposed project will be updated in the final EIA/EMP report.

7.2 RISK ASSESSMENT FOR PROPOSED PROJECT

Risk Assessment is all about prevention of accidents and to take necessary steps to prevent it from happening. The methodology for the risk assessment is based on the specific risk assessment guidance issued by the Directorate General of Mine Safety (DGMS), Dhanbad, vide circular No.13 of 2002, dated 31st December, 2002. The DGMS risk assessment process is intended to identify existing and probable hazards in the work environment and all operations and assess the risk levels of those hazards in order to prioritize those that need immediate attention. Further, mechanisms responsible for these hazards are identified and their control measures, set to timetable are recorded along with pinpointed responsibilities. The whole quarry operation will be carried out under the direction of a Qualified Competent Mine Manager holding certificate of competency to manage a metalliferous mine granted by the DGMS, Dhanbad for proposed project.

Factors of risks involved due to human induced activities in connection with these proposed mining & allied activities with detailed analysis of causes and control measures for the mine is given in Table 7.1.

Table 7.1 Risk Assessment & Control Measures for Proposed Project

S. No.	Risk factors	Causes of risk	Control measures
1	Accidents due to explosives and heavy mining machineries.	Improper handling and unsafe working practice	✓ All safety precautions and provisions of Mine Act, 1952, Metalliferous Mines Regulation, 1961 and Mines Rules, 1955 will be strictly followed during all mining operations. ✓ Workers will be sent to the Training in the nearby Group Vocational Training Centre Entry of unauthorized persons will be prohibited. ✓ Fire-fighting and first-aid provisions in the mine office complex and mining area. ✓ Provisions of all the safety appliances such as safety boot, helmets, goggles etc. will be made available to the employees and regular check for their use. ✓ Working of quarry, as per approved plans and regularly updating the mine plans. ✓ Cleaning of mine faces on daily basis shall be daily done in order to avoid any overhang or undercut. ✓ Handling of explosives, charging and firing shall be carried out by competent persons only under the supervision of a Mine Manager. ✓ Maintenance and testing of all mining equipment as per manufacturer's guidelines.
2	Drilling	Improper and unsafe practices; Due to high	✓ Safe operating procedure established for drilling (SOP) will be strictly followed. ✓ Only trained operators will be deployed.

		pressure of compressed air, hoses may burst; Drill Rod may break;	✓ No drilling shall be commenced in an area where shots have been fired until the blaster/blasting foreman has made a thorough Examination of all places, ✓ Drilling shall not be carried on simultaneously on the benches at places directly one above the other. ✓ Periodical preventive maintenance and replacement of worn-out accessories in the compressor and drill equipment as per operator manual. ✓ All drills unit shall be provided with wet drilling shall be maintained in efficient working in condition. ✓ Operator shall regularly use all the personal protective equipment.
3	Blasting	Fly rock, ground vibration, Noise and dust. Improper charging, stemming & Blasting/ fining of blast holes Vibration due to movement of vehicles	▪ The maximum charge per delay and by optimum blast hole pattern, vibrations will be controlled within the permissible limit and blast can be conducted safely. ▪ SOP for Charging, Stemming & Blasting/Firing of Blast Holes will be followed by blasting crew during initial stage of operation ▪ Shots are fired during daytime only. ▪ All holes charged on any one day shall be fired on the same day. ✓ The danger zone is and will be distinctly demarcated (by means of red flags)
4	Transportation	Potential hazards and unsafe workings contributing to	✓ Before commencing work, drivers personally check the truck/tipper for oil(s), fuel and water levels, tyre inflation, general cleanliness and inspect the brakes,

		accident and injuries Overloading of material While reversal & overtaking of vehicle Operator of truck leaving his cabin when it is loaded.	steering system, warning devices including automatically operated audio-visual reversing alarm, rear view mirrors, side indicator lights etc., are in good condition. ✓ Not allow any unauthorized person to ride on the vehicle nor allow any unauthorized person to operate the vehicle. ✓ Concave 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 ✓ Periodical maintenance of vehicles as per operator manual
5	Natural calamities	Unexpected happenings	✓ Escape Routes will be provided to prevent inundation of storm water ✓ Fire Extinguishers & Sand buckets
6	Failure of Mine Benches and Pit Slope	Slope geometry, Geological structure	✓ Ultimate or over all pit slope shall be below 60° and each bench height shall be 5m.

Source: Analysed and proposed by FAE & EC

Disaster Management Plan for Proposed Project

Natural disasters like Earthquake, Landslides have not been recorded in the past history as the terrain is categorized under seismic zone III. The area is far away from the sea. Hence, the disaster due to heavy floods and tsunamis are not anticipated. The Disaster Management Plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities. The objective of the Disaster Management Plan is to make use of the combined resources of the mine and the outside services to achieve the following:

Rescue and medical treatment of casualties;

Safeguard other people;

Minimize damage to property and the environment;
Initially contain and ultimately bring the incident under control;
Secure the safe rehabilitation of affected area; and

Preserve relevant records and equipment for the subsequent inquiry into the cause and circumstances of the emergency. In case a disaster takes place, despite preventive actions, disaster management will have to be done in line with the descriptions below. There is an organization proposed for dealing with the emergency situations. Structure of the team has been shown in Figure 7.1.

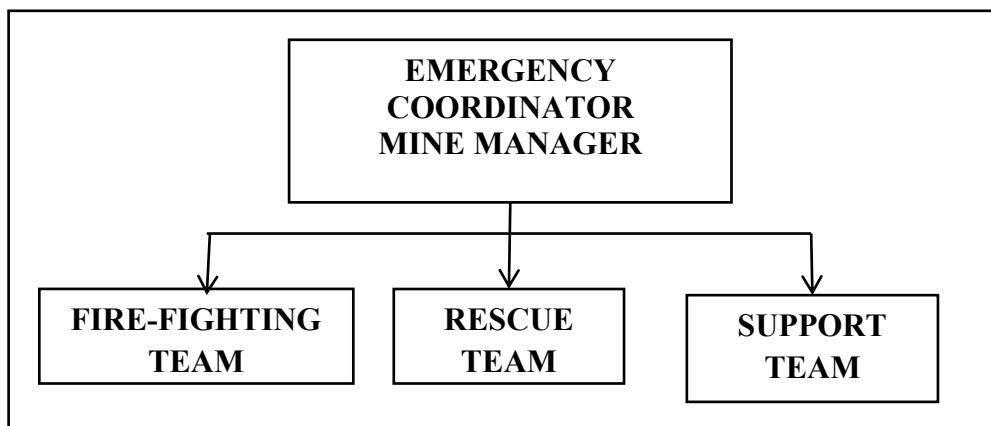


Figure 7.1 Disaster management team layout for proposed project

Emergency Control Procedure

The onset of emergency, will in all probability, commence with a major fire or explosion or collapse of wall along excavation and shall be detected by various safety devices and also by members of operational staff on duty. If located by a staff member on duty, he (as per site emergency procedure of which he is adequately briefed) will go to nearest alarm call point, break glass and trigger off the alarms. He will also try his best to inform about location and nature of accident to the emergency control room. In accordance with work emergency procedure the following key activities will immediately take place to interpret and take control of emergency.

On site fire crew led by a fireman will arrive at the site of incident with fire foam tenders and necessary equipment.

Emergency security controller will commence his role from main gate office

Incident controller shall rush to the site of emergency and with the help of rescue team and will start handling the emergency.

Site main controller will arrive at MECR with members of his advisory and communication team and will assume absolute control of the site.

He will receive information continuously from incident controller and give decisions and directions to:

Incident controller

Mine control rooms

Emergency security controller

7.3 SOCIO ECONOMIC ENVIRONMENT

Cumulative Impact Study

The cumulative impact is mainly anticipated due to excavation and transportation activities in all the quarries within the cluster and major impact anticipated is on air and noise environment. For this cumulative study, there is only one proposed project is taken into consideration. The details of P1 have been given in Table 1.3.

Air Environment

As the production of rough stone and gravel plays a vital role in affecting the air environment. The data on the cumulative production resulting from the proposed project have been given in Table 7.2.

Table 7.2 Cumulative Production Load of Rough Stone

Proposed Production Details				
Quarry	For 5 Years in m ³	For 1 Year in m ³	Per Day in m ³	Number of Lorry Load Per Day
P1	355708	71142	263	44
Grand Total	355708	71142	263	44

Table 7.3 Cumulative Production Load of Gravel

Proposed Production Details				
Quarry	For 3 Years in m ³	For 1 Year in m ³	Per Day in m ³	Number of Lorry Load Per Day
P1	38942	12980	48	8
Grand Total	38942	12980	48	8

The cumulative study shows that the overall production of rough stone from the quarry is 263 m³ per day with a capacity of 44 trips of rough stone per day and gravel from the quarry is 48 m³ per day with a capacity of 8 trips of gravel per day.

Cumulative Impact of Air Pollutants

The results on the cumulative impact of the proposed project on air environment of the cluster have been provided in Table 7.4. The cumulative values resulting from the project for each pollutant do not exceed the permissible limits set by CPCB.

Table 7.4 Cumulative impact results from the proposed project

Pollutants	Baseline Data (µg/m ³)	Incremental Values (µg/m ³)	Cumulative Value (µg/m ³)
		P1	

PM _{2.5}	20.6	4.95	25.5
PM ₁₀	37.7	9.89	47.6

Noise Environment

Noise pollution is mainly due to operation like drilling & blasting and plying of trucks & HEMM. Cumulative Noise modelling has been carried out considering blasting and compressor operation (drilling) and transportation activities. Predictions have been carried out to compute the noise level at various distances around the different quarries within the 500 m radius.

Table.7.5 Cumulative Impact of Noise from the Proposed Project

Location ID	Distance (m)	Direction	Background Value (Day) dB(A)	Incremental Value dB(A)	Total Predicted dB(A)	Residential Area Standards dB(A)
Habitation Near P1	390	SW	42.7	32.1	43.1	
Cumulative Noise (dB (A))					43.1	

Source: Lab Monitoring Data

The cumulative analysis of noise from the proposed project shows that habitation will receive about 43.1dB (A), respectively. The cumulative results for all the villages in consideration do not exceed the limit set by CPCB for residential areas for daytime.

Ground Vibrations

Cumulative results of ground vibrations due to mining activities for the proposed project have been shown in Table 7.6.

Table 7.6 Cumulative Effect of Ground Vibrations Resulting from the Proposed Project

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in mm/s
P1	25.35	380	0.49
Total			0.49

Results from the above tables 7.7 indicate that the cumulative PPV value of each habitation is well below the peak particle velocity of 8 mm/s as per Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997.

Socio Economic Environment

Socio Economic benefits of the proposed project were calculated and the results have been shown in Table 7.7. The proposed projects together will contribute Rs.5,00,000 towards CER fund.

Table 7.7 Socio Economic Benefits from One Mines

Location ID	Project Cost	CER
P1	Rs.1,33,66,000	Rs. 5,00,000
Grand Total	Rs.1,33,66,000	Rs. 5,00,000

Table 7.8 Employment Benefits from the proposed project

Location ID	Employment
P1	22
Grand Total	22

A total of 22 people will get employment due to the proposed project in cluster

Ecological Environment

Table 7.9 Greenbelt Development Benefits from the proposed project

Code	Number of Trees proposed	Area to be covered (m ²)	No. of Trees expected to be grown @ 80% survival rate	Species recommended
P1	1296	11666	1037	<i>Azadirachta indica,</i> <i>Albizia lebbeck,</i> <i>Delonix regia,</i> <i>Techtona grandis, etc.,</i>
Total	1296	11666	1037	

Cumulative studies show the proposed project will plant about 1296 native tree species like *Azadirachta indica*, *Albizia lebbeck*, *Delonix regia*, *Techtona grandis*, etc inside and outside the lease area. It is expected that 80 % of trees, i.e., 1037 trees will survive in this green belt development program.

Plastic Waste Management Plan for Proposed Project

All the Project Proponent shall comply with Tamil Nadu Government Order (Ms) No. 84 Environment and Forest (EC.2) Department Dated: 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986.

Objective

To investigate the actual supply chain network of plastic waste.

To identify and propose a sustainable plastic waste management by installing bins for collection of recyclables with all the plastic waste

Preparation of a system design layout, and necessary modalities for implementation and monitoring.

A detailed action plan to manage plastic waste has been provided in Table 7.10.

Table 7.10 Action Plan to Manage Plastic Waste

S. No.	Activity	Responsibility
1	Framing of Layout Design by incorporating provision of the Rules, user fee to be charged from waste generators for plastic waste management, penalties/fines for littering, burning plastic waste or committing any other acts of public nuisance.	Mines Manager
2	Enforcing waste generators to practice segregation of bio-degradable, recyclable and domestic hazardous waste.	Mines Manager
3	Collection of plastic waste.	Mines Foreman
4	Setting up of Material Recovery Facilities.	Mines Manager
5	Segregation of Recyclable and Non-Recyclable plastic waste at Material Recovery Facilities.	Mines Foreman
6	Channelization of Recyclable Plastic Waste to registered recyclers.	Mines Foreman
7	Channelization of Non-Recyclable Plastic Waste for use either in Cement kilns, in Road Construction.	Mines Foreman
8	Creating awareness among all the stakeholders about their responsibility.	Mines Manager
9	Surprise checking's of littering, open burning of plastic waste or committing any other acts of public nuisance.	Mine Owner

Source: Proposed by FAEs and EC

7.4 RÉHABILITATION & RE-SETTLEMENT (R & R) ACTION PLAN

The land for the proposed quarry is private own land and without any human habitation. Therefore, there is no displacement of people from the core zone of the project, hence Rehabilitation & Resettlement (R & R) is not applicable to the instant project. The nearest habitation is located at 1.96km (NNW direction).

CHAPTER VIII

PROJECT BENEFITS

8.0 GENERAL

The proposed project at Devariyambakkam Village aims to produce 355708m³ of rough stone and 38942m³ of gravel over a period of 5 years. This will enhance the socio-economic activities in the adjoining areas and will result in the following benefits:

- ❖ Increase in Employment Potential
- ❖ Improvement in Socio-Economic Welfare
- ❖ Improvement in Physical Infrastructure
- ❖ Improvement in Social infrastructure

8.1 EMPLOYMENT POTENTIAL

It is proposed to provide employment to about 22 persons for carrying out mining operations and give preference to the local people in providing employment in this cluster. In addition, there will be an opportunity for indirect employment to the form of contractual jobs, business opportunities, and service facilities etc. Because of this, the economic status of the local people will improve.

8.2 SOCIO-ECONOMIC WELFARE MEASURES PROPOSED

The impact of mining activity in the area will be more positive on the socio-economic environment in the immediate project impact area. The employment opportunities both direct and indirect will contribute to enhanced money incomes to job seekers with minimal skill sets especially among the local communities.

8.3 IMPROVEMENT IN PHYSICAL INFRASTRUCTURE

The proposed quarry project is located in Devariyambakkam Village, Walajabad Taluk, Kancheepuram District, Tamil Nadu. The area has already well-established communications roads and other facilities. The following physical infrastructure facilities will further improve due to proposed project.

- ❖ Road transport facilities
- ❖ Communications
- ❖ Medical, Educational and social benefits will be made available to the nearby civilian population in addition to the workmen employed in the mine.

8.4 IMPROVEMENT IN SOCIAL INFRASTRUCTURE

Employment is expected during civil construction period, in trade, garbage lifting, sanitation and other ancillary services, Employment in these sectors will be primarily temporary or contractual and involvement of unskilled labour will be more. 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. This will enhance their income and lead to overall economic growth of the area.

8.5 OTHER TANGIBLE BENEFITS

The proposed mine is likely to have other tangible benefits as given below

- ❖ Indirect employment opportunities to local people in contractual works like construction of infrastructural facilities, transportation, sanitation for supply of goods and services to the mine and other community services
- ❖ Additional housing demand for rental accommodation will increase
- ❖ Cultural, recreation and aesthetic facilities will also improve
- ❖ Improvement in communication, transport, education, community development and medical facilities and overall change in employment and income opportunity
- ❖ The State Government will also benefit directly from the proposed mine, through increased revenue from royalties, cess, DMF, GST etc.,

8.6 CORPORATE SOCIAL RESPONSIBILITY

Individual project proponents will take responsibility to develop awareness among all levels of their staff about CSR activities and the integration of social processes with business processes. Those involved with the undertaking of CSR activities will be provided with adequate training and re-orientation.

Under this programme, the project proponents will take-up following programmes for social and economic development of villages within 5 km of the project site. For this purpose, separate budget will be provided every year. For finalization of these schemes, proponent will interact with LSG. The schemes will be selected from the following broad areas

- ❖ Health Services
- ❖ Social Development
- ❖ Infrastructure Development
- ❖ Education & Sports
- ❖ Self-Employment
- ❖ CSR Cost Estimation

- ❖ CSR activities mainly contributing to education, health, training of women self-help groups and infrastructure etc., will be taken up in the Devariyambakkam Village. CSR budget is allocated.

8.7 CORPORATE ENVIRONMENT RESPONSIBILITY

Allocation for Corporate Environment Responsibility (CER) shall be made as per Government of India, MoEF & CC Office Memorandum F.No.22-65/2017-IA.III dated 01.05.2018. As per para 6 (II) of the office memorandum, being a green field project & capital investment is ≤ 100 crores, the proposed project shall contribute 2% of capital investment towards CER as per directions of EAC/SEAC. However, the SEAC has suggested to allocate CER fund on the basis of the extent of the project. Therefore, Rs. 5,00,000 is allocated for CER. The proposed utilization of the budget of CER activities is given in Table 8.1.

Table 8.1 CER Action Plan

S. No.	Activity	Budget (Rs.in Lakh)
1	The applicant Indents to involve in corporate environment responsibilities (CER) activities such as renovation of existing toilet, plantation within the school premises, donating environment related books to the nearby school library, etc.	Rs.5,00,000
	Total	Rs.5,00,000

Source: Field survey conducted by FAE in consultation with project proponent

8.8 SUMMARY OF PROJECT BENEFITS

The project would pay about **Rs. 4,15,33,366** to the state government through various ways, as provided in Table 8.2.

Table 8.2 Project Benefits to the State Government

Particulars	Budget for Rough Stone (Rs.)	Budget for Gravel (Rs.)
CER	5,00,000	
Seigniorage @ Rs.90/m ³ of rough stone Rs.56/m ³ of gravel	3,20,13,720	21,80,752
District Mineral Foundation Tax @ 10% of Seigniorage	32,01,372	2,18,075
Green Tax @ 10% of Seigniorage	32,01,372	2,18,075
Total	3,89,16,464	26,16,902

CHAPTER IX
ENVIRONMENTAL COST BENEFIT ANALYSIS

Not Applicable, Since Environmental Cost Benefit Analysis not recommended at the
Scoping stage.

CHAPTER X

ENVIRONMENTAL MANAGEMENT PLAN

10.0 GENERAL

Environment Management Plan (EMP) aims at the preservation of ecological system by considering in-built pollution abatement facilities at the proposed site. Good practices of environmental management plan will ensure to keep all the environmental parameters of the project in respect of ambient air quality, water quality, socio economic improvement standards. Mitigation measures at the source level and an overall environment management plan at the study area are elicited so as to improve the supportive capacity of the receiving bodies. The EMP presented in this chapter discusses the administrative aspects ensuring that mitigative measures are implemented and their effectiveness monitored after approval of the EIA.

10.1 ENVIRONMENTAL POLICY

The project proponent is committed to conduct all its operations and activities in an environmentally responsible manner and to continually improve environmental performance. The Proponent Mr. M. Dhayalan Mining will:

- ❖ Meet the requirements of all laws, acts, regulations, and standards relevant to its operations and activities.
- ❖ Implement a program to train employees in general environmental issues and individual workplace environmental responsibilities.
- ❖ Allocate necessary resources to ensure the implementation of the environmental policy.
- ❖ Ensure that an effective closure strategy is in place at all stages of project development and that progressive reclamation is undertaken as early as possible to reduce potential long-term environmental and community impacts.
- ❖ Implement monitoring programs to provide early warning of any deficiency or unanticipated performance in environmental safeguards.
- ❖ Conduct periodic reviews to verify environmental performance and to continuously strive towards improvement.

10.1.1 Description of the Administration and Technical Setup

The environment monitoring cell discussed under Chapter VI will ensure effective implementation of environment management plan and to ensure compliance of environmental statutory guidelines through mine management level of each proposed quarry. The said team will be responsible for:

- ❖ Monitoring of the water/ waste water quality, air quality and solid waste generated.

- ❖ Analysis of the water and air samples collected through external laboratory.
- ❖ Implementation and monitoring of the pollution control and protective measures/ devices which shall include financial estimation, ordering, installation of air pollution control equipment, waste water treatment plant, etc.
- ❖ Co-ordination of the environment related activities within the project as well as with outside agencies.
- ❖ Collection of health statistics of the workers and population of the surrounding villages.
- ❖ Green belt development.
- ❖ Monitoring the progress of implementation of the environmental monitoring program.
- ❖ Compliance to statutory provisions, norms of State Pollution Control Board, Ministry of Environment and Forests and the conditions of the environmental clearance as well as the consents to establish and consents to operate.

10.2 Budgetary Provision for Environmental Management

Adequate budgetary provision has been made by the company for execution of Environmental Management Plan. The Table 10.1 gives overall investment on the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures.

Table 10.1 EMP Budget for Proposed Project

Attribute	Mitigation measures	Provision for Implementation	Capital Cost	Recurring Cost/annu m
			(Rs.)	(Rs.)
Air Environment	Compaction, gradation and drainage on both sides	Rental Dozer & drainage construction on haul road @ Rs. 10,000/- per hectare and yearly maintenance @ Rs. 10,000/- per hectare	25925	25925
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	Fixed sprinkler installation and new water tanker cost for capital; and water sprinkling (thrice a day) cost for recurring	800000	50000

	Air quality will be regularly monitored as per norms within ML area & ambient area	Yearly compliance as per CPCB norms	0	50000
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sand bags / steel mesh / old tyres / used conveyor belts	0	5000
	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	Dust extractor @ Rs. 25,000/- per unit deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance	75000	7500
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	Stone carrying trucks will be covered by tarpaulin to avoid escape of fines to the atmosphere	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per tipper/dumper deployed	50000	0
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of Exhaust Fumes	0	12500
	Regular sweeping and maintenance of roads for at least about 200 m from quarry entrance	Provision for 2 labours @ Rs.10,000/labour (Contractual) / hectare	0	51850
	Installing wheel wash system near exit gate of quarry	Installation + Maintenance + Supervision	50000	20000
Total Air Environment			1000925	237775

Noise Environment	Source of noise will be transportation vehicles, and HEMM. For this, proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done.	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implementations that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Competent Person	0	0

	Provision for Portable blaster shed	Installation of portable blasting shelter	50000	2000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 tons of blasted material	0	995982
Total Noise Environment			50000	997982
Water Environment	Water Management	Provision for garland drain @ Rs. 10,000/- per hectare with maintenance of Rs. 5,000/- per annum	25925	12962.5
Total Water Environment			25925	12962.5
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency (capital cost, recurring cost for collection /disposal).	25000	20000
		Installation of dust bins	5000	2000
	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost	0	0
Total Waste Management			30000	22000
Implementation of EC, Mining Plan & DGMS Condition	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed display board at the quarry entrance as permanent structure	10000	1000
Total Implementation of EC, Mining Plan			10000	1000
Occupational Health	Workers will be provided with Personal Protective Equipment	Provision of PPE @ Rs. 4000/- per employee with recurring based on	88000	22000

		wear and tear (say, @ Rs. 1000/- per employee)		
	Health checkup for workers will be provisioned	IME & PME Health checkup @ Rs. 1000/- per employee	0	22000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	10370
	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10000	2000
	Barbed Wire Fencing to quarry area will be provisioned.	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum	518500	25925
	No parking will be provided on the transport routes. Separate provision on the south side of the hill will be made for vehicles /HEMMs. Flaggers will be deployed for traffic management	Parking area with shelter and flags @ Rs. 50,000/- per hectare project and Rs. 10,000/- as maintenance cost	129625	25925
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	30000	5000
	Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1 st Class / 2 nd Class / Mine Foreman) under regulation 34 / 34 (6) of MMR, 1961 and Mining Mate under regulation 116 of MMR,1961 @ 40,000/- for Manager & @	0	780000

		25,000/- for Foreman / Mate		
Total Occupational Health and Safety			776125	893220
Development of Green Belt	Green belt development - 500 trees per hectare (200 Inside Lease Area & 3 00 Outside Lease Area)	Site clearance, preparation of land, digging of pits /trenches, soil amendments, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring))"	103700	15555
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	233325	23332.5
Total Development of Green Belt			337025	38887.5
Mine Closure	Closure includes 10% of the amount allotted for Greenbelt development, wire fencing, and garland drainage (Rule 27 in MCDR 2017 for Cat B mines will pay 2 lakhs per hectare or minimum amount of financial assurance of 5 lakhs)		88145	0
	G.O.(Ms)No.23, Dated: 28.09.2021	Section IVA of TNMMCR 1959 (@10% of Seigniorage Fee) (Seigniorage Fee for rough stone = Rs.90)	3419447	0
TOTAL			5737592	2203827

Table 10.2 Estimation of Overall EMP Budget after Adjusting 5% Annual Inflation

Ist Year	IInd Year	IIIrd Year	IVth Year	Vth Year (including Mine Closure Cost)	Total Recurring Cost	Total EMP Cost
2203827	2314019	2429720	2551206	2678766	12177538	17915130

In order to implement the environmental protection measures, an amount of **Rs. 5737592** as capital cost and recurring cost as **Rs. 2203827** as recurring cost/annum is proposed considering present market price considering present market scenario for the proposed project. After the adjustment of 5% inflation per year, the overall EMP cost for 5 years will be **Rs. 17915130** as shown in Table 10.2.

10.3 CONCLUSION

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

CHAPTER XI

SUMMARY AND CONCLUSION

11.1 OVERALL JUSTIFICATION FOR IMPLEMENTATION OF THE PROJECT

11.1.1 INTRODUCTION

As the proposed rough stone and gravel mining project (B1) falls within the quarry cluster of 500 m radius with the total extent of 7.25.00ha, it requires submission of EIA report for grant of Environmental Clearance (EC) after conducting public hearing. The proposed project falling in S.F.No.293/1B, 293/2A, 293/2B, 293/2C, 295, 300/1A(Part), 301/1A1B 301/1A2(Part) & 301/1A3B over the extent of 2.59.25ha is situated in the cluster falling in Devariambakkam Village, Walajabad Taluk, Kancheepuram District, Tamil Nadu. The quarries involved in the calculation of cluster extent are of one proposed quarry and two existing quarries.

11.1.2 PROJECT DESCRIPTION

The proposed project area is located between Latitudes from 12°48'54.71"N to 12°49'1.67"N Longitudes from 79°52'40.61"E to 79°52'47.37"E in Devariambakkam Village, Walajabad Taluk, Kancheepuram District, Tamil Nadu. According to the approved mining plan, about 355708m³ of rough stone and 38942m³ of gravel will be mined up to the depth of 50 m BGL in the five years. The quarrying operation is proposed to be carried out by open cast semi-mechanized mining method involving drilling and formation of benches of the prescribed dimensions.

11.1.3 DESCRIPTION OF THE ENVIRONMENT

Baseline data were collected to evaluate the existing environmental condition in the core and buffer areas during **December 2024 through February 2025** as per CPCB guidelines. The data were collected by both the FAEs and NABL accredited and MoEF notified **Ekdant Enviro Services (P) Limited** for the environmental attributes including soil, water, noise, air and by FAEs for ecology and biodiversity, traffic, and socio-economy.

Land Environment

Land use pattern of the area of 5 km radius was studied using Sentinel II imagery. LULC types and their extent are given in Table 11.1.

Table.11.1 LULC Statistics of the Study Area

S. No.	Classification	Area (ha)	Area (%)
1	Bare Ground	3.43	0.04
2	Built Area	1524.75	17.60
3	Crops	5523.89	63.77
4	Mining/Industrial area	106.57	1.23
5	Flooded Vegetation	65.82	0.76
6	Rangeland	855.19	9.87
7	Trees	44.04	0.51
8	Water	538.09	6.21
Total		8661.78	100.0

Soil Environment

The soil samples in the study area show loamy textures varying between silty clay loam, silty loam and sandy loam. pH of the soil varies from 7.35 to 8.52 indicating slightly acidic to slightly alkaline nature. Electrical conductivity of the soil varies from 42.5 to 82.30 ($\mu\text{mhos/cm}$). Density ranges between 1.03 to 1.45 g/cc. Calcium ranges between 27.0 to 47.0 mg/kg. Magnesium ranges between 14.0 to 22.0 mg/kg. Potassium ranges between 3.0 to 15.20 mg/kg.

Water Environment

Surface Water Resources

Thernneri Lake (Palar Canal), Periamadurapakkam Lake and Ullavur Lake are the prominent surface water resources present in the study area. This river was ephemeral in nature, which convey water only after rainfall events. The proposed project area is located in 0.69 km E of Thernneri Lake (Palar Canal), and 0.81 km SE of Periamadurapakkam Lake and 1.27 km S of Ullavur Lake as shown in Table 3.5 and Figure 3.6. Three surface water sample, known as SW-1, SW-2 and SW-3 were collected and to assess the baseline water quality. Table 3.6 summarizes surface and ground water quality data of the collected sample. Result for surface water sample in the Table 3.6 indicate that the physical, chemical and biological parameters, and heavy metals are within permissible limits in comparison with standards of IS10500:2012.

Ground Water Resources

Groundwater in the study area occurs in the crystalline rocks of Archaean age and recent alluvium. The movement of the groundwater is controlled by the intensity of weathering and fracturing of crystalline rocks. Dug wells are the most common ground water abstraction structures in the area. However, in dry season, people in the study area heavily rely on bore wells for their domestic and agriculture purpose.

Three groundwater samples, known as OW-1, OW-2 and OW-3 were collected from open wells and analysed for physico-chemical conditions and bacteriological contents in order to assess baseline quality of ground water.

Data regarding depth to groundwater levels are essential to infer the direction of groundwater movement within the study area. Knowledge of groundwater flow direction is must in choosing location for background groundwater quality monitoring well and in locating recharge and discharge areas. Therefore, data regarding groundwater elevations were collected from 9 open wells and 9 bore wells at various locations within 2 km radius around the proposed project sites for the period from March through May 2022 (Pre-Monsoon Season) and from December 2022 through February, 2023 (Post Monsoon Season).

According to the data, average depths to the static water table in open wells range from 11.3 to 15.9 m BGL in pre monsoon and 6.5 to 10.5 m BGL in post monsoon. The bore well data

thus collected onsite are provided in Tables 3.9 and 3.10. The average depths to static potentiometric surface in bore wells for the period of December 2022 through February, 2023 (Post Monsoon Season) vary from 55.10 to 60.0 m and from 60.2 to 70.0 m for the period of March through May, 2022 (Pre-Monsoon Season). Data on the depths to static water table and potentiometric surface were used to draw contour lines connecting groundwater elevation (also known as equipotential hydraulic head) to determine the groundwater flow direction perpendicular to the contour lines.

Air Environment

As per the monitoring data, PM_{2.5} ranges from 15.0 µg/m³ to 19.0 µg/m³; PM₁₀ from 36.9 µg/m³ to 50.9 µg/m³; SO₂ from 3.8 µg/m³ to 5.5 µg/m³; NO_x from 12.1 µg/m³ to 15.5 µg/m³. The concentration levels of the pollutants fall within the acceptable limits of NAAQS prescribed by CPCB.

Noise Environment

Noise level in core zone was 47.4 dB (A) Leq during day time and 36.1 dB(A) Leq during night time. Noise levels recorded in buffer zone during day time varied from 40.6 to 44.8 dB (A) Leq and during night time from 36.3 to 40.5 dB (A) Leq. Thus, the noise level for industrial and residential area meets the requirements of CPCB.

Biological Environment

The study found that there is no endemic, endangered migratory fauna found in the area. This area is not also a migratory path of any faunal species. Hence, this small mining operation over short period of time will not have any significant impact on the surrounding flora and fauna.

Flora in core zone

The mine lease area contains total of 23 species belonging to 15 families have been recorded from the mine lease area. 4 shrubs, 19 herbs were identified. There are no trees in mine lease area. The floral analysis indicates that there are no threatened (Vulnerable, Endangered & Critically Endangered) species recorded from the core project site. A list of the IUCN Red List analysed plant species recorded inside the proposed project site.

Flora in 300 m radius zone

The 300m radius It contains a total of 34 species belonging to 21 families have been recorded from the buffer zone. 6 Trees (17%), 5 Shrubs (17%) and 22 Herbs and Climbers, Creeper, Grass & Cactus 20 (64%) were identified.

Fauna in Core Zone

The 21 varieties of species observed in the core zone. Among them numbers of Insects 8 (41%), Reptiles 3 (14%), Mammals 1 (4%) and Avian 9 (41%). A total of 21 species belonging to 15 families have been recorded from the core mining lease area. Number of species decreases towards the mining area this might be due the lack of vegetation. None of these species are threatened or endemic. There is no Schedule I species and eight species are under schedule IV according to Indian wild life Act 1972. A total eight species of birds were sighted in the mining lease area.

Fauna in Buffer Zone

A total of 47 species belonging to 34 families were recorded in the buffer zone. Based on habitat classification the majority of species were Birds 18 (40%), followed by Insects 15 (31%), Reptiles 7 (15%), 4 Mammals (8%) and amphibians 3 (6%). There are 4 schedule II species and 24 schedule IV species according to Indian wild life Act 1972.

Socio Economic Environment

An attempt has been made to assess the impact of the proposed mining project on Socio-economic aspect of the study area. The various attributes that have been taken into account are population composition, employment generation, occupational shift, household income and consumption pattern. Implementation of the Proposed Mine Project will generate both direct and indirect employment. Besides, mining operation will be legally valid and it will bring income to the state exchequer. At present seasonal agriculture is the main occupation of the people as more than half of the population depends on it. With the implementation of the proposed mining project the occupational pattern of the people in the area will change making more people engaged in mining- based activities rather in seasonal agriculture.

11.2 EXPLANATION OF HOW, ADVERSE EFFECTS HAVE BEEN MITIGATED.

11.2.1 Anticipated Environmental Impacts and Mitigation Measures

Land Environment

Anticipated Impact

Change in land use and land cover and topography of the mine lease area

Problems to human habitations due to dust and noise caused by movement of heavy vehicles

Soil erosion and sediment deposition in the nearby water bodies during the rainy season

Siltation of water course due to wash off from the exposed working area

Deterioration of soil quality in the surrounding area due to runoff from the project area

Decrease in the agricultural productivity of the surrounding land due to soil quality degradation

Mitigation Measures

Construction of garland drains, settling pits, and check dams to prevent runoff and siltation
Runoff water will be discharged into the settling tanks to reduce suspended sediment loads before runoff is discharged from the quarry site

The vegetation will be retained at the site wherever possible

Weekly monitoring and daily maintenance of erosion control systems so that they perform as specified specially during rainy season

Water Environment

Anticipated Impact

Surface and ground water resources may be contaminated due to pit water discharge, domestic sewage, discharge of oil and grease bearing waste water from washing of vehicles and machineries, and washouts from surface exposure or working areas

As the proposed project acquires 3.0 KLD of water from water vendors, it will not extract water by developing abstraction structures in the lease area. Therefore, the project will not have impact on depletion of aquifer beneath the lease area.

Mitigation Measures

Rain water from mine pit will be treated in settling tanks before being used for dust suppression and tree plantation purposes

Domestic sewage from site office will be discharged in septic tank and then directed to soak pits

Water from the tipper wash-down facility and machinery maintenance yard will be passed through interceptor traps/oil separators prior to its reuse

The garland drainage will be connected to settling tank and sediments will be trapped in the settling tanks and only clear water will be discharged to the natural drainage

Periodic (every 6 month once) analysis of ground water quality of quarry pit water and ground water of nearby villages will be conducted

Artificial recharge structures will be established in suitable locations as part of the rainwater harvesting management program

Air Environment

Anticipated Impact

Anticipated increase of the air pollutants due to quarrying activities have been predicted using AERMOD software. The values of cumulative concentration i.e., background + incremental concentration of pollutant in all the receptor locations are still within the prescribed NAAQ limits without effective mitigation measures. By adopting suitable mitigation measures, the pollutant levels in the atmosphere can be controlled further

Haul Road and Transportation

Water will be sprinkled on haul roads twice a day to avoid dust generation during transportation

Transportation of material will be carried out during day time and material will be covered with tarpaulin

The speed of tippers plying on the haul road will be limited to < 20 km/hr to avoid generation of dust

Water sprinkling on haul roads and loading points will be carried out twice a day

Main source of gaseous pollution will be from vehicle used for transportation of mineral.

Therefore, weekly maintenance of machines improves combustion process and reduces pollution.

The un-metalled haul roads will be compacted weekly before being put into use.

Overloading of tippers will be avoided to prevent spillage.

It will be ensured that all transportation vehicles carry a valid PUC certificate.

Haul roads and service roads will be graded to clear accumulation of loose materials.

Green Belt

Planting of trees all along mine haul roads outside the lease and regular grading of haul roads will be practiced to prevent the generation of dust due to movement of tractors/tippers.

Green belt of adequate width will be developed around the project site.

Occupational Health

Dust mask will be provided to the workers and their use will be strictly monitored.

Annual medical checkups, trainings and campaigns will be arranged to ensure awareness about importance of wearing dust masks among all mine workers and tipper drivers.

Ambient air quality monitoring will be conducted every six months to assess effectiveness of mitigation measures proposed.

Noise Environment

Anticipated Impact

Total noise level in all the sampling areas is well below the CPCB standards for industrial and residential areas. The peak particle velocity is below that of 0.3 mm/s as per Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997.

Mitigation Measures

Proper maintenance, oiling and greasing of machines will be done every week to

reduce generation of noise

Provision of sound insulated chambers for the workers working on machines (HEMM) producing higher levels of noise.

Silencers / mufflers will be installed in all machineries

Green Belt/Plantation will be developed around the project area and along the haul roads.

The plantation minimizes propagation of noise

Personal Protective Equipment (PPE) like ear muffs/ear plugs will be provided to the operators of HEMM and persons working near HEMM and their use will be ensured through training and awareness

Regular medical check-up and proper training to personnel to create awareness about adverse noise level effects.

Biological Environment

Anticipated Impact

During loading the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly

The Number of plants in the mining lease area is given in Chapter 3 which vegetation in the lease area may be removed during mining.

Carbon released from quarrying machineries and tippers during quarrying would be 3257 kg per day, 879349 kg per year and 4396746 kg for **five** years.

Mitigation Measures

During conceptual stage, the top bench will be re-vegetated by planting local /native species and lower benches will be converted into rainwater harvesting structure following completion of mining activities, which will replace habitat resources for fauna species in this locality over a longer time.

Existing roads will be used; new roads will not be constructed to reduce impact on flora.

To mitigate carbon emission due to mining activities, we recommend planting trees around the quarry to offset the carbon emission during quarrying. A tree can sequester 23197 kg of carbon per year. Therefore, we recommend planting large number of trees around the quarry and near school campuses, government wasteland, roadsides etc.

As per the greenbelt development plan as recommended by SEAC (Table 4.11), about 1296 trees will be planted within three months from the beginning of mining. These trees, when grown up would sequester carbon of 35345 about kg of the total carbon.

Socio Economic Environment

Anticipated Impact

Dust generation from mining activity can have negative impact on the health of the workers and people in the nearby area

Approach roads can be damaged by the movement of tippers

Increase in Employment opportunities both direct and indirect thereby increasing economic status of people of the region

Mitigation Measures

Good maintenance practices will be adopted for all machinery and equipment, which will help to avert potential noise problems

Green belt will be developed in and around the project site as per Central Pollution Control Board (CPCB) guidelines

Air pollution control measure will be taken to minimize the environmental impact within the core zone

For the safety of workers, personal protective appliances like hand gloves, helmets, safety shoes, goggles, aprons, nose masks and ear protecting devices will be provided as per mines act and rules

Benefit to the State and the Central governments through financial revenues by way of royalty, tax, duties, etc., from this project directly and indirectly

Occupational Health

All the persons will undergo pre-employment and periodic medical examination

Employees will be monitored for occupational diseases by conducting medical tests: General physical tests, Audiometric tests, Full chest, X-ray, Lung function tests, Spirometric tests, Periodic medical examination – yearly, Lung function test – yearly, those who are exposed to dust and Eye test

Essential medicines will be provided at the site. The medicines and other test facilities will be provided at free of cost.

The first aid box will be made available at the mine for immediate treatment. First aid training will be imparted to the selected employees regularly. The lists of first aid trained members shall be displayed at strategic places.

11.2.2 Environment Monitoring Program

Table 11.2 Environment Monitoring Program

S. No.	Environment Attributes	Location	Monitoring		Parameters
			Duration	Frequency	
1	Air Quality	2 Locations (1 Core & 1 Buffer)	24 hours	Once in 6 months	Fugitive Dust, PM _{2.5} , PM ₁₀ , SO ₂ and NO _x .

2	Meteorology	At mine site before start of Air Quality Monitoring & IMD Secondary Data	Hourly / Daily	Continuous online monitoring	Wind speed, Wind direction, Temperature, Relative humidity and Rainfall
3	Water Quality Monitoring	2 Locations (1SW & 1 GW)	-	Once in 6 months	Parameters specified under IS:10500, 1993 & CPCB Norms
4	Hydrology	Water level in open wells in buffer zone around 1 km at specific wells	-	Once in 6 months	Depth in m BGL
5	Noise	2 Locations (1 Core & 1 Buffer)	Hourly – 1 Day	Once in 6 months	Leq, Lmax, Lmin, Leq Day & Leq Night
6	Vibration	At the nearest habitation (in case of reporting)	–	During blasting operation	Peak particle velocity
7	Soil	2 Locations (1 Core & 1 Buffer)	–	Once in six months	Physical and chemical characteristics
8	Greenbelt	Within the project area	Daily	Monthly	Maintenance

Source: Guidance of manual for mining of minerals, February 2010

11.2.3 ADDITIONAL STUDIES

Risk Assessment

The DGMS risk assessment process is intended to identify existing and probable hazards in the work environment and all operations and assess the risk levels of those hazards in order to prioritize those that need immediate attention. The whole quarry operation will be carried out under the direction of a Qualified Competent Mine Manager holding certificate of competency to manage a metalliferous mine granted by the DGMS, Dhanbad for proposed project.

Disaster Management Plan

The objective of the disaster management plan is to make use of the combined resources of the mine and the outside services to:

- Rescue and treat casualties;
- Safeguard other people;
- Minimize damage to property and the environment;
- Initially contain and ultimately bring the incident under control;
- Secure the safe rehabilitation of affected area; and
- Preserve relevant records and equipment for the subsequent inquiry into the cause and circumstances of the emergency.

Cumulative Impact Study

The results on the cumulative impact of the four proposed projects on air environment of the cluster do not exceed the permissible limits set by CPCB for air pollutants.

The cumulative results of noise for the habitation in consideration do not exceed the limit set by CPCB for residential areas for day time

PPV resulting from proposed project is well below the permissible limit of Peak Particle Velocity of 3mm/s.

The proposed project will allocate Rs. 5,00,000/- towards CER as recommended by SEAC.

The proposed projects will directly provide jobs to 22 local people, in addition to indirect jobs.

The proposed projects will plant 1296 about trees in and around the lease area

The proposed three projects will add 156 PCU per day to the nearby roads.

11.2.4 Project Benefits

Various benefits are envisaged due to the three proposed mine and benefits anticipated from the proposed project to the locality, neighbourhood, region and nation as a whole are:

Direct employment to 22 local people

Creation of community assets (infrastructure) like school buildings, village roads/ linked roads, dispensary & health Centre, community Centre, market place etc.,

Strengthening of existing community facilities through the Community Development Program

Skill development & capacity building like vocational training.

Rs. 5,00,000 will be allocated for CER

11.2.5 ENVIRONMENT MANAGEMENT PLAN

In order to implement the environmental protection measures, an amount of **Rs. 5737592** as capital cost and recurring cost as **Rs. 2203827** as recurring cost/annum is proposed considering present market price considering present market scenario for the proposed project. After the adjustment of 5% inflation per year, the overall EMP cost for 5 years will be **Rs. 17915130**.

CHAPTER XII

DISCLOSURES OF CONSULTANT

The Project Proponent, **Mr. M. Dhayalan** has engaged **Geo Technical Mining Solutions**, a NABET accredited consultancy for carrying out the EIA study as per the ToR issued.

Address of the consultancy:

No: 1/213B Natesan Complex,
Oddapatti, Dharmapuri – 636705,
Tamil Nadu, India.
Email: info.gtmsdpi@gmail.com
Web: www.gtmsind.com
Phone: 04342 232777.

The accredited experts and associated members who were engaged in this EIA study are given below:

S.No	Name of the expert	In house/ Empanelled	Sector	Functional Area	Category
Approved Functional Area Experts & EC					
1	Dr.R.Arunbalaji	EIA Coordinator (EC) In-house	1(a)(i)	AQ, AP & NV	B
2	P. Vellaiyan	In-house, FAE	1(a)(i)	GEO	B
3	R. Elavarasan	In-house, FAE	1(a)(i)	EB	B
4	K. Udayakumar	In-house, FAE	1(a)(i)	SE	B
5	Dr. D.Kalaimurugan	In-house, FAE	1(a)(i)	SC	B
6	J.N. Manikandan	Empanelled FAE	1(a)(i)	RH, SHW, AP	B
7	R. Revathy	In-house, FAE	1(a)(i)	WP	B
8	G. Umamaheswaran	In-house, FAE	1(a)(i)	HG	B
9	P. Venkatesh	In-house, FAE	1(a)(i)	AP	B
10	C. Kumaresan	In-house, FAE	1(a)(i)	NV	B
11	G. Prithiviraj	In-house, FAE	1(a)(i)	LU & LC	B
Approved Functional Area Associates					
12	V. Malavika	FAA	1(a)(i)	NV	B
13	P. Dhatchayini	FAA	1(a)(i)	AQ	B
14	M. Arunkumar	FAA	1(a)(i)	WP	B
15	C. Ragul	FAA	1(a)(i)	LU & LC	B

16	K. Ravichandiran	FAA	1(a)(i)	GEO	B
17	K. Prithivi	FAA	1(a)(i)	HG	B
18	G. Kavitha	FAA	1(a)(i)	EB, SC	B
Abbreviations					
EC	EIA Coordinator	NV	Noise and Vibration		
FAE	Functional Area Expert	SE	Socio Economics		
FAA	Functional Area Associates	HG	Hydrology, ground water and water conservation		
TM	Team Member	SC	Soil conservation		
GEO	Geology	RH	Risk assessment and hazard management		
WP	Water pollution monitoring, prevention and control	SHW	Solid and hazardous wastes		
AP	Air pollution monitoring, prevention and control	MSW	Municipal Solid Wastes		
LU	Land Use	ISW	Industrial Solid Wastes		
AQ	Meteorology, air quality modelling, and prediction	HW	Hazardous Wastes		
EB	Ecology and bio-diversity	GIS	Geographical Information System		

DECLARATION BY EXPERTS CONTRIBUTING TO THE EIA & EMP

I, hereby, certify that I was a part of the EIA team in the following capacity that developed the EIA & EMP report.

Signature

:



Date

:

Name

: **Dr.R. Arun Balaji**

Designation

: EIA Coordinator

Name of the EIA Consultant Organization

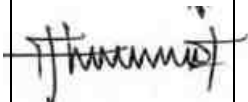
: Geo Technical Mining Solutions

Period of Involvement

: Till date

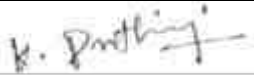
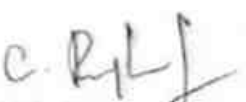
We, the FAEs and FAAs hereby declare that information furnished in this EIA/EMP report for **Mr.M.Dhayalan** rough stone and gravel quarry project with the extent of 2.59.25ha situated in the cluster with the extent of 7.25.0ha in Devariyambakkam Village, Walajabad Taluk, Kancheepuram District, of Tamil Nadu is true and correct to the best of our knowledge.

List of Functional Area Experts Engaged in this Project

S. No.	Functional Area	Involvement	Name of the Experts	Signature
1	AP	○ Identification of different sources of air pollution due to the proposed mine activity ○ Prediction of air pollution and propose mitigation measures / control measures	P.Venkatesh	
2	WP	○ Suggesting water treatment systems, drainage facilities ○ Evaluating probable impacts of effluent/waste water discharges into the receiving environment/water bodies and suggesting control measures.	R.Revathy	
3	HG	○ Interpretation of ground water table and predict impact and propose mitigation measures. ○ Analysis and description of aquifer Characteristics	G.Umamaheshwaran	
4	GEO	○ Field Survey for assessing the regional and local geology of the area. ○ Preparation of mineral and geological maps. ○ Geology and Geo morphological analysis/description and Stratigraphy/Lithology.	P. Vellaiyan	
5	SE	○ Revision in secondary data as per Census of India, 2011. ○ Impact Assessment & Preventive Management Plan ○ Corporate Environment Responsibility.	K. Udayakumar	
6	EB	○ Collection of Baseline data of Flora and Fauna. ○ Identification of species labelled as Rare, Endangered and	R.Elavarasan	

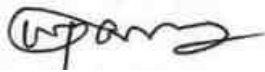
		threatened as per IUCN list. ○ Impact of the project on flora and fauna. ○ Suggesting species for greenbelt development.		
7	RH	○ Identification of hazards and hazardous substances ○ Risks and consequences analysis ○ Vulnerability assessment ○ Preparation of Emergency Preparedness Plan ○ Management plan for safety.	J.N. Manikandan	
8	LU	○ Construction of Land use Map ○ Impact of project on surrounding land use ○ Suggesting post closure sustainable land use and mitigative measures.	G. Prithiviraj	
9	NV	○ Identify impacts due to noise and vibrations ○ Suggesting appropriate mitigation measures for EMP.	C. Kumaresan	
10	AQ	○ Identifying different source of emissions and propose predictions of incremental GLC using AERMOD. ○ Recommending mitigations measures for EMP	Dr.R. Arun Balaji	
11	SC	○ Assessing the impact on soil environment and proposed mitigation measures for soil conservation	Dr. D.Kalaimurugan	
12	SHW	○ Identify source of generation of non-hazardous solid waste and hazardous waste. ○ Suggesting measures for minimization of generation of waste and how it can be reused or recycled.	J.N. Manikandan	

List of Functional Area Associate Engaged in this Project

S. No.	Name	Functional Area	Involvement	Signature
1	V. Malavika	NV, SHW	○ Site visit along with FAE Assistance in report preparation. ○ Assistance to FAE in both primary and secondary data collection ○ Assistance in noise prediction modelling	
2	P. Dhatchayini	AQ	○ Site visit with FAE ○ Assistance to FAE in collection of both primary and secondary data	
3	K.Prithivi	HG	○ Site visit with FAE ○ Provide inputs & Assisting FAE for HG	
4	K.Ravichandiran	GEO	○ Field visits along with FAE ○ Assistance to FAE in both primary and secondary data collection	
5	C.Ragul	LU & LC	○ Field visits along with FAE Assistance to FAE in both primary and secondary data collection	
6	G.Kavitha	EB, SC	○ Site visit with FAE ○ Collection of Baseline data of Flora and Fauna. ○ Impact of the project on flora and fauna.	
7	M.Arunkumar	WP	○ Field visits along with FAE ○ Assistance to FAE in both primary and secondary data collection	

DECLARATION BY THE HEAD OF THE ACCREDITED CONSULTANT ORGANIZATION

I, **Dr. S. KARUPPANNAN**, Managing Partner, **Geo Technical Mining Solutions**, hereby, confirm that the above-mentioned functional area experts and team members prepared the EIA/EMP report for **Mr.M.Dhayalan** rough stone and gravel quarry project with the extent of 2.59.25ha situated in the cluster with the extent of 7.25.0ha in Devariyambakkam Village, Walajabad Taluk, Kancheepuram District, of Tamil Nadu is true and correct to the best of our knowledge.

Signature	:	
Date	:	
Name	:	Dr. S. Karuppannan
Designation	:	Managing Partner
Name of the EIA Consultant Organization	:	Geo Technical Mining Solutions
NABET Certificate No & Issue Date	:	NABET/EIA/23-26/RA 0319
Validity	:	Till 31.12.2026

TERMS OF REFERENCE (ToR) COMPLIANCE

ToR File No. 11378

ToR Identification No. TO24B0108TN5756614N, dated.11/01/2025

Mr.M.Dhayalan, Rough Stone and Gravel Quarry

Specific Terms of Reference for (Mining of Minerals)

1.SEAC Conditions – Site Specific

1.1	S.No	Terms of Reference	Remarks
	1	A Cluster Management Committee (CMC) shall be constituted including all the mines in the cluster as Committee Members for the effective management of the mining operation in the cluster through systematic & scientific approach with appointment of statutory personnel, appropriate environmental monitoring, good maintenance of haul roads and village/panchayat roads, authorized blasting operation etc. The PP shall submit the following details in the form of an Affidavit during the EIA appraisal: (i) Copy of the agreement forming CMC. (ii) The Organisation chart of the Committee with defining the role of the members (iii) The ‘Standard Operating Procedures’ (SoP) executing the planned activities.	The Cluster Management Committee (CMC) regarding following these conditions and same documents will be submitted during the EIA appraisal meeting.

	2	The PP shall conduct a hydrological study through a reputed institution since there is a waterbody located on the southern side and the PP shall submit the same and the mitigation measures along with the EIA report.	The hydrological study through a reputed institution will be submitted in the final EIA report.
	3	The PP shall enumerate the details of the agricultural/horticultural activities done within the 1 km of the proposed quarry and the mitigation measures along with the EIA report.	The details of agricultural/horticultural activities is discussed in the Section 3.5 under Chapter III in the EIA report page 58-73.
	4	The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m & upto 1km shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc. and spell out the mitigation measures to be proposed for the protection of the above structures, if any during the quarrying operations.	The map showing the details of structures within the radius of 500m from the proposed project area will be submitted in the final EIA report.
	5	The proponent shall furnish photographs of adequate fencing, garland drainage built with siltation tank & green belt along the periphery including replantation of existing trees; maintaining the safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	The photographs of green belt, fencing and garland drainage will be submitted in the final EIA report.

	6	The Proponent shall carry out Bio diversity study as a part of EIA study and the same shall be included in the Report.	The Bio diversity is studied in the Section 3.5 under the Chapter III in the EIA report page 58-73.
	7	The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	The EMP for the entire mine life is discussed in the Table 10.1 & 10.2 under Chapter X in the EIA report page 129-135. The sworn affidavit for the entire life of mine will be submitted during final EIA report.
	8	The PP shall prepare a conceptual working plan accommodating the inclusion of haul road accessibility keeping the benches intact, by ensuring the slope stability of the working benches to be constructed and existing quarry wall.	The details regarding conceptual working plan accommodating the inclusion of haul road are discussed in the Approved mining plan which is attached in the Annexure III.

2. SEAC Standard Conditions

S.No	Terms of Reference		Remarks
2.1	1	In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following:	As it is a fresh quarry, the conditions are not applicable.
		(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.	
	2	Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.		The VAO certificate is attached in Annexure IV.
	3	The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc		The map showing the details of structures within the radius of 500m will be submitted in the final EIA report.
	4	The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.		Detailed hydrological study will be submitted in the final EIA report.

5	The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.	The details of Bio diversity from the reputed institution will be submitted in the final EIA report.
6	The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc, up to a radius of 25 km from the proposed site.	The DFO letter will be submitted in the final EIA report.
7	In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.	As it is a fresh lease area, the Slope Stability report is not required.
8	However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the	As it is a fresh lease area, the Slope Stability report is not required.

	working is extended beyond 30 m below ground level.	
9	The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.	The affidavit for blasting will be enclosed in the final EIA report.
10	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.	A conceptual design of blasting has been given in Section 2.7 under Chapter II in the EIA report page 17-22.
11	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.	The details and the photographic evidence showing the project proponents of past mining activities will be submitted in the EIA report.
12	If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,	
13	What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	As it is a new quarry, the conditions are not applicable.
14	Quantity of minerals mined out.	
	- Highest production achieved in any one year. - Detail of approved depth of mining.	

		Actual depth of the mining achieved earlier.	
		Name of the person already mined in that leases area. If EC and CTO already obtained, the copy of the same shall be submitted.	
		Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.	
	15	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Toposheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	All corner coordinates of the mine lease area have been superimposed on a high-resolution Google Earth Image, as shown in Figure 2.4 under Chapter II in the EIA report page 12.
	16	The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.	The drone video will be submitted during final EIA presentation.
	17	The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	Photographs of adequate fencing, green belt along the periphery of the project area and the photographs showing nearby water bodies will be included in final EIA report.
	18	The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the	The Resources and Reserves of Rough Stone were calculated based on cross-section method by plotting sections to cover the maximum lease area for the

	mining operations on the surrounding environment, and the remedial measures for the same.	proposed project. The details reserve estimation has been shown in Table 2.3 under Chapter II in the EIA report page 14.
19	The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	Details of manpower required for this project have been given in Table 2.12 under Chapter II in the EIA report page 22.
20	The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.	The hydrogeological study is discussed in the Section 3.3.3.1 under Chapter III in the EIA report page 37-43.
21	The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface	The baseline data were collected for the environmental components including land, soil, water, air,

	water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.	noise, biology, socio-economy, and traffic and the results have been discussed under Chapter III in the EIA report page 23-88.
22	The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	Results of cumulative impact study due to mining operations are given in Section 7.3 under Chapter VII in the EIA report page 120-122.
23	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	As part of rainwater harvesting measures, the rain water from garland drainage system will be diverted to nearby check dams after treating the water in settling tanks. The detailed rain water harvesting report will be submitted in the final EIA report.
24	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted.	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 has been discussed in Section 3.3.1 under Chapter III in the EIA report page 25. The details of surrounding

		Impact, if any, of change of land use should be given.	sensitive ecological features have been provided in Table 3.38 under Chapter III in the EIA report page 87. Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Table 2.7 under Chapter II in the EIA report page 20.
	25	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.	This condition is not applicable to this project because no dumps have been proposed outside the lease area.
	26	Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range.
	27	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	As part of rainwater harvesting measures, the rain water from garland drainage system will be diverted to nearby check dams after treating the water in settling tanks.
	28	Impact on local transport infrastructure due to the Project should be indicated.	Details regarding the impact of the project on traffic are given in

		Section 3.3.8 under Chapter III in the EIA report page 84-86.
29	A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.	A detailed tree survey was carried out within 300 m radius and the results have been discussed in Section 3.5 under Chapter III in the EIA report page 58-73.
30	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	A progressive mine closure plan has been attached with the approved mining plan report in Annexure III. The budget details for the progressive mine closure plan are shown in Table 2.8 under Chapter II in the EIA report page 20.
31	As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.	The EIA coordinator and the FAE for ecology and biodiversity visited the study area and educated the local students about the importance of protecting the biological environment.
32	The purpose of green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with	A detailed greenbelt development plan has been provided in Table 4.11 under Chapter IV in the EIA report page 104.

	shrubs should be planted in a mixed manner.	
33	Taller/one year old Saplings raised in appropriate size of bags; preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner	The FAE of ecology and biodiversity has advised the project proponent that saplings of one year old raised in the eco-friendly bags should be purchased and planted with the spacing of 3 m between each plant around the proposed project area as per the advice of local forest authorities/botanist.
34	A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	A disaster management plan for the project has been provided in Section 7.2 under Chapter VII in the EIA report page 118-119.
35	A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	A risk assessment plan for the project has been provided in Section 7.2 under Chapter VII in the EIA report page 115-118.
36	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Occupational health impacts of the project and preventive measures have been discussed in detail in Section 4.5 under Chapter IV in the EIA report 108-109.

37	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	No public health implications are anticipated due to this project. Details of CSR and CER activities have been discussed in Sections 8.6 and 8.7 under Chapter VIII in the EIA report page 125-126.
38	The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	No negative impact on socio-economic environment of the study area is anticipated and this project shall benefit the socio-economic environment by offering employment for 23 people directly as discussed in Section 8.1 under Chapter VIII in the EIA report page 124.
39	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	No litigation is pending in any court against this project.
40	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	The benefits of the project are discussed in the Chapter VIII in the EIA report page 124-126.
41	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.	It is fresh lease area and the condition is not applicable.

	42	The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	A detailed environment management plan has been prepared following the suggestion made by SEAC, as shown in Chapter X in the EIA report page 128-135. The sworn affidavit stating to abide the EMP for the entire life of mine will be submitted during final EIA report.
	43	Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.	The EIA report has been prepared keeping in mind the fact that concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may lead to withdrawal of this terms of reference besides attracting penal provisions in the Environment (Protection) Act, 1986.

3.SEIAA Standard Conditoins:

S.No	Terms of Reference		Remarks
	Cluster Management Committee		
3.1	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.	A cluster management committee including all the proponents of the rough stone quarrying projects within the cluster of 500 m radius will be constituted for the effective implementation of green belt development plan, water sprinkling, blasting, etc.

	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.	The members of the cluster management committee will be instructed to carry out EMP in coordination.
	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.	The list of members of the committee formed will be submitted to AD/Mines before the execution of mining lease.
	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.	All the information has been discussed in Section 2.7 under Chapter II in the EIA report page 17-22.
	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.	It will be informed to the committee.
	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.	It will be advised to the cluster management committee 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 will be given in detail.

	7	The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.	A proper action plan regarding the restoration will be followed by the committee.
	8	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public in the vicinity.	The information on the health of the workers and the local people will be updated periodically.
	Agriculture & Agro-Biodiversity		
	9	Impact on surrounding agricultural fields around the proposed mining Area.	There shall be negligible air emissions or effluents from the project site. During loading the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly, as shown in Section 4.2.6 under Chapter IV in the EIA report page 102-106.
	10	Impact on soil flora & vegetation around the project site.	The details on flora have been provided in Section 3.5 under Chapter III in the EIA report page 58-73. There is no schedule I species of animals observed within study area as per Wildlife Protection Act, 1972 and no species falls in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area.
	11	Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all	Details of vegetation in the lease area have been provided in Section 3.5 under Chapter III in the EIA report page 58-73. Details about

		along the boundary of the proposed mining area shall committed mentioned in EMP.	transplantation of plants have been provided in Section 4.2.6 under Chapter IV in the EIA report page 102-106.
	12	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 ecological details have been provided in Section 3.5 under Chapter III in the EIA report page 58-73 and measures have been provided in Section 4.2.6 under Chapter IV in the EIA report page 102-106.
	13	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	All the essential environmental protective measures will be followed by the proponent to manage the surrounding environment and restore the ecosystem, as discussed in Chapter IV in the EIA report page 89-109.
	14	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.	The impact of project on the land environment has been discussed in Section 4.2 under Chapter IV in the EIA report page 89-90.
	Forests		
	15	The project proponent shall detail study on impact of mining on Reserve forests free ranging wildlife.	The project proponent shall do barbed wire fencing work and develop a green belt around the lease area to prevent wildlife from entering the site.
	16	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	The impacts of the project on ecology and biodiversity have been discussed in Section 4.2.6 under Chapter IV in the EIA report page 102-106.
	17	The Environmental Impact Assessment should study impact on	The impacts of the project on standing trees and the existing trees have been

		standing trees and the existing trees should be numbered and action suggested for protection.	discussed in Section 4.2.6 under Chapter IV in the EIA report page 102-106.
	18	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	The protected areas, National Parks, Corridors and Wildlife pathways near project site within 10 km radius has been provided in Table 3.38 under Chapter III in the EIA report page 87.
	19	Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.	The detailed hydro-geology will be submitted in the final EIA report.
	20	Erosion Control measures.	Garland drainage structures will be constructed around the lease area to control the erosion, as discussed in Section 4.2.3 under Chapter IV in the EIA report page 91-92.
	21	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.	The matter has been discussed under Chapter IV in the EIA report page 89-109.

	22	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	An analysis for food chain in aquatic ecosystem has been discussed in Section 3.5.1 under Chapter III in the EIA report page 68.
	23	The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.	The impacts of the proposed project on the surrounding environment have discussed in Chapter IV in the EIA report page 89-109.
	24	The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.	The impact of the proposed project on aquatic plants and animals in water bodies has been discussed in Section 4.2.6 under Chapter IV in the EIA report page 105.
	25	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.	The impact of mining on soil environment has been discussed in Section 4.2.2 under Chapter IV in the EIA report page 90.
	26	The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.	The impacts on water bodies, streams, lakes have been discussed in Section 4.2.3 under Chapter IV in the EIA report page 91-92.
	27	The EIA shall include the impact of mining activity on the following:	
		a. Hydrothermal / Geothermal effect due to destruction in the Environment	a. The average geothermal gradient of earth is 25 ⁰ C/km. As the proposed depth of mining is 40m below the local ground level, the temperature will increase by 1.25 ⁰ C at the depth of mining.

		b. Bio-geochemical processes and its foot prints including environmental stress.	b. No, Bio-geochemical processes and its foot prints including environmental stress are anticipated and at the end of life of mine the proposed quarry shall be left as an artificial reservoir structure and allowed to collect rain water and shall enrich the ecosystem.
		c. Sediment geochemistry in the surface streams	c. The details of sediment geochemistry are discussed in the Table 3.4 under Chapter III in the EIA report page 32.
	Energy		
	28	The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.	The measures taken to control noise, air, water, and dust have been given under Chapter IV in the EIA report page 89-109.
	29	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.	The carbon emission and the measures to mitigate carbon emission have been discussed in Section 4.2.6 under Chapter IV in the EIA report page 102-106.
	30	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock, soil health and physical, chemical & biological soil features.	The matter has been discussed in Chapter IV in the EIA report page 89-109.

	31	Impact of mining on pollution leading to GHGs emissions and the impact of the same on the local livelihood.	There is no emission impact to local livelihood from this quarry project. All the vehicles used for transportation of the quarry materials will be maintained regularly to keep the GHGs emissions within statutory limits.
	32	Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.	A progressive mine closure plan has been attached with the approved mining plan report in Annexure III. The budget details for the progressive mine closure plan are shown in Table 2.9 under Chapter II in the EIA report page 20.
	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.	A detailed Environment Management plan has been given under Chapter X in the EIA report page 128-135.
	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.	A detailed Environment Management plan has been given in Tables 10.1 & 10.2 under Chapter X in the EIA report page 129-135.
	Risk Assessment		
	35	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	The risk assessment and management plan for this project has been provided in Section 7.2 under Chapter VII in the EIA report page 115-118.
	Disaster Management Plan		
	36	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce	The disaster management plan for this project has been provided in Section

		vulnerability to hazards & to cope with disaster/unfavorable accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.	7.2 under Chapter VII in the EIA report page 118-120.
	Others		
	37	The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.	The VAO certificate is attached in the attached in the Annexure IV.
	38	As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	The concerns raised during the public consultation will be submitted in the final EIA report.
	39	The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.	The plastic waste management has been given in Section 7.3 under Chapter VII in the EIA report page 122-123.

Standard Terms of Reference for (Mining of Minerals)

1.

1.1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.	Not applicable. This is not a violation category project. This proposal falls under B1 category.
1.2	A copy of the document in support of the fact that the proponent is the rightful lessee of the mine should be given.	The proposed site for quarrying is a private land. A copy of the document showing that the proponent is the rightful lessee has been enclosed along with the approved mining plan in Annexure III.
1.3.	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.	All the documents are in the name of the lessee.
1.4.	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/ toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	All corner coordinates of the mine lease area have been superimposed on a high-resolution Google Earth Image, as shown in Figure 2.4 under Chapter II in the EIA report page 12.

1.5.	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.	Toposheets of Survey of India have been used for showing sampling locations of air, soil, water, and noise, as shown in Chapter III in the EIA report page 23-88.
1.6.	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.	The lease area was inspected by the officers of Department of Geology along with revenue officials and found that the land is fit for quarrying under the policy of State Government.
1.7.	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/ procedures to bring into focus any infringement/ deviation/ violation of the environmental or forest norms/conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of	The Environmental Policy is discussed in the Section 10.1 under Chapter X in the EIA report page 128-129.

	Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report	
1.8.	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided	It is an opencast quarrying operation proposed to operate in Manual method. The rough stone formation is a hard, compact and homogeneous body. The height and width of the bench will be maintained as 5m with 90° bench angles. Quarrying activities will be carried out under the supervision of Competent Persons like Mines Manager, Mines Foreman and Mining Mate. Necessary permissions will be obtained from DGMS after obtaining Environmental Clearance.
1.9.	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc., should be for the life of the mine / lease period.	The study area considered for this study is of 5 km radius for air, soil, water, and noise level sample collections, while the study area is 10 km radius for ecology and biodiversity studies and all data contained in the EIA report such as waste generation etc., is for the life of the mine / lease period.
1.10.	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases	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 has been discussed in Section 3.3.1 under Chapter III in the EIA report page 25. The details of surrounding sensitive ecological features have been provided in Table 3.38 under Chapter III in the EIA report page 87.

	and submitted. Impact, if any, of change of land use should be given.	Land use plan of the project area showing pre- operational, operational and post-operational phases are discussed in Table 2.7 under Chapter II in the EIA report page 20.
1.11.	Details of the land for any over burden dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.	It is not applicable as no dumps have been proposed outside the lease area. The entire quarried out rough stone will be transported to the needy customers.
1.12.	Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.	It is not applicable as there is no forest land involved within the proposed project area. The details have been discussed in Table 3.38 under Chapter III in the EIA report page 87.
1.13.	Status of forestry clearance for the broken- up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the	It is not applicable as the proposed project area does not involve any forest land.

	forestry clearance should also be furnished.	
1.14.	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.	Not Applicable. The project doesn't attract Recognition of Forest Rights Act, 2006 as there are neither forests nor forest dwellers / forest dependent communities in the mine lease area. There shall be no forest impacted families (PF) or people (PP). Thus, the rights of Traditional Forest Dwellers will not be compromised on account of the project.
1.15.	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	There is no any Reserve Forest area in the study area. The details of reserve forest within 5km radius are discussed in the Table 3.38 under Chapter III in the EIA report page 87.
1.16.	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.	There is no any wildlife/protected area within 10 km radius from the periphery of the project area. Information regarding the same has been given in Table 3.38 under Chapter III in the EIA report page 87.
1.17.	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/ (existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly	There are No National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/ Elephant Reserves within 10 km radius from the periphery of the project area. Information regarding the same has been given in Table 3.38 under Chapter III in the EIA report page 87.

	authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.	
1.18.	A detailed biological study of the study area [core zone and buffer zone (10 KM radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.	A detailed biological study was carried out in both core and buffer zones and the results have been discussed in Section 3.5 under Chapter III in the EIA report page 58-73.
1.19.	Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravalli Range', (attracting court restrictions for	Not Applicable. Project area / Study area is not declared. in 'Critically Polluted' Area and does not come under 'Aravalli Range.

	mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.	
1.20.	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).	Not Applicable The project doesn't attract the C.R.Z. Notification, 2018.
1.21.	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need-based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought	Not Applicable. There are no approved habitations of SCs/STs and other weaker sections in the lease area. Therefore, R&R Plan / Compensation Plan for the Project Affected People (PAP) are not provided.

	out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspect should be discussed in the Report	
1.22	One season (non-monsoon) [i.e., March- May (Summer Season); October-December (post monsoon season); December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.	Baseline data were collected for the period of December 2024 through February 2025 as per CPCB notification and MoEF & CC Guidelines. Primary baseline data and the results have been included in Sections 3.1.1-3.3.9 under Chapter III in the EIA report page 23-87.
1.23.	Air quality modelling should be carried out for prediction of impact of the	Air quality modelling for prediction of incremental GLCs of pollutants was

	project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map	carried out using AERMOD view 11.2.0. The model results have been given in Section 4.2.4 under the Chapter IV in the EIA report page 92-96.
1.24.	The water requirement for the project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the project should be indicated.	The water requirement for the project, its availability and source have been provided in Table 2.9 under Chapter II in the EIA report page 20.
1.25.	Necessary clearance from the competent Authority for drawl of requisite quantity of water for the project should be provided.	Not Applicable. Water for dust suppression, greenbelt development and domestic use will be sourced from accumulated rainwater/seepage water in mine pits and purchased from local water vendors through water tankers on daily requirement basis. Drinking water will be sourced from the approved water vendors.
1.26.	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	Part of the working pit will be allowed to collect rain water during the spell of rain. The water thus collected will be used for greenbelt development and dust suppression. The mine closure plan has

		been prepared for converting the excavated pit into rain water harvesting structure and serve as water reservoir for the project village during draught season.
1.27.	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.	Impact studies and mitigation measures of water environment including surface water and ground water have been discussed in Section 4.3 under Chapter IV in the EIA report page 91-92.
1.28.	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	The ground water table is found at the depth of 60m below ground level. The ultimate depth of quarry is 50m BGL. Therefore, the mining activity will not intersect the ground water table. Data regarding the occurrence of groundwater table have been provided in Section 3.3.3 under Chapter III in the EIA report page 33-43.
1.29.	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out	Not Applicable. There are no streams, seasonal or other water bodies passing within the project area. Therefore, no modification or diversion of water bodies is anticipated
1.30.	Information on site elevation, working depth, groundwater table etc. Should be	The highest elevation of the project area is 65m AMSL. Ultimate depth of the mine is

	provided both in AMSL and BGL. A schematic diagram may also be provided for the same.	50m BGL. Depth to the water level in the area is 60m BGL.
1.31.	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up. From on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution	Greenbelt development plan has been given in Section 4.2.6 under Chapter IV in the EIA report page 102-106.
1.32.	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated	Traffic density survey was carried out to analyses the impact of transportation in the study area as per IRC guidelines 1961 and it is inferred that there is no significant impact due to the proposed transportation from the project area. Details have been provided in Section 3.3.8 under Chapter III in the EIA report page 84-86.

	(including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.	
1.33.	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	Infrastructure & other facilities will be provided to the mine workers after the grant of quarry lease and the same has been discussed in Section 2.8.2 under Chapter II in the EIA report page 20.
1.34.	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.	Progressive mine closure plan has been prepared for this project and is given in Section 2.8.3 under Chapter II in the EIA report page 20.
1.35.	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Occupational health impacts of the project and preventive measures have been explained in detail in Section 4.5 under Chapter IV in the EIA report page 108-109.
1.36.	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with	No public health implications are anticipated due to this project. Details of CSR and CER activities have been discussed in Sections 124 and 126 under Chapter VIII in the EIA report page 124-125.

	budgetary allocations.	
1.37.	Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	No negative impact on socio-economic environment of the study area is anticipated and this project shall benefit the socio-economic environment by offering employment for 22 people directly as discussed in Section 8.1 under Chapter VIII 124.
1.38.	Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.	A detailed Environment Management Plan has been prepared and provided in Tables 10.1 & 10.2 under Chapter X in the EIA report page 129-135.
1.39.	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.	The outcome of public hearing will be submitted during the final EIA report.
1.40.	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given	No litigation is pending in any court against this project.
1.41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.	Project Cost is Rs.1,33,66,000/- CER Cost is Rs.5,00,000/- In order to implement the environmental protection measures, an amount of Rs.5737592 as capital cost and recurring cost as Rs.2203827 as recurring cost/annum is

		proposed considering present market price considering present market scenario for the proposed project. After the adjustment of 5% inflation per year, the overall EMP cost for 5 years will be Rs.17915130, as shown in Tables 10.1 & 10.2 under Chapter X in the EIA report page 129-135.
1.42.	A disaster management plan shall be prepared and included in the EIA/EMP Report.	The disaster management plan for this project has been provided in Section 7.2 under Chapter VII in the EIA report page 118-120.
1.43.	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	Benefits of the project details have been given under Chapter VIII in the EIA report page 124-126.
1.44	Besides the above, the below mentioned general points are also to be followed:	
a)	Executive Summary of the EIA/EMP Report.	Executive summary has been enclosed as a separate booklet.
b)	All documents to be properly referenced with index and continuous page numbering.	All the documents have been properly referenced with index and continuous page numbering.
c)	Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.	List of tables and source of the data collected have been mentioned.
d)	Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF & CC/NABL accredited laboratories. All the original analysis/testing reports should be available	Original Baseline monitoring reports will be submitted in the final EIA report.

	during appraisal of the Project.	
e)	Where the documents provided are in a language other than English, an English translation should be provided.	All the documents provided here are in English language.
f)	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	The questionnaire will be submitted in the final EIA report.
g)	While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA. II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.	Instructions issued by MoEF & CC O.M. No. J-11013/41/2006-IA. II (I) dated 4 th August, 2009 have been followed while preparing the EIA report
h)	Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF & CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation	No changes are made in the basic scope and the project parameters.
i)	As per the circular no. J-11011/618/2010- IA. II(I) Dated: 30.5.2012, certified report of the status of compliance of the conditions	As it is a new lease area, the condition is not applicable.

	stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.	
j)	The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.	All the plans including surface & geological plans, and progressive closure plan have been included in Annexure III.

A. STANDARD TERMS OF REFERENCE

1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.	Not applicable. This is not a violation category project. This proposal falls under B1 category.
2	A copy of the document in support of the fact that the proponent is the rightful lessee of the mine should be given.	The proposed site for quarrying is a private land. A copy of the document showing that the proponent is the rightful lessee has been enclosed along with the approved mining plan in Annexure III.
3.	All documents including approved mine plan, EIA and Public Hearing	All the documents are in the name of the lessee.

	should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.	
4.	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/ toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	All corner coordinates of the mine lease area have been superimposed on a high-resolution Google Earth Image, as shown in Figure 2.4 under Chapter II in the EIA report page 12.
5.	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.	Toposheets of Survey of India have been used for showing sampling locations of air, soil, water, and noise, as shown in Chapter III in the EIA report page 23-88.
6.	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.	The lease area was inspected by the officers of Department of Geology along with revenue officials and found that the land is fit for quarrying under the policy of State Government.
7.	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by	The Environmental Policy is discussed in the Section 10.1 under Chapter X in the EIA report page 128-129.

	its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/ procedures to bring into focus any infringement/ deviation/ violation of the environmental or forest norms/conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report	
8.	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided	It is an opencast quarrying operation proposed to operate in Manual method. The rough stone formation is a hard, compact and homogeneous body. The height and width of the bench will be maintained as 5m with 90° bench angles. Quarrying activities will be carried out under the supervision of Competent Persons like Mines Manager, Mines Foreman and Mining Mate. Necessary permissions will be obtained from DGMS after obtaining Environmental Clearance.
9.	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the	The study area considered for this study is of 5 km radius for air, soil, water, and noise level sample collections, while the study

	EIA such as waste generation etc., should be for the life of the mine / lease period.	area is 10 km radius for ecology and biodiversity studies and all data contained in the EIA report such as waste generation etc., is for the life of the mine / lease period.
10.	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	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 has been discussed in Section 3.3.1 under Chapter III in the EIA report page 25. The details of surrounding sensitive ecological features have been provided in Table 3.38 under Chapter III in the EIA report page 87. Land use plan of the project area showing pre- operational, operational and post-operational phases are discussed in Table 2.7 under Chapter II in the EIA report page 20.
11.	Details of the land for any over burden dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.	It is not applicable as no dumps have been proposed outside the lease area. The entire quarried out rough stone will be transported to the needy customers.
12.	Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by	It is not applicable as there is no forest land involved within the proposed project area. The details have been discussed in Table 3.38 under Chapter III in the EIA report page 87.

	the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.	
13.	Status of forestry clearance for the broken- up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.	It is not applicable as the proposed project area does not involve any forest land.
14.	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.	Not Applicable. The project doesn't attract Recognition of Forest Rights Act, 2006 as there are neither forests nor forest dwellers / forest dependent communities in the mine lease area. There shall be no forest impacted families (PF) or people (PP). Thus, the rights of Traditional Forest Dwellers will not be compromised on account of the project.
15.	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	There is no any Reserve Forest area in the study area. The details of reserve forest within 5km radius are discussed in the Table 3.38 under Chapter III in the EIA report page 87.

16.	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.	There is no any wildlife/protected area within 10 km radius from the periphery of the project area. Information regarding the same has been given in Table 3.38 under Chapter III in the EIA report page 87.
17.	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/ (existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.	There are No National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km radius from the periphery of the project area. Information regarding the same has been given in Table 3.38 under Chapter III in the EIA report page 87.
18.	A detailed biological study of the study area [core zone and buffer zone (10 KM radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such	A detailed biological study was carried out in both core and buffer zones and the results have been discussed in Section 3.5 under Chapter III in the EIA report page 58-73.

	primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.	
19.	Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravalli Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.	Not Applicable. Project area / Study area is not declared. in 'Critically Polluted' Area and does not come under 'Aravalli Range.
20.	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal	Not Applicable The project doesn't attract the C.R.Z. Notification, 2018.

	Zone Management Authority).	
21.	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need-based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspect should be discussed in the Report	Not Applicable. There are no approved habitations of SCs/STs and other weaker sections in the lease area. Therefore, R&R Plan / Compensation Plan for the Project Affected People (PAP) are not provided.
22	One season (non-monsoon) [i.e., March- May (Summer Season); October-December (post monsoon season); December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-	Baseline data were collected for the period of December 2024 through February 2025 as per CPCB notification and MoEF & CC Guidelines. Primary baseline data and the results have been included in Sections 3.1.1-3.3.9 under Chapter III in the EIA report page 23-87.

	specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.	
23.	Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map	Air quality modelling for prediction of incremental GLCs of pollutants was carried out using AERMOD view 11.2.0. The model results have been given in Section 4.2.4 under the Chapter IV in the EIA report page 92-96.
24.	The water requirement for the project, its availability and source should be furnished. A detailed water balance	The water requirement for the project, its availability and source have been provided in Table 2.9 under Chapter II in the EIA report page 20.

	should also be provided. Fresh water requirement for the project should be indicated.	
25.	Necessary clearance from the competent Authority for drawl of requisite quantity of water for the project should be provided.	Not Applicable. Water for dust suppression, greenbelt development and domestic use will be sourced from accumulated rainwater/seepage water in mine pits and purchased from local water vendors through water tankers on daily requirement basis. Drinking water will be sourced from the approved water vendors.
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.	Part of the working pit will be allowed to collect rain water during the spell of rain. The water thus collected will be used for greenbelt development and dust suppression. The mine closure plan has been prepared for converting the excavated pit into rain water harvesting structure and serve as water reservoir for the project village during draught season.
27.	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.	Impact studies and mitigation measures of water environment including surface water and ground water have been discussed in Section 4.3 under Chapter IV in the EIA report page 91-92.
28.	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be	The ground water table is found at the depth of 60m below ground level. The ultimate depth of quarry is 50m BGL. Therefore, the mining activity will not intersect the ground water table. Data regarding the occurrence of groundwater table have been provided in Section 3.3.3

	undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	under Chapter III in the EIA report page 33-43.
29.	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out	Not Applicable. There are no streams, seasonal or other water bodies passing within the project area. Therefore, no modification or diversion of water bodies is anticipated
30.	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and BGL. A schematic diagram may also be provided for the same.	The highest elevation of the project area is 65m AMSL. Ultimate depth of the mine is 50m BGL. Depth to the water level in the area is 60m BGL.
31.	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up. From on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of	Greenbelt development plan has been given in Section 4.2.6 under Chapter IV in the EIA report page 102-106.

	plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution	
32.	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.	Traffic density survey was carried out to analyses the impact of transportation in the study area as per IRC guidelines 1961 and it is inferred that there is no significant impact due to the proposed transportation from the project area. Details have been provided in Section 3.3.8 under Chapter III in the EIA report page 84-86.
33.	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	Infrastructure & other facilities will be provided to the mine workers after the grant of quarry lease and the same has been discussed in Section 2.8.2 under Chapter II in the EIA report page 20.
34.	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.	Progressive mine closure plan has been prepared for this project and is given in Section 2.8.3 under Chapter II in the EIA report page 20.

35.	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Occupational health impacts of the project and preventive measures have been explained in detail in Section 4.5 under Chapter IV in the EIA report page 108-109.
36.	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	No public health implications are anticipated due to this project. Details of CSR and CER activities have been discussed in Sections 124 and 126 under Chapter VIII in the EIA report page 124-125.
37.	Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	No negative impact on socio-economic environment of the study area is anticipated and this project shall benefit the socio-economic environment by offering employment for 22 people directly as discussed in Section 8.1 under Chapter VIII 124.
38.	Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.	A detailed Environment Management Plan has been prepared and provided in Tables 10.1 & 10.2 under Chapter X in the EIA report page 129-135.

39.	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.	The outcome of public hearing will be submitted during the final EIA report.
40.	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given	No litigation is pending in any court against this project.
41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.	Project Cost is Rs.1,33,66,000/- CER Cost is Rs.5,00,000/- In order to implement the environmental protection measures, an amount of Rs.5737592 as capital cost and recurring cost as Rs.2203827 as recurring cost/annum is proposed considering present market price considering present market scenario for the proposed project. After the adjustment of 5% inflation per year, the overall EMP cost for 5 years will be Rs.17915130, as shown in Tables 10.1 & 10.2 under Chapter X in the EIA report page 129-135.
42.	A disaster management plan shall be prepared and included in the EIA/EMP Report.	The disaster management plan for this project has been provided in Section 7.2 under Chapter VII in the EIA report page 118-120.
43.	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	Benefits of the project details have been given under Chapter VIII in the EIA report page 124-126.

44	Besides the above, the below mentioned general points are also to be followed:	
a)	Executive Summary of the EIA/EMP Report.	Executive summary has been enclosed as a separate booklet.
b)	All documents to be properly referenced with index and continuous page numbering.	All the documents have been properly referenced with index and continuous page numbering.
c)	Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.	List of tables and source of the data collected have been mentioned.
d)	Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF & CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.	Original Baseline monitoring reports will be submitted in the final EIA report.
e)	Where the documents provided are in a language other than English, an English translation should be provided.	All the documents provided here are in English language.
f)	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	The questionnaire will be submitted in the final EIA report.
g)	While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA. II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.	Instructions issued by MoEF & CC O.M. No. J-11013/41/2006-IA. II (I) dated 4 th August, 2009 have been followed while preparing the EIA report

h)	Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF & CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation	No changes are made in the basic scope and the project parameters.
i)	As per the circular no. J-11011/618/2010- IA. II(I) Dated: 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.	As it is a new lease area, the condition is not applicable.
j)	The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.	All the plans including surface & geological plans, and progressive closure plan have been included in Annexure III.



File No: 11378

ANNEXURE - I

Government of India

Ministry of Environment, Forest and Climate Change

(Issued by the State Environment Impact Assessment Authority(SEIAA),
TAMIL NADU)



Dated 11/01/2025



To,

Thiru.DAYALAN M

M. Dhayalan, S/o. Munusamy, No.139, Salai Street, Devariyambakkam Village, Ullavur Post,
Walajabad Taluk, Kancheepuram District-631606., Walajabad, KANCHIPURAM, TAMIL NADU,
631606
dhayalanmunusamy658@gmail.com

Subject:

Grant of Terms of Reference under the provision of the EIA Notification 2006-as amended regarding.

Sir/Madam,

SEIAA, Tamil Nadu – Proposed Rough Stone and Gravel quarry over an extent of 2.59.25Hec at S.F. No: 293/1B, 293/2A, 293/2B, 293/2C, 295, 300/1A(Part), 301/1A1B, 301/1A2(Part) & 301/1A3B of Devariyambakkam Village, Walajabad Taluk, Kancheepuram District, Tamil Nadu by Thiru. M.Dhayalan - under project category – “B1” and Schedule S.No.1(a) “Mining of Minerals Projects” of EIA Notification, 2006, as amended – ToR issued along with Public Hearing - preparation of EIA report – Regarding.

Ref:

1. Online proposal No. SIA/TN/MIN/501858/2024, Dated:19/10/2024.
2. Your application submitted for Terms of Reference dated:23.10.2024.
3. Minutes of the 509th SEAC meeting held on 08.11.2024.
4. Minutes of the 522nd SEAC meeting held on 26.12.2024.
5. Minutes of the 786th SEAC meeting held on 07.01.2024.

2. The particulars of the proposal are as below :

(i) TOR Identification No.	TO24B0108TN5756614N
(ii) File No.	11378
(iii) Clearance Type	TOR
(iv) Category	B1
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals,1(a) Mining of minerals
(vii) Name of Project	Devariyambakkam Village Rough Stone and Gravel Mining Lease
(viii) Name of Company/Organization	DAYALAN M
(ix) Location of Project (District, State)	KANCHIPURAM, TAMIL NADU

(x) Issuing Authority	SEIAA
(xii) Applicability of General Conditions	no
(xiii) Applicability of Specific Conditions	no

1. In view of the particulars given in the Para 1 above, the project proposal inter alia including Form-1 (Part A and B) were submitted to the SEIAA for an appraisal by the SEAC under the provision of EIA notification 2006 and its subsequent amendments.

2. The above-mentioned proposal has been considered by SEIAA in the meeting held on 07/01/2024. The minutes of the meeting and all the Application and documents submitted [(viz. Form-1 Part A, Part B,)] are available on PARIVESH portal which can be accessed by scanning the QR Code above.

3. The State Expert Appraisal Committee (SEAC), based on the information & clarifications provided by the project proponent and after detailed deliberations on all technical aspects recommended the proposal for grant of Terms of Reference with public hearing under the provision of EIA Notification, 2006 and as amended thereof subject to the stipulation of specific and general conditions as detailed in Annexure (2).

4. The SEIAA has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and after accepting the recommendations of the SEAC hereby decided to issue the following Terms of Reference with public hearing for instant proposal of **Thiru. M.Dhayalan** under the provisions of EIA Notification, 2006 and as amended thereof.

5. The Ministry/SEIAA-TN reserves the right to stipulate additional conditions, if found necessary.

6. The Terms of Reference with public hearing to the aforementioned project is under provisions of EIA Notification, 2006. It does not tantamount to approvals/consent/permissions etc. required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/Regulations or Statutes, as applicable, to the project.

7. This issues with the approval of the Competent Authority.

8. The TORs with public hearing prescribed shall be **valid for a period of three years** from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.

Copy To

1. The Additional Chief Secretary to Government, Environment & Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi 110032.
3. The Member Secretary, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-600 032.
4. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC, Paryavaran Bhavan, CGO Complex, New Delhi 110003
5. The District Collector, Kancheepuram District.
6. Stock File.

Annexure 1

Specific Terms of Reference for (Mining Of Minerals)

1. Seac Conditions - Site Specific

S. No	Terms of Reference
1.1	1. A Cluster Management Committee (CMC) shall be constituted including all the mines in the cluster as Committee Members for the effective management of the mining operation in the cluster through systematic & scientific approach with appointment of statutory personnel, appropriate environmental monitoring, good maintenance of haul roads and village/panchayat roads, authorized blasting operation etc. The PP shall submit the following

S. No	Terms of Reference
	details in the form of an Affidavit during the EIA appraisal: (i) Copy of the agreement forming CMC. (ii) The Organisation chart of the Committee with defining the role of the members (iii) The ‘Standard Operating Procedures’ (SoP) executing the planned activities. 2. The PP shall conduct a hydrological study through a reputed institution since there is a waterbody located on the southern side and the PP shall submit the same and the mitigation measures along with the EIA report. 3. The PP shall enumerate the details of the agricultural/horticultural activities done within the 1 km of the proposed quarry and the mitigation measures along with the EIA report. 4. The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m & upto 1km shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc. and spell out the mitigation measures to be proposed for the protection of the above structures, if any during the quarrying operations. 5. The proponent shall furnish photographs of adequate fencing, garland drainage built with siltation tank & green belt along the periphery including replantation of existing trees; maintaining the safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan. 6. The Proponent shall carry out Bio diversity study as a part of EIA study and the same shall be included in the Report. 7. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine. 8. The PP shall prepare a conceptual working plan accommodating the inclusion of haul road accessibility keeping the benches intact, by ensuring the slope stability of the working benches to be constructed and existing quarry wall.

2. Seac Standard Conditions

S. No	Terms of Reference
2.1	1. In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following: (i) Original pit dimension (ii) Quantity achieved Vs EC Approved Quantity (iii) Balance Quantity as per Mineable Reserve calculated. (iv) Mined out Depth as on date Vs EC Permitted depth (v) Details of illegal/illicit mining (vi) Violation in the quarry during the past working. (vii) Quantity of material mined out outside the mine lease area (viii) Condition of Safety zone/benches (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m. 2. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site. 3. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc. 4. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed

S. No	Terms of Reference
	quarry. 5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report. 6. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site. 7. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC. 8. However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level. 9. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent. 10. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site. 11. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences. 12. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines, 13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines? 14. Quantity of minerals mined out. Highest production achieved in any one year Detail of approved depth of mining. Actual depth of the mining achieved earlier. Name of the person already mined in that leases area. If EC and CTO already obtained, the copy of the same shall be submitted. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches. 15. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone). 16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc., 17. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan. 18. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same. 19. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the

S. No	Terms of Reference
	Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment. 20. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. 21. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study. 22. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind. 23. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted. 24. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given. 25. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided. 26. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered. 27. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided. 28. Impact on local transport infrastructure due to the Project should be indicated. 29. A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity. 30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific. 31. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible. 32. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner. 33. Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along

S. No	Terms of Reference
	the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner 34. A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period. 35. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period. 36. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed. 37. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations. 38. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation. 39. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given. 40. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc. 41. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB. 42. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine. 43. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.

3. Seiaa Standard Conditions:

S. No	Terms of Reference
3.1	Cluster Management Committee 1. Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry. 2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc., 3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines. 4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network. 5. The committee shall deliberate on risk & emergency management plan, fire safety & evacuation

S. No	Terms of Reference
	plan and sustainable development goals pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan. 6. The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail in the EIA Report. 7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner. 8. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public in the vicinity. Agriculture & Agro-Biodiversity 9. Impact on surrounding agricultural fields around the proposed mining Area. 10. Impact on soil flora & vegetation around the project site. 11. Details of type of vegetation including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetation all along the boundary of the proposed mining area shall committed mentioned in EMP. 12. The Environmental Impact Assessment should study the agro-biodiversity, agro-forestry, horticultural plantations, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem. 13. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services. 14. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock. Forests 15. The project proponent shall detailed study on impact of mining on Reserve forests and free ranging wildlife. 16. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna. 17. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection. 18. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site. Water Environment 19. Hydro-geological study considering the contour map of the water table detailing the number of

S. No	Terms of Reference
	ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period. 20. Erosion Control measures. 21. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas. 22. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir. 23. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities. 24. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts. 25. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components. 26. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites. 27. The EIA shall include the impact of mining activity on the following: a) Hydrothermal/Geothermal effect due to destruction in the Environment. b) Bio-geochemical processes and its foot prints including environmental stress. c) Sediment geochemistry in the surface streams. Energy 28. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished. Climate Change 29. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities. 30. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock, soil health and physical, chemical & biological soil features. 31. Impact of mining on pollution leading to GHGs emissions and the impact of the same on the local livelihood.

S. No	Terms of Reference
	Mine Closure Plan 32. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued. EMP 33. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued and the scope for achieving SDGs. 34. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan. Risk Assessment 35. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining. Disaster Management Plan 36. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/unfavorable accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued. Others 37. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc. 38. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan. 39. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.

Standard Terms of Reference for (Mining of minerals)

1.

S. No	Terms of Reference
1.1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest

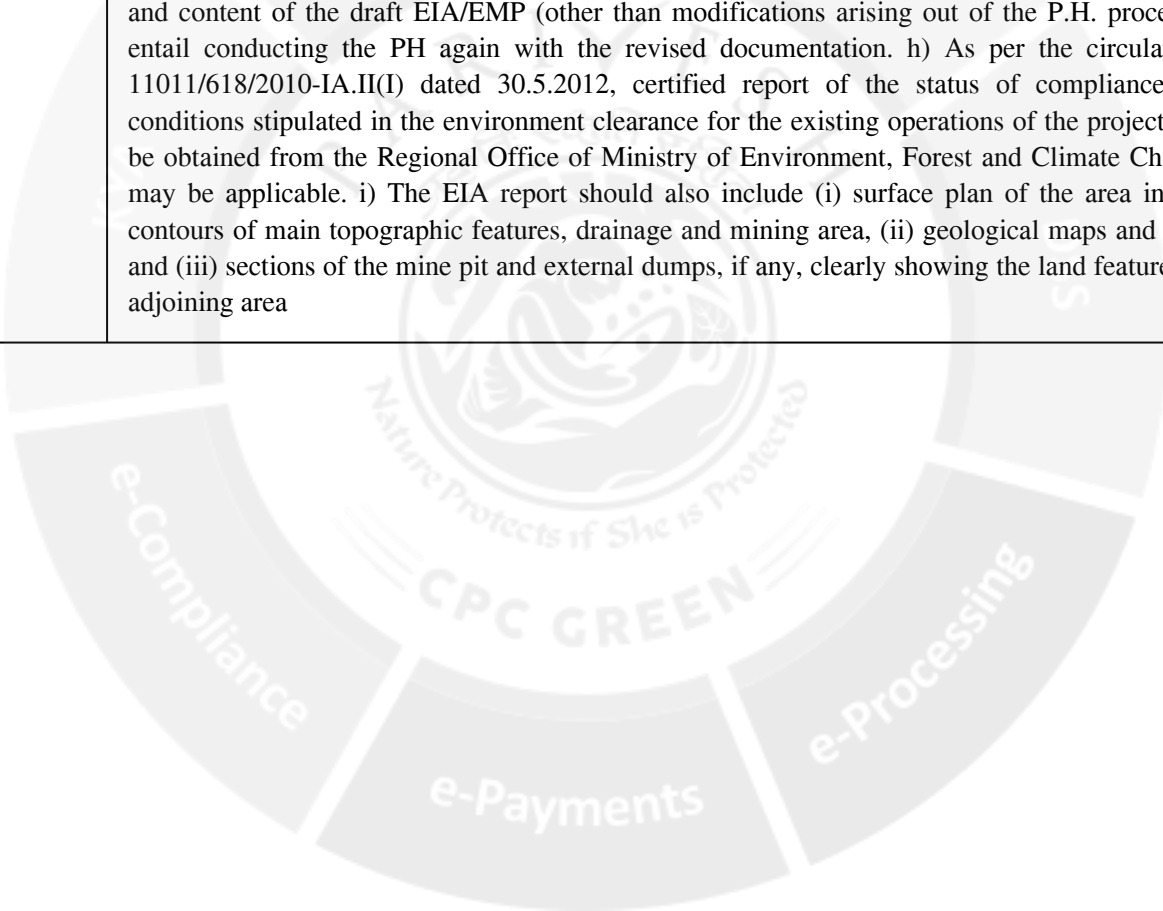
S. No	Terms of Reference
	production achieved prior to 1994
1.2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given
1.3	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee
1.4	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone)
1.5	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics
1.6	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority
1.7	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report
1.8	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided
1.9	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period
1.10	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given
1.11	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given
1.12	A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State

S. No	Terms of Reference
	Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the State Expert Appraisal Committees
1.13	Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished
1.14	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated
1.15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given
1.16	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted
1.17	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished
1.18	A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled- I fauna found in the study area, the necessary plan alongwith budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost
1.19	Proximity to Areas declared as Critically Polluted or the Project areas likely to come under the Aravali Range, (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered
1.20	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority)
1.21	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and

S. No	Terms of Reference
	action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report
1.22	One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given
1.23	Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map
1.24	The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated
1.25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided
1.26	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided
1.27	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided
1.28	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from State Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished
1.29	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out
1.30	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same
1.31	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted,

S. No	Terms of Reference
	keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution
1.32	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines
1.33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report
1.34	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report
1.35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed
1.36	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations
1.37	Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation
1.38	Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project
1.39	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project
1.40	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given
1.41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out
1.42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report
1.43	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project

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



SEIAA SPECIFIC CONDDITIONS:

The subject was placed in this **786th meeting of SEIAA held on 07.01.2025**. The SEIAA noted that the subject was placed in the 522nd meeting of SEAC held on 26.12.2024 and the SEAC has furnished its **recommendation for the grant of Terms of Reference with Public Hearing** to the project subject to the conditions stated therein.

After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant **Terms of Reference (ToR) along with Public Hearing for the quantity of 3,55,708m³ of rough stone and 38,942m³ of gravel upto the depth of 50m BGL and the annual peak production of 83,028m³ of rough stone and 19,142m³ of gravel for the period of 5 years as per approved mining plan** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC, standard conditions stipulated by MoEF&CC & the conditions mentioned in 'Annexure B' of this minutes.

STANDARD CONDITION

A. STANDARD TERMS OF REFERENCE

- 1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
- 2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
- 3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
- 4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
- 5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.

- 6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
- 7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/violation of the environmental or forest norms/conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.
- 8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
- 9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
- 10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
- 11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
- 12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
- 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation

- (CA) should be indicated. A copy of the forestry clearance should also be furnished.
- 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
 - 15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
 - 16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
 - 17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
 - 18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.
 - 19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.
 - 20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).

- 21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
- 22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
- 23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.
- 24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
- 25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
- 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.

- 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
- 28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.
- 29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
- 30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
- 31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
- 32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
- 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
- 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.

- 35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
- 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
- 37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
- 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
- 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
- 40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
- 41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
- 42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
- 43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
- 44) Besides the above, the below mentioned general points are also to be followed:-
- a) Executive Summary of the EIA/EMP Report
 - b) All documents to be properly referenced with index and continuous page numbering.
 - c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
 - d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.

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

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

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

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

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

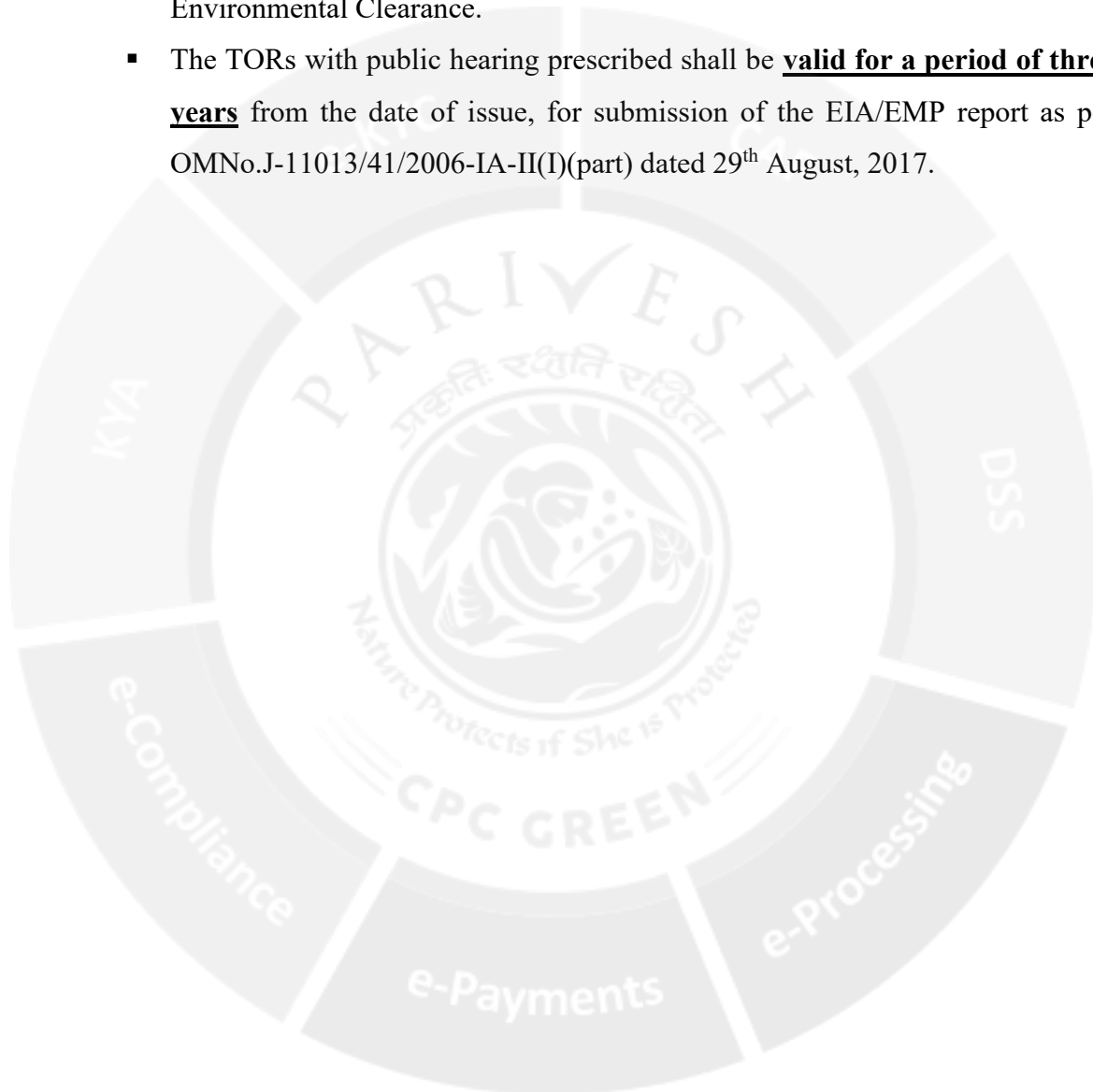
intuitions/NABET Accredited agencies.

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

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

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

- After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above mentioned points, the proponent will take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.
- The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance.
- The TORs with public hearing prescribed shall be **valid for a period of three years** from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.



Signature Not Verified

Digitally Signed by : A R Rahul Nadh IAS
Member Secretary, SEIAA

Date: 24/01/2025 ☐

ANNEXURE - II

From

Dr. S.Vediappan, M.Sc.,Ph.d.,
Deputy Director,
Dept of Geology and Mining,
Kancheepuram.

To

Thiru.M.Dhayalan,
S/o.Munusamy,
No.139, Salai Street,
Devariambakkam village,
Ullavur Post,
Walajabad Taluk.

Roc.No.314/Q3/2024 Dated: 10.10.2024

Sir,

Sub: Mines and Minerals – Minor Mineral - Rough Stone and Gravel – Kancheepuram District – Walajabad Taluk – Devariambakkam Village- Patta land in S.F.Nos.283/1B, 293/2A, 293/2B, 293/2C, 295, 300/1A(P), 301/1A1B, 301/1A2(P) & 301/1A3B Over an extent of 2.59.25 Hects - Application preferred by Thiru.M.Dhayalan – Other quarries situated in 500 mtrs radial distance – Details furnished - reg.

- Ref:**
1. Application prepared by Thiru.M.Dhayalan S/o.Munusamy, No.139, Salai Street, Devariambakkam village, Ullavur Post, Walajabad Taluk, Kancheepuram District application dated 24.08.2023
 2. This Office Memorandum Letter No.314/ Q3/ 2024 dated 07.10.2024.
 3. Draft Mining plan submitted by Thiru.M.Dhayalan S/o.Munusamy dated 09.10.2024.
 4. Mining plan approved by the Deputy Director of Geology and Mining, Kancheepuram vide Letter.No.314/Q3/2024 dated.10.10.2024.

Kind attention is invited to the references cited above.

2. Thiru.M.Dhayalan S/o.Munusamy has preferred an application for quarrying Rough stone and Gravel over an extent of 2.59.25 Hects of patta land in S.F.Nos.293/1B (0.18.00), 293/2A (0.11.50), 293/2B (0.13.00), 293/2C (0.20.00), 295 (0.75.00), 300/1A(P) (0.18.50), 300/1A2(P) (0.74.20), 301/1A3B (0.16.50) & 301/1B1B (0.12.55) in Devariambakkam Village, Walajabad Taluk, Kancheepuram District for a period of 5 years under the provisions of Rule 19 (1) of Tamil Nadu Minor Mineral Concession Rules, 1959. In this regard, the precise area



communication has been issued vide letter dated: 07.10.2024 with a direction to submit approved mining plan and Environment Clearance.

3. Accordingly, Thiru.M.Dhayalan S/o.Munusamy has submitted three copies of draft Mining Plan vide letter dated: 09.10.2024 and the same has been examined in detail and approved by Deputy Director of Geology and Mining, Kancheepuram vide Letter.No.314/Q3/2024 dated. 10.10.2024.

4) In this connection, Thiru.M.Dhayalan S/o.Munusamy has requested vide letter dated.10.03.2024 to issue the details of other quarries situated within 500 mts radial distance from the subject quarries are furnished as follows.

I. Details of Existing quarries.

Sl. No	Name of the Lessee	Village	SF.No	Extent in Hect	GO.No./Proceeding No. & Date	Lease Period
1.	J.Susila, S/o.Munusamy, No.139, Salai Street, Devarambakkam, Walajabad, Kancheepuram.	Devarambakkam Walajabad	267,305,303/1 .264/3C2. 302/4. 303/2. 304	3.09.50	Rc.No. 113/Q3/ 2015, dated. 31.08.2021	05.10.2021 to 04.10.2031 (10 Years)
2.	Thiru.Srinivasan,	Devarambakkam Walajabad	268/1(P). 268/2A. 268/2B. 268/2C(P). 269/2(P). 269/3(P). 269/5(P). 281/1(P). 281/2(P). 281/3(P). 281/4(P). 281/5(P). 302/1(P). 302/2(P) & 302/3(P)	1.56.25	Rc.No.380 /Q3/2023, Dated. 07.08.2024	07.08.2024 to 06.08.2034.

II. Details of abandoned/Old quarries.

Sl. No.	Name of the lessee	ROC.NO. dated	Village & Taluk	S.F No.	Extent in Hect	Lease period.
1	----- Nil -----					

Thiru

III. Details of other Proposed/applied quarries

Sl. No.	Name of the lessee	Name of the Mineral	Village & Taluk	S.P No.	Extent in Het	Lease period.
1	M.Dayalan, S/o.Munusamy, No.139, Salai Street, Devariambakkam, Walajabad, Kancheepuram	Rough Stone and Gravel	Devariambakkam, Walajabad	293/1B, 293/2A, 293/2B, 293/2C, 295, 300/1A (P) 301/1A2(P), 301/1A3B, & 301/1A1B	2.59.25	Instant Propos

Deputy Director,
Dept of Geology and Mining,
Kancheepuram..

Copy to :-

The Chairman, Tamil Nadu State Environment
Impact Assessment Authority,
3rd Floor, Panakal Maligai,
No. 1 Jeenes Road, Saidapet, Chennai -15.

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From

Dr.S.Vediappan,M.Sc.,Ph.D.,
Deputy Director,
Dept of Geology and Mining,
Kancheepuram.

To

Thiru.M.Dhayalan,
S/o.Munusamy,
No.139, Salai Street,
Devariambakkam village,
Ullavur Post,
Walajabad Taluk.

Re.No. 314/Q3/2024 Dated: 10.10.2024.

Sir,

Sub: Mines and Minerals – Minor Mineral - Rough Stone and Gravel – Kancheepuram District – Walajabad Taluk – Devariambakkam Village- Patta land in S.F.Nos.283/1B, 293/2A, 293/2B, 293/2C, 295, 300/1A(P), 301/1A1B, 301/1A2(P) & 301/1A3B Over an extent of 2.59.25 Hects - Application preferred by Thiru.M.Dhayalan - Precise area communicated - Draft Mining Plan submitted - Approved - reg.

- Ref:**
1. Application prepared by Thiru.M.Dhayalan S/o.Munusamy, No.139, Salai Street, Devariambakkam village, Ullavur Post, Walajabad Taluk, Kancheepuram District application dated 24.08.2023.
 2. This Office Memorandum Letter No.314/ Q3/ 2024 dated 07.10.2024.
 3. Draft Mining plan submitted by Thiru.M.Dhayalan S/o.Munusamy dated 09.10.2024.

Kind attention is invited to the references cited above.

2. Thiru.M.Dhayalan S/o.Munusamy has preferred an application for quarrying Rough stone and Gravel over an extent of 2.59.25 Hects of patta land in S.F.Nos.293/1B (0.18.00), 293/2A (0.11.50), 293/2B (0.13.00), 293/2C (0.20.00), 295 (0.75.00), 300/1A(P) (0.18.50), 300/1A2(P) (0.74.20), 301/1A3B (0.16.50) & 301/1B1B (0.12.55) in Devariambakkam Village, Walajabad Taluk, Kancheepuram District for a period of 5 years under the provisions of Rule 19 (1) of Tamil Nadu Minor Mineral Concession Rules, 1959. In this regard, the precise area communication has been issued vide

232

letter dated: 07.10.2024 with a direction to submit approved mining plan and Environment Clearance.

3. Accordingly, Thiru.M.Dhayalan S/o.Munusamy had submitted three copies of draft Mining Plan vide letter dated: 09.10.2024 and the same has been examined in details and it is found correct.

4. As per the mining plan the year wise production for the proposed Ten years as detailed below.

Five years	Year	Rough Stone (M³) @ 100%	Gravel in (M³)
	1 st Year	83028	19142
	2 nd year	70400	12100
	3 rd year	70800	7700
	4 th year	70095	-
	5 th year	61385	-
	Total	355708	38942

5. Hence, as per the power delegated under Rule 41 of TNMMCR, 1959 and as per the guidelines/instructions issued by the Commissioner of Geology and Mining, vide letter Rc.No.3868/LC/2012 dated 19.11.2012, the said mining plan submitted by the lessee is hereby approved subject to the following conditions.

i) 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.

ii) This approval of the mining plan does not in any way imply the approval of the Government in terms of any other provisions of Mines and Minerals Development and Regulation) Act 1957, or any other connected laws including Forest (Conservation) Act 1957, or

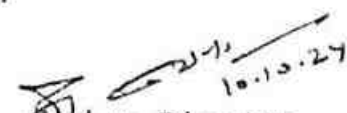
any other connected Laws industry Forest (Conservation) Act 1980, Forest Conservation Rules 1981 Environment protection Act 1980, Indian Explosive Act 1884 (Central Act IV of 1884) and the rules made there under, Minor Mineral Conservation and Development Rules, and The Tamil Nadu Minor Mineral Concession rules, 1959.

iii) That the mining plan is approved without prejudice to any other order or directions from any court of competent jurisdiction.

iv) All the conditions mentioned in the precise area letter should be followed during quarry operation as per rules.

v) The applicant should get prior Environmental clearance from the appropriate authority and same has to be submit to the District Collector, Kancheepuram.

vi) Every Mining Plan duly approved under TNMMCR, 1959 shall be valid for a period of five years. Further, the applicant shall submit modification in the mining plan if any, review the mining plan and submit scheme of mining plan for the next five years of the lease if any as per rule 41(9) of TNMMCR 1959.


Deputy Director,
Dept of Geology and Mining,
Kancheepuram.

Copy submitted to The Commissssioner,
Dept of Geology and Mining,
Guindy, Chennai -32.

MINING PLAN



FOR

DEVARIYAMBAKKAM VILLAGE ROUGH STONE AND GRAVEL MINING LEASE
WITH PROGRESSIVE QUARRY CLOSURE PLAN

Patta land /Open Cast-Semi-Mechanized mining/Non- Forest/Non-Captive Use

Lease period 5 Years from the date of lease execution

(Prepared under rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959)

LOCATION OF THE LEASE AREA

STATE : TAMILNADU
DISTRICT : KANCHEEPURAM
TALUK : WALAJABAD
VILLAGE : DEVARIYAMBAKKAM
S.F. No's : 293/1B, 293/2A, 293/2B, 293/2C,
295, 300/1A (Part), 301/1A1B
301/1A2 (Part) & 301/1A3B
EXTENT : 2.59.25 Hectares

ADDRESS OF THE APPLICANT

Mr. M.Dhayalan,
S/o.Munusamy,
No.139, Salai Street,
Devariyambakkam village,
Ullavur Post, Walajabad Taluk,
Kancheepuram District – 631606

PREPARED BY

Dr.S.KARUPPANNAN.M.Sc., Ph.D.,

RQP/MAS/263/2014/A

GEO TECHNICAL MINING SOLUTIONS

No: 1/213 -B, Ground Floor, Natesan Complex,

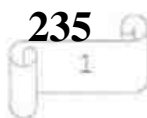
Oddapatti, Collectorate Post office,

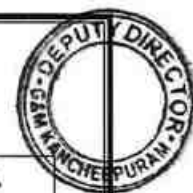
Dharmapuri -636705, Tamil Nadu.

Mob. : +91 9443937841, +917010076633,

E-mail: info.gtmsdpi@gmail.com.

Website: www.gtmsind.com





CONTENTS

Sl. No.	Description	Page No.
-	Certificates	5-8
-	Introductory notes	9
1.0	General	11
2.0	Location and Accessibility	12
	<u>PART-A</u>	
3.0	Geology and Mineral reserves	16
4.0	Mining	20
5.0	Blasting	26
6.0	Mine Drainage	28
7.0	Stacking of Mineral rejects and disposal of waste	28
8.0	Uses of Mineral	29
9.0	Others	29
10.0	Mineral processing/Beneficiations	30
	<u>PART-B</u>	
11.0	Environmental management plan	32
12.0	Progressive quarry closure plan	36
13.0	Financial assurance	39
14.0	Certificates	39
15.0	Plan and sections, etc	39
16.0	Any other details intend to furnish by the applicant	39
17.0	CSR Expenditure	40

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ANNEXURES

Sl. No.	Description	Annexure No.
1.	Copy of precise area communication letter	I
2.	Copy of NoC letter	IA
3.	Copy of FMB (Field Measurement book)	II
4.	Copy of "A" register	III
5.	Copy of Patta Chitta & Adangal	IV
6.	Copy of Consent documents	V
7.	Photo copy of the applied lease area	VI
8.	Copy of ID Proof of the authorized signatory	VII
9.	Copy of Recognized Qualified Person Certificate	VIII

[Handwritten signature]



LIST OF PLATES

Sl. No.	Description	Plate No.	Scale
1	Key Map	I	Not to scale
2	Location Plan	I-A	Not to scale
3	Toposheet Map	I-B	1:1,00,000
4	Satellite Imagery Map	I-C	1: 5,000
5	Environmental Plan	I-D	1: 5,000
6	Mine Lease Plan	II	1:1000
7	Surface, Geological Plan	III	Plan 1:1000
8	Geological Sections	IIIA	Sections Hor 1:1000 Ver 1:500
9	Conceptual Plan	IV	Plan 1:1000
10	Conceptual Sections	IVA	Sections Hor 1:1000 Ver 1:500
11	Mine Layout Plan and Land Use Pattern	V	Plan 1:1000
12	Year wise Development, Production Plan	VI	Plan 1:1000
13	Year wise Development & Production Sections	VIA	Sections Hor 1:1000 Ver 1:500



Mr. M.Dhayalan,
S/o.Munusamy,
No.139, Salai Street,
Devariambakkam village,
Ullavur Post, Walajabad Taluk,
Kancheepuram District - 631606.

CONSENT LETTER FROM THE APPLICANT

The Mining Plan in respect of rough stone and gravel quarry lease in patta land at S.F.No's: 293/1B, 293/2A, 293/2B, 293/2C, 295, 300/1A (Part), 301/1A1B, 301/1A2 (Part) & 301/1A3B over an extent of 2.59.25 hectares of Devariambakkam Village, Walajabad Taluk, Kancheepuram District, Tamil Nadu State has been prepared by

Dr. S. KARUPPANNAN. M.Sc., Ph.D. (Regn. No. RQP/MAS/263/2014/A)

I request "The Deputy Director", Department of Geology and Mining, Kancheepuram District to make further correspondence regarding modifications of the Mining Plan with the said Recognized Qualified Person on this following address,

Dr. S. KARUPPANNAN. M.Sc., Ph.D.

(Regn. No. RQP/MAS/263/2014/A)

GEO TECHNICAL MINING SOLUTIONS

(A NABET accredited & ISO certified Company)

No: 1/213-B, Natesan Complex,

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Ph: +91 9443937841, +91 7010076633

E-mail: info.gtmsdpi@gmail.com,

Website: www.gtmsind.com

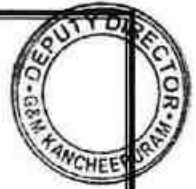
I hereby undertake that all modifications so made in the Mining Plan by the Recognized Qualified Person may be deemed to have been made with my knowledge and consent and shall be acceptable to me and binding on me in all respects.

Place: Kancheepuram, TN.

Date: 8/10/2024


Signature of the applicant
(M.Dayalan)





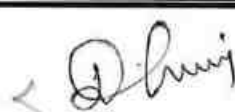
Mr. M.Dhayalan,
S/o.Munusamy,
No.139, Salai Street,
Devariambakkam village,
Ullavur Post, Walajabad Taluk,
Kancheepuram District - 631606.

DECLARATION

The Mining Plan in respect of rough stone and gravel quarry lease in Patta land at S.F.No's: 293/1B, 293/2A, 293/2B, 293/2C, 295, 300/1A (Part), 301/1A1B, 301/1A2 (Part) & 301/1A3B over an extent of 2.59.25 hectares of Devariambakkam Village, Walajabad Taluk, Kancheepuram District, Tamil Nadu State have been prepared with my consultation and I have understood the contents and agree to implement the same in accordance with the Mining Laws.

Place: Kancheepuram, TN.
Date: 8/10/2024


Signature of the applicant
(M.Dhayalan)





Dr. S. KARUPPANNAN. M.Sc., Ph.D.

(Regn. No. RQP/MAS/263/2014/A)

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E-mail: info.gtmsdpi@gmail.com,

Website: www.gtmsind.com

CERTIFICATE

This is to certify that, the provisions of 19(1) & 20 Tamil Nadu Minor Minerals Concession Rules, 1959 have been observed in the Mining Plan for the grant of rough stone and gravel quarry lease in S.F.No's: 293/1B, 293/2A, 293/2B, 293/2C, 295, 300/1A (Part), 301/1A1B, 301/1A2 (Part) & 301/1A3B, over an extent of 2.59.25 hectares of Devariyambakkam Village, Walajabad Taluk, Kancheepuram District, Tamil Nadu State granted to **Mr.M.Dhayalan**, Kancheepuram District.

Wherever specific permission / exemptions / relaxations or approvals are required, the applicant will approach the concerned authorities of State and Central governments for granting such permissions etc.

Place: Dharmapuri, TN

Date: 8/10/24

Signature of the Recognized Qualified Person

Dr.S.KARUPPANNAN, M.Sc, Ph.D.,

RQP/MAS/263/2014/A

GEO TECHNICAL MINING SOLUTIONS

A NABET Accredited and ISO Certified Company

1/213-B, Ground Floor, Natesan Complex,

Collectorate Post Office, Oddapatti,

Dharmapuri-636705, TamilNadu, India



Dr. S. KARUPPANNAN. M.Sc., Ph.D.

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Ph: +91 9443937841, +91 7010076633

E-mail: info.gtmsdpi@gmail.com,

Website: www.gtmsind.com

CERTIFICATE

I certify that, in preparation of Mining Plan for rough stone and gravel quarry lease in S.F.No's: 293/1B, 293/2A, 293/2B, 293/2C, 295, 300/1A (Part), 301/1A1B, 301/1A2 (Part) & 301/1A3B, over an extent of 2.59.25 hectares of Devariyambakkam Village, Walajabad Taluk, Kancheepuram District, Tamil Nadu State prepared to **Mr. M.Dhayalan**, Kancheepuram District, covers all the provisions of Mines Act, Rules, and Regulations etc., made there under and whenever specific permission are required, the applicant will approach the Director General of Mines Safety, Chennai. The standards prescribed by DGMS in respect of Mines Health will be strictly implemented.

Place: Dharmapuri, TN

Date: 8/10/24

Signature of the Recognized Qualified Person

Dr.S.KARUPPANNAN, M.Sc, Ph.D.,
RQP/MAS/263/2014/A
GEO TECHNICAL MINING SOLUTIONS
A NABET Accredited and ISO Certified Company
1/213-B, Ground Floor, Natesan Complex,
Collectorate Post Office, Oddapatti,
Dharmapuri-636705, TamilNadu, India



MINING PLAN

FOR DEVARIYAMBAKKAM VILLAGE ROUGH STONE AND GRAVEL MINING

LEASE WITH PROGRESSIVE QUARRY CLOSURE PLAN

Patta land / Open cast-Semi-Mechanized mining/Non-forest/Non-Captive Use

Lease period 5 Years from the date of lease execution

(Prepared under rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959)

INTRODUCTORY NOTES:

- a) **Introduction:** The Mining plan with progressive quarry closure plan is prepared for **Mr. M.Dhayalan**, S/o. Munusamy, No.139, Salai Street, Devariyambakkam village, Ullavur Post, Walajabad Taluk, Kancheepuram -631606, Tamilnadu State and filed with application for new proposals has submitted to the Department of Geology and Mining (DDG & M), Kancheepuram, dated 23.08.2024 had requested to grant the quarry lease for rough stone and gravel in S.F.No's: 293/1B, 293/2A, 293/2B, 293/2C, 295, 300/1A (Part), 301/1A1B, 301/1A2 (Part) & 301/1A3B over an extent of 2.59.25 hectares of Devariyambakkam Village, Walajabad Taluk, Kancheepuram District, Tamil Nadu State.
- b) **The Precise area communication letter:** The Deputy Director, Department of Geology and mining, Kancheepuram has directed to the applicant **Mr.M.Dhayalan** through his precise area communication letter vide **Roc.No.314/Q3/2024 Dated 07.10.2024**, for quarrying lease rough stone and gravel at Tamil Nadu State, Kancheepuram District, Walajabad Taluk, Devariyambakkam Village in S.F.No's: 293/1B, 293/2A, 293/2B, 293/2C, 295, 300/1A (Part), 301/1A1B, 301/1A2 (Part) & 301/1A3B over an extent of 2.59.25 hectares has recommended as following conditions for a period of five (5) years under Rule 19(1) & 20 Tamil Nadu Minor Mineral concession rules, 1959.
- As per schedule II of the Tamil Nadu Minor Mineral Concession Rules, 1959, seniority amount shall be paid from time to time for the minerals mined and the mineral transported.
 - Excavation work should be carried out leaving a safety distance of 7.5 meters to the adjacent patta lands.
 - Excavation work should be carried out leaving a safety distance of 10 meters to the temple land situated in S.F.No:300/1B to the south of the applied lease area.



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- iv. Excavation work should be carried out by leaving a 50 meter safety distance for the low tension power line leading to S.F.No.300/1B at a distance of 43 meters from the south side of S.F.No.300/1A (Part).
- v. Explosives should be carried out by experienced person using low power explosives without any disturbance to adjacent lease holders/ without any encroachment on adjacent patta and government lands.
- vi. Clearance Certificate from the approved mining plan and Environmental Impact Assessment Authority as per Rule No.41 and 42 of the Tamil Nadu Minor Mineral Concession Rules, 1959 should be obtained and submitted.
- c) **Preparation and Submission of Mining Plan:** The Mining Plan with progressive quarry closure plan has been prepared under rule 41 and submitted under rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 for mining lease as per conditions mentioned in the precise area communication letter **Roc.No.314/Q3/2024 Dated 07.10.2024.**
- d) **Geological resources and Mineable reserves:** Geological resource of estimated as **1295200m³** including the resources of safety zone, gravel etc. Of which, rough stone resources of about **1243392m³** and gravel is **51808m³**. The total mineable reserve is estimated to be **394650m³** by deducting the reserve safety zone, block in benches from the total Geological resources. of which, rough stone is about **355708m³** and gravel is **38942m³** up to a depth of 50m below ground level (Refer Plate No. IIIA & IVA).
- e) **Proposed Production Schedule:** Total proposed production of rough stone is **355708m³** and gravel is **38942m³** up to a depth of 50m below ground level for five years plan period. (Refer Plate No. VIA).
- f) **Environmental Sensitivity of the proposed lease area: -**
- i). **Interstate boundary:** There is no interstate boundary around 10Km radius periphery of proposed lease area.
- ii). **Wildlife Sanctuaries any:** There is no wild life sanctuary situated around 10km radius from the lease area.
- iii). **Forest (conservation) Act, 1980:** No forest land granted for quarrying and there is no reserve forest around 60m radius.
- iv). **CRZ Notification, 2019:** There is no Sea coastal zone found within radius of 10km and this project site doesn't attract CRZ Notification, 2019.



- h) **Environmental measures to be adopted during the ongoing activity period**
- Usage of sharp drill bits while drilling which will help in reducing noise.
 - Secondary blasting will be totally avoided and hydraulic rock breaker will be used for breaking boulders.
 - Controlled blasting with proper spacing, burden, stemming and optimum charge/delay will be maintained.
 - Green Belt/Plantation will be developed around the project area and along the haul roads. The plantation minimizes propagation of noise.
 - Water will be sprinkled on haul roads twice a day to avoid dust generation during transportation.
 - Transportation of material will be carried out during day time and material will be covered with tarpaulin.
 - The speed of tippers plying on the haul road will be limited below 20 km/hr to avoid generation of dust.
 - And any other conditions as stipulated by the concerned authorities should be followed to protect the environment.

1.0 GENERAL:

a.	Name of the Applicant	:	Mr. M.Dhayalan
	Applicant address	:	S/o.Munusamy, No.139, Salai Street, Devariambakkam village, Ullavur Post, Walajabad Taluk,
	District	:	Kancheepuram.
	State	:	Tamilnadu
	Pin code	:	631606
	Phone	:	Nil
	Fax	:	Nil
	Gram	:	Nil
	Telex	:	Nil
	E-mail	:	.....
b.	Status of the Applicant		
	Private individual	:	Private Individual
	Cooperative Association	:	---
	Private company	:	---
	Public Company	:	--
	Public Sector Undertaking	:	---
	Joint Sector Undertaking	:	---

(Signature)



	Other (pl. specify)	:	---
c.	Mineral(s) Which are occurring in the area and which the applicant intends to mine	:	Rough Stone and Gravel Quarry Lease
d.	Period for which the mining lease granted /renewed/ proposed to be applied	:	The precise area has been communicated to the applicant for quarrying period of five (5) years.
	Name of the RQP preparing the Mining Plan	:	Dr. S.KARUPPANNAN.M.Sc.,Ph.D.,
	Address	:	Geo Technical Mining Solutions (A NABET Accredited & ISO certified Company) No: 1/213-B, Natesan Complex, Oddapatti, Collectorate Post office, Dharmapuri-636705 Web site: www.gtmsind.com
	Phone	:	+91 9443937841, 7010076633
	Fax	:	Nil
	e-mail	:	info.gtmsdpi@gmail.com
	Telex	:	Nil
	Registration number	:	RQP/MAS/263/2014/A
	Date of grant/renewal	:	16.12.2014
	Valid upto	:	15.12.2024
f.	Name of the prospecting agency	:	Geo Technical Mining Solutions GSR 286(E) No:272, Ministry of Mines Notification 7th April 2022.
	Address	:	No: 1/213-B, Natesan Complex, Oddapatti, Collectorate Post office, Dharmapuri-636705 Web site: www.gtmsind.com
	Phone	:	+91 9443937841, 7010076633
g.	Reference No. and date of consent letter from the state government	:	The precise area communication letter issued by the Deputy Director, Department Geology and Mining, Kancheepuram vide Roc.No.314/Q3/2024 Dated 07.10.2024.

2.0 LOCATION AND ACCESSIBILITY:

a.	Details of the Area:	:	Refer plate no: IA & IB
	District & State	:	Kancheepuram, Tamil Nadu
	Taluk	:	Walajabad



Village			: Devariyambakkam			
Khasra No./ Plot No./ Block Range/ Felling Series etc.:						
Survey No	Sub Division	Total Extent in Hect	Patta No.	Village and Name of the Land Owner	Mine lease Applied S.F.No.	Mine lease Applied area out of total area in hect.
293	1B	0.18.0	722	M/s.PJR Blue Metals (Chennai) Pvt Ltd	293/1B	0.18.0
293	2A	0.11.5			293/2A	0.11.5
293	2B	0.13.0			293/2B	0.13.0
293	2C	0.20.0			293/2C	0.20.0
295	---	0.75.0			295	0.75.0
300	1A	0.24.5			300/1A (Part)	0.18.5
301	1A1B	0.12.55			301/1A1B	0.12.55
301	1A2	0.75.0			301/1A2 (Part)	0.74.2
301	1A3B	0.16.5			301/1A3B	0.16.5
Total Extent		2.66.05			Applied lease area extent		2.59.25
Lease area (hectares)			: 2.59.25 Hectares			
Whether the area is recorded to be in forest (please specify whether protected, reserved, etc)			: The proposed lease area is recorded as patta land. Copy of land documents are enclosed. (Ref.Anne.No's: IV & V)			
Ownership / Occupancy			: This is a patta land S.F.No's. 293/1B, 293/2A, 293/2B, 293/2C, 295, 300/1A (Part), 301/1A1B, 301/1A2 (Part) & 301/1A3B is registered on the name of M/s.PJR Blue Metals (Chennai) Pvt Ltd as patta no.722. Hence the pattadhar given consent to the applicant.			
Existence of Public Road / Railway line if any nearby and approximate distance			: ✓ Exploited quarry materials will be transported through the approach road is situated on the west side. ✓ There is an NH-132B is situated on the southern side about 4.5km which is connecting Kancheepuram - Chengalpattu Road. ✓ There is an SH-48 is situated on the western side about 0.9km which is connecting Walajabad - Tambaram Road. ✓ There is a railway line is situated about 4.1km radius away on south side of the lease area.			



Toposheet No. with latitude and longitude

: Toposheet No. 57 P/13

Latitude: From 12°48'54.71"N to 12°49'1.67"N

Longitude: From 79°52'40.61"E to 79°52'47.37"E

Geo-Coordinates of the lease boundary:

SL No	LATITUDE	LONGITUDE	SL No	LATITUDE	LONGITUDE
1	12°49'1.67"N	79°52'45.24"E	17	12°48'55.78"N	79°52'46.09"E
2	12°49'1.50"N	79°52'45.51"E	18	12°48'55.54"N	79°52'45.56"E
3	12°49'0.91"N	79°52'45.42"E	19	12°48'54.71"N	79°52'44.30"E
4	12°49'0.48"N	79°52'45.45"E	20	12°48'54.82"N	79°52'43.48"E
5	12°48'59.98"N	79°52'43.52"E	21	12°48'55.47"N	79°52'43.39"E
6	12°48'59.60"N	79°52'43.50"E	22	12°48'55.76"N	79°52'41.49"E
7	12°48'59.31"N	79°52'44.21"E	23	12°48'57.07"N	79°52'41.64"E
8	12°48'58.93"N	79°52'44.31"E	24	12°48'57.50"N	79°52'41.66"E
9	12°48'58.91"N	79°52'45.75"E	25	12°48'57.59"N	79°52'40.68"E
10	12°48'59.02"N	79°52'45.94"E	26	12°48'58.53"N	79°52'40.61"E
11	12°48'58.72"N	79°52'46.34"E	27	12°48'58.82"N	79°52'40.92"E
12	12°48'58.85"N	79°52'47.25"E	28	12°49'0.81"N	79°52'40.87"E
13	12°48'58.28"N	79°52'47.37"E	29	12°49'0.83"N	79°52'41.95"E
14	12°48'57.44"N	79°52'47.17"E	30	12°49'1.27"N	79°52'43.25"E
15	12°48'56.58"N	79°52'46.48"E	31	12°49'1.35"N	79°52'44.46"E
16	12°48'56.25"N	79°52'46.35"E			

Land use pattern (Forest, Agricultural, Grazing, Barren etc.)

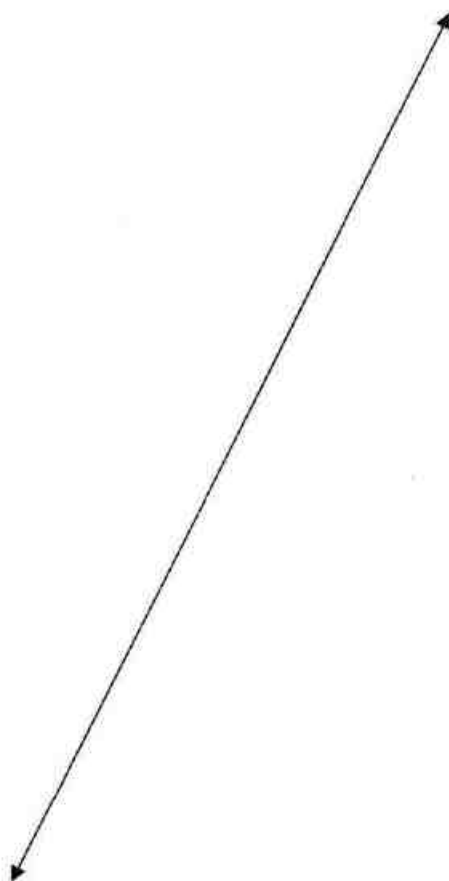
: It is an barren Land.

b. *Attach a general location and vicinity map showing area boundaries and existing and proposed access routs. It is preferred that the area to be marked on a survey of India topographical map or a cadastral map or forest map as the case may be. However if none of these are available, the area should be shown on an accurate sketch map on scale of 1 : 5000.*

: Refer plate no-IA & IB


i) INFRASTRUCTURE AND COMMUNICATION:

S.No	Description	Place	Distance	Direction
a.	Nearest post office	Walajabad	6.7Km	Southwest
b.	Nearest police station	Palur	5.9km	Southeast
c.	Nearest fire station	Avalur	4.7km	Northeast
d.	Nearest medical facility	Devariyaibakkam	0.5km	West
e.	Nearest school	Devariyaibakkam	0.9km	West
f.	Nearest railway station	Pazhayaseevaram	4.2km	South
g.	Nearest port facility	Chennai	54.0km	Northeast
h.	Nearest airport	Chennai	36.0km	Northeast
i.	Nearest DSP office	Sriperumpudur	16.5km	North
j.	Nearest villages	Varanavasi	1.4km	North
		Chinna	1.35km	East
		Madurampakkam		
		Kosapattu	0.43km	South
		Devariyaibakkam	0.54km	West



PART – A



3.0 GEOLOGY AND MINERAL RESERVES:

(a) Briefly describe the topography and general geology and local/mine geology of the mineral deposit including drainage pattern:

(i)	Topography	:	The proposed lease area is flat topography. The maximum elevation (65m) was observed west side of the site. The slope is towards eastern side and falls in Toposheet no. 57 P/13

- (ii) **a) Geomorphology:**
- The Kancheepuram area is endowed with a complex geological set up with crystalline rocks occurring in the southern part of the area and the northern part of the area the crystalline rocks occur at depths covered by sedimentary formations ranging from gondwana to recent. The depth at which the crystalline rocks occur progressively increase towards north. The eastern part comprises unconsolidated sediments of fluvio-marine and marine origin. The Precambrian crystalline rocks are represented by charnockites and contain several enclave's mafic granulite. Garnetiferous and biotite gneisses are also encountered as linear bands.

b) Soils:

The analysis of the soil type reveals that the proposed lease area is predominantly covered by river alluvium is transported and is seen in coastal area.

c) Lineaments:

The general trend of the gneiss is NE-SW direction and the regional trend observed is NNE- SSW to NW-SE direction. The deposition of Gondwana rocks, the sedimentary rocks, in faulted troughs and in the rugged topography of crystalline rocks took place during jurassic period. The insitu soils laterites and alluvial deposits were deposited along the Palar and Cheyyar rivers during the quaternary period. The data have been checked by field studies and survey of India topographical maps at the 1: 1,00,000 scale.

Order of superposition of the proposed lease area,

Age	Group	Rock Formation
Recent	Alluvium and beach sands	Sand, gravel, silt and clay



	Pleistocene	Laterite,soils, talus	Laterites, sandy clay, silt						
	-----Unconformity-----								
	Archean	Charnockite Group	Pyroxene Granulite, Charnockite (acid to intermediate)/ Crystalline limestone / Quartzite						
	Lower Cretaceous to Jurassic	Sandstones & Shales	Fine to medium grained sand stone with clay intercalations of greenish soft shale						
	Archean	Crystalline formations	Charnockites, granites and associated basic and ultrabasic intrusive						
(iii)	Local / Mine Geology of The Mineral Deposit: Topography of the proposed lease area: The applied lease area exhibits an flat topography and The maximum elevation (65m) was observed west side of the site. The rocks exhibits layered, medium to coarse grained hornblende biotite, orthopyroxene charnockite gneiss. The Gravel is obtained the average of 0-2.0m and a rough stone starts from 2.0m to 50m (R.L.65-15m) from the surface level. The Surface plan showing elevation, contour, accessibility road and Geological map was prepared the proposed lease area. Mode of origin: The Charnockite series originally was assumed to have developed by the fractional crystallization of silicate magma. Subsequent studies have shown, however, that many, if not all, of the rocks are metamorphic, formed by recrystallization at high pressures and moderately high temperatures. Physiography of the rocks: Dark colour and clouding of the feldspars are typical features of these rocks as bluish in quartz. Chemical composition of rocks: Charnockite, any member of a series of metamorphic rocks with variable chemical composition, the term is often limited to the characteristic ortho pyroxene granite of the series. The alkali feldspar may be intermediate between microcline and orthoclase, the fine micro perthitic texture being common. Order of superposition of the proposed lease area, <table border="1"> <tr> <th>Age</th> <th>Group</th> <th>Rock Formation</th> </tr> <tr> <td>Recent to Sub recent</td> <td>----</td> <td>Fine to medium</td> </tr> </table>			Age	Group	Rock Formation	Recent to Sub recent	----	Fine to medium
Age	Group	Rock Formation							
Recent to Sub recent	----	Fine to medium							



← Dhruv



			grained clayey soil
	Archaean	Charnockite Group	Charnockites.
(iv)	Drainage Pattern	:	There is no major river found within 50m radius. The drainage in the area is sub-dendritic in nature.

(b)	<i>The topographic plan of the lease area prepared on a scale of 1 :1000 or 1 : 2000 with contour interval of 3 to 10m depending upon the topography of the area should be taken as the base plan for preparation of geological plan. The details of exploration already carried out including evidences of mineral existence should be shown on the geological plan:</i>		
	a. Present status:	:	The RQP examined the surface features during survey. It is a fresh quarry lease.
	b. Surface Plan	:	Surface plan showing elevation contour and accessibility road was prepared at the scale of 1: 1000, as shown in Plate No. III.
(c)	Geological sections should be prepared at suitable intervals on a scale of 1: 1000 / 1: 2000:	:	Longitudinal and transverse geological cross sections were prepared at the horizontal scale of 1: 1000 and at the vertical scale of 1:500, as shown in Plate No. IIIA
(d)	<i>Broadly indicate the Yearwise future programme of exploration, taking into consideration the future production programme planned in next five years as in table below:-</i> No future programmed proposed in this area. Its massive homogeneous parent rock. Hence exploration proposal is not required to this mining project.		

(e) Indicate geological and recoverable reserves and grade, duly supported by standard method of estimation and calculations along with required sections (giving split up of various categories i.e. proved, probable, possible). Indicate cut-off grade. Availability of resources should also be indicated for the entire leasehold.

The geological resources were computed by cross section method with respect to the boundaries of the lease area. In this method, the lease area was divided into three longitudinal and three transverse section to calculate the volume of material up to the depth of 50m below ground level for five years plan period. (Refer Plate No. III & IIIA). The three longitudinal and three transverse cross section were assigned XY-AB, X1Y1-CD & X2Y2-EF as respectively. Using the cross-sectional method, total reserve is estimated to be **1295200m³** including the resources of safety zone, and gravel, etc. Of which, rough stone resources of about **1243392m³** and gravel is **51808m³**.

Channarayana

GEOLOGICAL RESOURCES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In m ³	Rough Stone in m ³	Gravel in m ³
XY-AB	I	61	38	2	4636	.....	4636
	I	61	38	3	6954	6954	.....
	II	61	38	5	11590	11590	.....
	III	61	38	5	11590	11590	.....
	IV	61	38	5	11590	11590	.....
	V	61	38	5	11590	11590	.....
	VI	61	38	5	11590	11590	.....
	VII	61	38	5	11590	11590	.....
	VIII	61	38	5	11590	11590	.....
	IX	61	38	5	11590	11590	.....
	X	61	38	5	11590	11590	.....
TOTAL					115900	111264	4636
XIY1-CD	I	78	62	2	9672	.....	9672
	I	78	62	3	14508	14508	.....
	II	78	62	5	24180	24180	.....
	III	78	62	5	24180	24180	.....
	IV	78	62	5	24180	24180	.....
	V	78	62	5	24180	24180	.....
	VI	78	62	5	24180	24180	.....
	VII	78	62	5	24180	24180	.....
	VIII	78	62	5	24180	24180	.....
	IX	78	62	5	24180	24180	.....
	X	78	62	5	24180	24180	.....
TOTAL					241800	232128	9672
X2Y2-EF	I	150	125	2	37500	.....	37500
	I	150	125	3	56250	56250	.....
	II	150	125	5	93750	93750	.....
	III	150	125	5	93750	93750	.....
	IV	150	125	5	93750	93750	.....
	V	150	125	5	93750	93750	.....
	VI	150	125	5	93750	93750	.....
	VII	150	125	5	93750	93750	.....
	VIII	150	125	5	93750	93750	.....
	IX	150	125	5	93750	93750	.....
	X	150	125	5	93750	93750	.....
TOTAL					937500	900000	37500
GRAND TOTAL					1295200	1243392	51808



(f) Indicate mineable reserves by slice plan / level plan method, as applicable, as per the proposed mining parameters: -

The total mineable reserve is estimated to be **394650m³** by deducting the reserve safety zone, block in benches from the total Geological resources up to a depth of 50m below ground level. Of which, rough stone is about **355708m³** and gravel is **38942m³**. The commercially viable rough stone has been prepared on 1: 1000 scale and sections are prepared in a scale of 1:1000 in horizontal axis and 1:500 as vertical axis (Refer plate no's. IV & IVA).

Alvin

- 189 -

MINEABLE RESERVES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In m ³	Rough Stone in m ³	Gravel in m ³
XY-AB	I	53	23	2	2438	.....	2438
	I	53	23	3	3657	3657	.....
	II	48	13	5	3120	3120	.....
TOTAL					9215	6777	2438
X1Y1-CD	I	63	54	2	6804	.....	6804
	I	63	54	3	10206	10206	.....
	II	53	49	5	12985	12985	.....
	III	43	44	5	9460	9460	.....
	IV	33	39	5	6435	6435	.....
	V	23	34	5	3910	3910	.....
	VI	13	29	5	1885	1885	.....
TOTAL					51685	44881	6804
X2Y2-EF	I	135	110	2	29700	.....	29700
	I	135	110	3	44550	44550	.....
	II	125	100	5	62500	62500	.....
	III	115	90	5	51750	51750	.....
	IV	105	80	5	42000	42000	.....
	V	95	70	5	33250	33250	.....
	VI	85	60	5	25500	25500	.....
	VII	75	50	5	18750	18750	.....
	VIII	65	40	5	13000	13000	.....
	IX	55	30	5	8250	8250	.....
	X	45	20	5	4500	4500	.....
TOTAL					333750	304050	29700
GRAND TOTAL					394650	355708	38942



4.0 MINING:

a)	Briefly describe the existing / proposed method for developing / working the deposit with all design parameters. (Note: In case of pocket deposits, sequence of development/working may be indicated on the same plan)	:	The mining operation is open-cast, semi-mechanized method are adopted and on single shift basis only. Under the regulation 106 of the Metalliferous Mines Regulations, 1961, in all open cast workings in hard rock, the benches and sides should be properly benched and sloped. The bench height should not exceed 6m and the bench width should not less than the bench height. The slope of the benches should not exceed 45° from horizontal.
b)	<i>Indicate quantum of development and tonnage and grade of production expected pit wise as in table below.</i> Total proposed production rough stone is about 355708m³ and gravel is 38942m³ up to a depth of 50m below ground level for five years plan period. (Refer Plate No's. VI & VIA).		

Year	Pit No.(s)	Topsoil/ Overburden (m ³)	ROM (m ³)	Saleable rough stone (m ³) @ 100%	Rough stone rejects(m ³)	Sub grade/ Weathered rock (m ³)	Saleable Gravel (m ³)	Rough stone
I	I	...	102170	83028	...	...	19142	...
II	I	...	82500	70400	...	...	12100	...
III	I	...	78500	70800	...	...	7700	...
IV	I	...	70095	70095	...	...	...	...
V	I	...	61385	61385	...	...	...	...
Total	—	...	394650	355708	...	...	38942	...

c) *Composite plans and Year wise sections (In case of 'A' class mines):* : Not applicable. It is a "B" class quarry lease

YEARWISE PRODUCTION RESERVE								
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In m³	Rough Stone in m³	Gravel in m³
I - Year	XY-AB	I	53	23	2	2438	.....	2438
		I	53	23	3	3657	3657	.....
		II	48	13	5	3120	3120	.....
	X1Y1-CD	I	63	54	2	6804	.....	6804
		I	63	54	3	10206	10206	.....
	X2Y2-EF	I	45	110	2	9900	.....	9900
		I	45	110	3	14850	14850	.....
		II	35	100	5	17500	17500	.....
	X1Y1-CD	II	53	49	5	12985	12985	.....
		III	43	44	5	9460	9460	.....
X2Y2-EF	III	25	90	5	11250	11250	.....	
TOTAL						102170	83028	19142
II - Year	X2Y2-EF	I	55	110	2	12100	.....	12100
		I	55	110	3	18150	18150	.....
		II	55	100	5	27500	27500	.....
		III	55	90	5	24750	24750	.....
TOTAL						82500	70400	12100
III - Year	X2Y2-EF	I	35	110	2	7700	.....	7700
		I	35	110	3	11550	11550	.....
		II	35	100	5	17500	17500	.....
		III	35	90	5	15750	15750	.....
		IV	65	80	5	26000	26000	.....
TOTAL						78500	70800	7700
IV - Year	X2Y2-EF	IV	40	80	5	16000	16000	.....
	X1Y1-CD	IV	33	39	5	6435	6435	.....
		V	23	34	5	3910	3910	.....
	X2Y2-EF	V	95	70	5	33250	33250	.....
		VI	35	60	5	10500	10500	.....
TOTAL						70095	70095	0
V - Year	X2Y2-EF	VI	50	60	5	15000	15000	.....
	X1Y1-CD	VI	13	29	5	1885	1885	.....
	X2Y2-EF	VII	75	50	5	18750	18750	.....

		VIII	65	40	5	13000	13000	.....
		IX	55	30	5	8250	8250	...
		X	45	20	5	4500	4500	
TOTAL						61385	61385	
GRAND TOTAL						394650	355708	38942



d) Attach supporting composite plan and section showing pit layouts, dumps, stacks of sub-grade mineral, if any, etc. : Composite plan not prepared in this proposed lease area

e) *Indicate proposed rate of production when the mine is fully developed and the expected life of the mine and the year from which effected:*
 At this rate of production, the expected life of quarry is calculated as given below:
Rough stone:
 Mineable reserves of rough stone (5 Years) = ~~355708~~ **355708m³**
 Annual Peak production = **83028m³**
Gravel:
 Mineable reserves of gravel = **38942m³**

f) *Attach a note furnishing a conceptual mining plan for the entire lease period (for "B" category mines) and upto the life of the mine (for "A" category mines) based on the geological, mining and environments considerations:*

i) Time frame of completion of mineral exploration program in leasehold area: Give broad description identified potential areas to be covered in the given time frame: : Considering the indefinite depth persistence of the rough stone deposit is proved beyond the workable limits about up to a depth of 50m below ground level (R.L.65m to 15m) from the petrogenetic character of the charnockite rock as well as from the actual mining practice in the area and with the current trend of rough stone production the quarry may sustain for 5 years.

ii) Whether ultimate pit limit has been determined and demarcated on surface and geological plan :-
 The ultimate pit limit has been determined and demarcated in the conceptual plan

SECTION XY-AB					
Bench	Period	Overburden/ Mineral	L (m)	W (m)	D (m)
I	Five years Period	Gravel	53	23	2
I		Rough stone	53	23	3



		II		Rough stone	48	13	5
		Total Depth					10
		SECTION X1Y1-CD					
		Bench	Period	Overburden/ Mineral	L (m)	W (m)	D (m)
		I	Five years Period	Gravel	63	54	2
		I		Rough stone	63	54	3
		II			53	49	5
		III			43	44	5
		IV			33	39	5
		V			23	34	5
		VI			13	29	5
		Total Depth					30
		SECTION X2Y2-EF					
		Bench	Period	Overburden/ Mineral	L (m)	W (m)	D (m)
		I	Five years Period	Gravel	135	110	2
		I		Rough stone	135	110	3
		II			125	100	5
		III			115	90	5
		IV			105	80	5
		V			95	70	5
		VI			85	60	5
		VII			75	50	5
		VIII			65	40	5
		IX			55	30	5
		X			45	20	5
		Total Depth					50
iii)	Whether the site for disposal of waste rock or an un-saleable material have/ has been examined for adequacy of land and suitability of long term use in the event of continuation of mining activity: -	:	The recovery of rough stone in this quarry is 100%. There is no waste rock will be proposed in this lease area.				
iv)	Whether back filling of pits after recovery of mineral up to techno -economically feasible depth envisaged. If so, describe the broad features of the proposal: -	:	As the depth of persistence of the deposit may likely to continue for further depth, it is proposed not to backfilled the quarry pit.				
v)	Whether post mining land use envisaged: -	:	At the end of mining activities over the quarry pit may be utilized for storage of rain water and may be converted in to dumping yards for solid waste by adopting suitable technologies.				

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g)	Open cast mining						
i)	Describe briefly giving salient features of the mode of working (Mechanized, Semi-Mechanized, manual)		: It is a fresh quarry lease. The mining operation is opencast, semi-mechanized methods are adopted and on single shift basis only. Under the regulation 106 of the Metalliferous Mines Regulations, 1961 in all opencast workings in hard rock, the benches and sides should be properly benched and sloped. The bench height should not exceed 6m and the bench width should not less than the bench height. The slope of the benches should not exceed 45° from horizontal.				
ii)	Describe briefly the layout of mine workings, the layout of faces and sites for disposal of overburden/waste. A reference to the plans enclosed under 4(b) and 4(d) will suffice		The rough stone is proposed to quarry at 5m bench height & width conventional opencast semi mechanized quarrying operation using shot hole drilling with the help of tractor mounted compressor attached with jack hammers, smooth blasting and waste and are removal using Hydraulic excavator and loaded directly to the tippers and transported to the needy customer. Bench height = 5mts. Bench width = 5mts.				
	a. Details of Topsoil/ Overburden		No separate of topsoil will be removed.				
	b. Rough Stone waste and side burden waste:-		The recovery of rough stone in this quarry is 100%. There is no rough stone waste or side burden will be removed.				
H	Underground Mining		Not applicable				
i)	Extent of mechanization: Describe briefly including the calculation for adequacy and type of machinery and equipment proposed to be used in different mining operations.						
	(I) Drilling Machines: Drilling of shot holes will be carried out using tractor mounted compressor and jack hammer. Details of drilling equipment's are given below.						
	Type	Nos	Dia of hole (mm)	Size / Capacity	Make	Motive power	H.P.
	Jack Hammer	3	32 mm	Hand held	--	Diesel	--
	Compressor	1	---	Air	--	Diesel	--





(2) Loading Equipment:

Type	Nos	Size / Capacity	Make	Motive power	H.P.
Hydraulic Excavator	2	2.9-4.5m ³	--	Diesel	--

(3) Haulage and Transport Equipment

(a) Haulage within the mining leasehold:

Type	Nos	Size / Capacity	Make	Motive power	H.P.
Tipper	10	--	--	Diesel	--

Whether the dumpers are fitted with exhaust conditioner should be indicated:

The dumpers not used in this quarry area, hence it's a small "B" category mine.

b)	Transport from mine head to the destination	Tipper will be used for transport rough stone from the mine head to needy customer.
c)	Describe briefly the transport system (please specify)	Hydraulic excavator and tippers utilized for internal transport sizeable rough stone lumps and deliver to the customer's area.
	i) Ore transported by: own trucks / hired trucks	Hired trucks for initially production purposes.
	ii) Main destination to which ore is transported (giving to and from distance)	The excavated stone materials road metal will be supplied to the consumers like road laying, earth filling, building construction, etc

a) Details of hauling / transport equipment:

Type	Nos	Size / Capacity	Make	Motive power	H.P.
--	--	--	--	--	--

4) (4). Miscellaneous:

Describe briefly any allied operations and machineries related to the mining of the deposit not covered earlier.

(A) Operations	The mining operation is open-cast, semi-mechanized methods are adopted and on single shift basis only.
(B) Machineries deployed	Machineries like Tractor mounted compressor attached with Jack hammers is proposed to drilling and blasting. Hydraulic Excavators and tipper combination are adapted.



5.

BLASTING:

a) Broad blasting parameters like charge per hole, blasting pattern, charge per delay, maximum number of holes blasted in a round, manner and sequence of firing, etc.

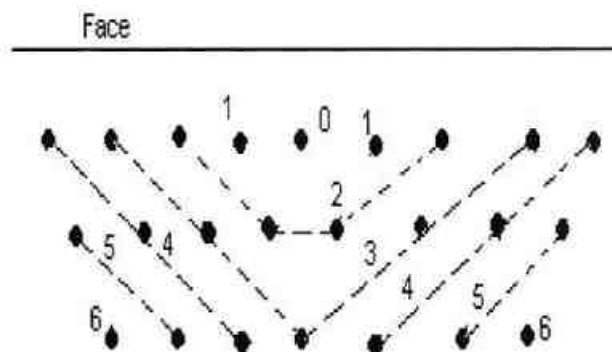
Blasting pattern:

The quarrying operation is proposed to be carried by open cast mining in conjunction with conventional method using jack hammer drilling and blasting for shattering effect and loosen the rough stone.

Rough stone production for 5 years = **355708m³**

BLAST DESIGN	
Blasthole Diameter (D) in mm	32
Burden (B) in m	1.2
Spacing (S) in m	1.38
Subdrill in m	0.5
Charge length (C) in m	0.70
Stemming	0.5
Hole Length (L) in m	1.2
Bench Height (BH) in m	2.5
Mass of explosive/hole in g	437.5
Stemming material size in mm	3.2
Burden stiffness ratio	2.08
Blast volume/hole in m ³	4.14
Production of rough stone/day in m ³	254
Number of blast holes/day	61
Number of blast round/day	2
Blasthole pattern	Staggered
Mass of explosive /day in kg	26.85
Powder factor in kg/m ³	0.11
Loading density	0.63
Type of explosives	Slurry
Diameter of packaging in mm	25
Initiation system	NONEL

Note: If >2kg of explosives per day use for blasting if proponent get the permission from the DGMS



Staggered method of mining



b) Type of explosives used / to be used:

Following explosives are recommended for efficient blasting with safe practice

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

c) Measures proposed to minimize ground vibration due to blasting:

The control blasting measures is being adopted for minimizing ground vibration and fly rock.

Shallow depths jack hammer drilling and blasting is proposed to be carried out with minimum use of explosive mainly to give hearing effect in rough stone for easy excavation and to control fly rock.

Delay detonators:

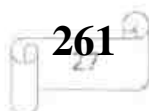
Delay blasting permits to divide the shot to smaller charges, which are detonated in a predetermined millisecond sequence at specific time intervals. The major advantages of delay blasting are:

- ❖ Reduction of ground vibration
- ❖ Reduction in air blast
- ❖ Reduction in over break
- ❖ Improved fragmentation
- ❖ Better control of fly rock

Blasting program for the production per day

No of holes	: 61holes
Yield	: 254m ³
Total explosive required	: 26.85kg-Slurry explosives
Charge per hole	: 0.473kg
Blasting at day time only	: 12.0p.m-1.0p.m

c)	Powder factor in ore and overburden / waste / development heading / stope	: Powder factor is proposed as 0.11kg per hole of explosives
d)	Whether secondary blasting is needed, if so describe it briefly	There is no secondary blasting involved.
e)	Storage of explosives (like capacity and type of explosive magazine)	1. The applicant is advised to engage an authorized explosive agency to carry out blasting.

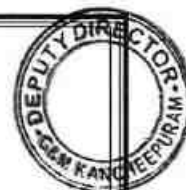


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		2. First Aid Box will be keeping ready at the time.
		3. Necessary precautionary announcement will be carried out before the blasting operation.
6.	MINE DRAINAGE:	
a)	Likely depth of water table based on observations from nearby wells and water bodies	: The ground water table is reported as of 65m in summer and 60m in rainy season from the general ground level observed in the adjacent bore well.
b)	Workings expected to be _____ m. above / reach below water table by the year _____.	: Proposed mining depth is 50m below ground level. Now, the present Mining lease shall be proposed above the water table and hence, quarrying may not affect the ground water.
c)	Quantity and quality of water likely to be encountered, the pumping arrangements and places where the mine water is finally proposed to be discharged	: The ground water may not rise immediately in this type of mining. However, the rain water percolation and collection of water from the seepage shall be less than 300 L pm and it shall be pumped out periodically by a stand by diesel powered Centrifugal pump motivated with 7.5 H.P. Motor. The quality of water is potable and it is not contaminated with any hazardous things.
7.	STACKING OF MINERAL REJECTS AND DISPOSAL OF WASTE:	
a).	Indicate briefly the nature and quantity of top soil, overburden / waste and mineral rejects likely to be generated during the years: No other wastes are removed during years.	
b).	Land chosen for disposal of waste with proposed justification	: There is no waste are proposed.
c).	Attach a note indicating the manner of disposal and	: The recovery of rough stone in this quarry is 100%. If rough stone may be unsold will be

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	configuration, sequence of buildup of dumps along with the proposals for the stacking of sub-grade ore, to be indicated Year wise.	keep within the lease boundary.
8.	USE OF MINERAL:	
a).	Describe briefly the end-use of the mineral (sale to intermediary parties, captive consumption, export, industrial use)	: The excavated stone materials will be supplied to the consumers like stone pillar, sized stone, etc. For instance, aggregates are mostly used for building, roads and footpaths., etc
b).	Indicate physical and chemical specifications stipulated by buyers	: Basically, the materials produced at this quarry are rough stone (charnockite) and gravel the same are used for building materials and road metal. So, there is no chemical specifications are specified. Only physical specifications are involved.
c).	Give details in case blending of different grades of ores is being practiced or is to be practiced at the mine to meet specifications stipulated by buyers.	: Not blending process is involved, after blasting the rough stone and gravel will be directly loaded to the needy customer.
9.	OTHERS	
	Describe briefly the following a) Site services	: Infrastructure required for such mines like office, stores, canteen, first aid station, shelter latrine and bath rooms have been provided as per the Metalliferous Mines Regulations, 1961 as a welfare amenity for our quarry laborers.
	b) Employment potential: As per Mines safety under the provisions of Metalliferous Mines Rules, 1961 under the Mines Act, 1952, whenever the workers are employed more than 10, it is preferred to have a qualified Mining Mate to keep all the production workers directly under his control and supervision. The following man power is proposed for quarrying stone material during the five years period the same manpower will be utilize for this mining plan	



period to achieve the proposed production and to comply the provisions of the MMR, 1961 norms.

1.	Highly Skilled	Mines Manager	1No.
		Mine Engineer	1No.
		Mine Geologist	1No
		Blaster	1No
2.	Unskilled	Musdoor / Labours	18 No's
Total =			22 No's

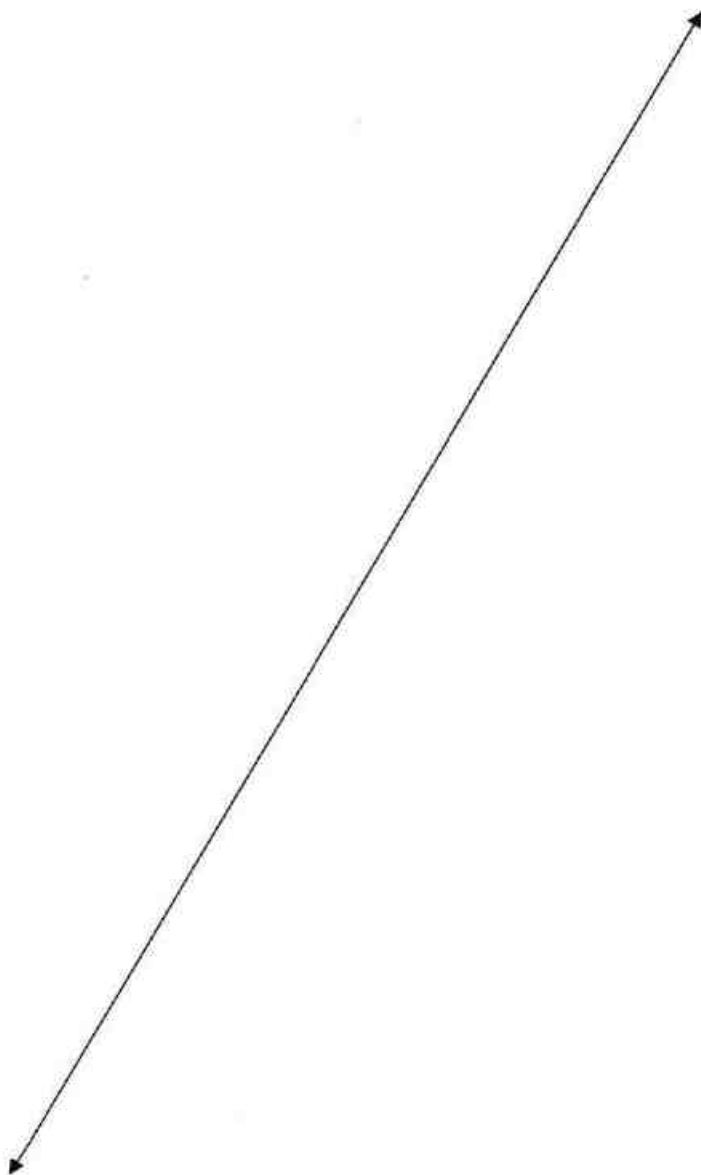
10 MINERAL PROCESSING/BENEFICIATIONS:

(a)	If processing / beneficiations of the ore or minerals mined is planned to be conducted on site or adjacent to the extraction area, briefly describe the nature of the processing /beneficiation. This should indicate size and grade of feed material and concentrate (finished marketable product), recovery rate.	:	Excavated rough stone minerals directly will be used by the applicant for required size $\frac{1}{2}$, $\frac{3}{4}$ and $1\frac{1}{2}$ inches Jelly which are mainly used in road and building construction purpose. The recovery of rough stone in this quarry is 100%.
(b)	Explain the disposal method for tailings or waste from the processing plant (quantity and quality of tailings proposed to be discharged, size and capacity of tailing pond, toxic effect of such tailings, if any, with process adopted to neutralize any such effect before their disposal and dealing of excess water from the tailing dam).	:	No water shall be used for quarrying or any other processing except drinking water to be drawn from public sources. Some stagnation of rain water in the pit shall be used for drilling and spraying haul roads. Therefore, need for tailing dam doesn't arise. But tailing control of rain water flow during rainy season has to be done by decanting the SPM in a pit before passing the water in to natural system.
(c)	A flow sheet or schematic diagram of the processing procedure should be attached.	:	Not applicable.
(d)	Specify quantity and type of chemicals to be used in the processing plant.	:	Not applicable
(e)	Specify quantity and type of chemicals to be stored on site / plant.	:	Not applicable



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(f)	Indicate quantity (cu.m. per day) of water required for mining and processing and sources of supply of water. Disposal of water and of recycling.	: Drinking is 0.2KLD, utilized water 0.8KLD, Dust suppression is 1.0KLD and Green Belt is 1.0KLD. Minimum quantity of water 3.0KLD per day. It is proposed to make an authorized water vendors for drinking water, dust suppression. The workers utilized water will be used for green belt development. The sewage water to a tune of 0.9KLD generated from the mine office toilet and mine labour toilet will be diverted to the septic tank followed by soak pit.



PART – B



11.0 ENVIRONMENTAL MANAGEMENT PLAN:

a) Attach a note on the status of Baseline information with regard to the Following :

11.1	Fresh lease land use pattern indicating the area already degraded due to quarrying /pitting, dumping, roads, processing plant, workshop, township etc in a tabular form. The present land use pattern is given as below.	
	Sl. No.	Land Use
	1.	Area under Mining
	2	Infrastructure
	3	Roads
	4	Unutilized
	5	Green belt
	6	Settling Tank & Drainage
	Grand Total	
		2.59.25
11.2	Water Regime	: Water table in this area is noticed at a depth of 60m in summer and 55m in rainy season from the general ground level and presently the quarrying of rough stone is ultimate up to a depth of 50m below ground level. Hence, it will not affect the ground water depletion of this area. It is proposed to make an authorized water vendors for drinking water, dust suppression. The workers utilized water will be used for green belt development.
11.3	Flora and Fauna	: There is no major flora observed in this area and except bushes, shrubs, no other valuable trees are noticed in the lease area. Further, neither flora of botanical interest nor fauna of zoological interest is noticed in this area.
11.4	Quality of air, ambient noise level and water	: Air or dust expected to be generated from drilling process, hauling roads, places of excavation etc., will be suppressed by periodical wetting of land by water spraying. Quarrying of rough stone will be carried out by drilling and blasting by using low power explosives, and hence, noise will be very minimum. However, periodical noise level monitoring will be carried out every six months around the quarry site.

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11.5 Climatic conditions:

Rainfall:- The district receives rainfall from southwest monsoon (June – September), northeast monsoon (October – December) and non-monsoon periods (January – May). The rainfall is generally heavy during low-pressure depressions and cyclones during the northeast monsoon period. The normal annual rainfall is 1119.8 mm (1901-1980) and the higher is towards coast.

Climatic Conditions:- The area falls under tropical climate with temperature in the summer months of March to May. The average temperature varies from 26 to 41°C. The humidity is also high in the order of 80%. The wind speed is high during the months of July and August. The wind speed ranges from 7.4 to 12.6 km/hr, which increases from 100 to 120 km/hr during cyclone period.

11.6 Human Settlement:

The nearest villages are found in the buffer zone with population as per 2011 census.

S.No	Village	Direction	Distance in Kms	Population
1	Varanavasi	North	1.4km	797
2	Chinna Madurampakkam	East	1.35km	318
3	Kosapattu	South	0.43km	236
4	Devariyaambakkam	West	0.54km	875

11.7 Public buildings, places of worship and monuments : No infrastructure like residential building, are found within radius of 300m. The places of special interest like archeological monuments, Sanctuaries, etc., are found around 10km radius.

11.8 Attach plans showing the locations of sampling stations : The proposed Ambient air quality, Water quality Ambient noise level and vibration are periodically tested for every season (6 months once) around 5km radius as per the guidance of MoEF and EIA Notification 2006 and also covering DGMS norms.

11.9 Does area (partly or fully) fall under notified area under Water (Prevention & Control of Pollution), Act, 1974 : The proposed area not fall under notified area under Water (Prevention & Control of Pollution), Act, 1974



b) Attach an Environmental Impact Assessment Statement describing the impact of Mining and beneficiation on environment on the following over the next five years and upto conceptual plan period for 'A' category mines)

i)	Land area indicating the area likely to be degraded due to quarrying / pitting, dumping, roads, workshop, processing plant, township etc: Due to quarrying and exploitation of the rough stone, there will impact in the form i.e. change in the ground profile, pits, and dumps. The details of the land use pattern, during the ensuing plan period and till lease period is shown in the tabular form: <table border="1"> <thead> <tr> <th>Sl. No.</th><th>Land Use</th><th>Area in use during the quarrying period (Hect.)</th></tr> </thead> <tbody> <tr> <td>1</td><td>Area under Mining</td><td>1.98.25</td></tr> <tr> <td>2</td><td>Infrastructure</td><td>0.02.0</td></tr> <tr> <td>3</td><td>Roads</td><td>0.05.0</td></tr> <tr> <td>4</td><td>Green Belt</td><td>0.45.75</td></tr> <tr> <td>5</td><td>Un-Utilized Area</td><td>Nil</td></tr> <tr> <td>6</td><td>Drainage & Settling Tank</td><td>0.08.25</td></tr> <tr> <td colspan="2">Grand Total</td><td>2.59.25</td></tr> </tbody> </table>		Sl. No.	Land Use	Area in use during the quarrying period (Hect.)	1	Area under Mining	1.98.25	2	Infrastructure	0.02.0	3	Roads	0.05.0	4	Green Belt	0.45.75	5	Un-Utilized Area	Nil	6	Drainage & Settling Tank	0.08.25	Grand Total		2.59.25
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ii).	Air Quality	Air or dust expected to be generated from drilling process, hauling roads, places of excavation etc., will be suppressed by periodical wetting of land by water spraying.																								
iii).	Water quality	A water sample from the open/bore wells was tested to NABL approved lab to assess hardness, Salinity, colour, Specific gravity, etc.																								
iv).	Noise levels	Quarrying of rough stone will be carried out by drilling and blasting by using low power explosives, and hence, noise will be very minimum. However, periodical noise level monitoring will be carried out every six months around the quarry site.																								
v).	Vibration levels (due to blasting)	No deep hole blasting envisaged. Small dia shot holes are used for breaking boulders. The maximum peak particles velocity shall be recoded using mini seismograph devises as per the guidance of MoEF and EIA Notification 2006 and also covering DGMS norms.																								
vi).	Water regime	No major river or any odai track are found around 50m radius.																								

34

vii).	Socio-economics	1. To provide Employment opportunities the nearby villagers. 2. For the cultural development of the nearby villagers.
viii).	Historical monuments etc.	There are no historical monuments, etc found around 300m radius.



c) Attach an Environmental Management Plan (supported by appropriate plans and sections) defining the time bound action proposed to be taken with sequence & timing in the following areas (or diagrams should be used):

i).	temporary storage and utilization of topsoil	:	No separate of topsoil will be removed.
ii).	Yearwise proposal for reclamation of land affected by abandoned quarries and other mining activities during ten years (and upto conceptual plan period for 'A' category mines) clarifying the extent of back filling and re-contouring and / or alternative use of unfilled / partially filled excavations / road sides / slopes and mine. In case abandoned quarries/ pits are proposed to be used as reservoir, their size, water holding capacity and proposal for utilization of such water be given.	:	The present mining is proposed depth of 50m from below the ground level has been envisaged as workable depth for safe & economic mining during the lease period. The mined-out area will be fenced on top of working bench with S1 fencing. No immediate proposals for closure of pit as the rough stone persist still at deeper level.

iii). *Programme of afforestation, Yearwise for the initial ten years (and upto conceptual plan period for 'A' category mines) indicating the number of plants with name of species to be afforested under different areas in hectares.*

Green Belt Development:

Safety barrier, nearby school area and Nearest Panchayat approach Roads has been identified to be utilized for Greenbelt appropriate native species of Neem, Pungan and other regional trees will be planted in a phased manner as described below

Year	Place	Area in Sq.m	No.of Plants	Rate of survival	Rate	Amount in Rs
First	Lease Boundary	4575	500	80%	@100 Rs Per sapling	50,000/-
Second	Approach	--	300	80%		30,000/-

(Signature)



		road and Nearby Village Road					
	Third	Schools	--	300	80%		30,000/-
Total							1,10,000/-
iv).	Stabilization and vegetation of dumps along with waste dump management Year wise for the ten years (and upto conceptual plan period for 'A' category mines).			:	No waste or rejects shall be proposed.		
v).	Measures to control erosion / sedimentation of water courses.			:	Not applicable. There is no major dumps are stabilize in this quarry area.		
vi).	Treatment and disposal of water from mine.			:	It will not be harmful and it does not require any treatment before discharging into the natural courses.		
vii).	Measures for minimizing adverse effects on water regime.			:	There is no water to be pumped out will be very pure and portable and therefore, it will not affect any water regime surrounding the quarry.		
viii).	Protective measures for ground vibrations / air blast caused by blasting,			:	It is a small "B" category open cast, semi mechanized mining and no heavy machinery shall be used. The only smooth blasting is proposed, therefore no change for ground vibration or noise from the quarry.		
ix).	Measures for protecting historical monuments and for rehabilitation of human settlements likely to be disturbed due to mining activity.			:	No historical monuments and for rehabilitation of human settlements doesn't to be disturbed during mining activity.		
x).	Socioeconomic benefits arising out of mining.			:	The nearest villages are will get employment benefits.		

d). *Monitoring schedules for different environmental components after the commencement of mining and other related activities. (for 'A' category mines only)*

Not applicable. It is B category quarry

12.0 PROGRESSIVE QUARRY CLOSURE PLAN:

12.1	Steps proposed for phased restoration, reclamation of already mined out area.	:	The Ultimate mining is proposed to an average depth of 50m below ground level. The mined-out area will be fenced on top



			of working bench with S1 fencing to arrest the entry of cattle's and public in to the quarry site.
12.2	Measures to be under taken on mine closure as per Act & Rules	:	Measures will be taken as per the Acts and Rules. The quarried pit will be fenced by Barbed wire fencing. Green belt development at the rate of 500 trees will be proposed in the quarry area. No immediate proposals for closure of pit as the rough stone persist still at deeper level.
12.3	Mitigation measures to be undertaken for safety and restoration/ reclamation of the already mined out area	:	The quarry lease is a fresh mining lease, no mitigation measures observed.
12.4	Mine closure activity	:	The present mining plan is proposed to depth of 50m below ground level has been envisaged as workable depth for safe & economic mining during the lease period. The mined-out area will be fenced on top of open cast working with S1 fencing. No immediate proposals for closure of pit as the rough stone persist still at deeper level.
12.5	Safety and security	:	Safety measures implement to the prevent access to surface opening excavations will be taken as Metalliferous mine regulations, 1961, it is a small open cast mining method adopted. Safety provisions like helmet, goggles, safety shoes, Dust mask, Ear muffs etc have to be provided as per the circulars and amendments made for Mine labours under the guidance of DGMS being a mechanized operation.
12.6	Disaster management and Risk Assessment	:	Open cast mining method is adopted in this quarry. If the benches are made with



		proposed height and with no risk will be there. Even then if any minor or major accident happens the quarry staffs having First aid facilities with first aid box with all necessary medicine and stretches etc., to give first aid treatment at the site and will arrange immediately the vehicle to reach nearest hospital, if any disaster happens the lessee is capable to meet such eventualities. At the time of any accident during mining activity, proposal of first aid facility at quarry and one vehicle always ready at quarry site.
12.7	Care and maintenance during temporary discontinuance	: A board of discontinuance will be changed on the main entrance of the working place. One watch man will be kept on the quarry area for security purposes also look after the survival of the plants.
12.8	Economic repercussions of closure of quarry and man power entrenchments	: During the five years mining period the employment potential will be generated, general financial status and socio-economic conditions of approx. 22 labors will be improved.

12.9 Proposed Financial Estimate / Budget for (EMP) Environment Management:

A	Fixed Asset Cost:	
	1. Land Cost (Consent Land)	: Rs. 72,00,000
	2. Labour Shed	Rs. 1,00,000/-
	3. Sanitary Facility	: Rs. 1,00,000/-
	4. Fencing	: Rs. 4,28,000/-
	5. Other expenses (Security guard, dust bin, etc)	: Rs. 4,00,000/-
	Total	: Rs. 82,28,000/-

B	B. Machinery cost	:	Rs. 20,00,000/- (Hire Basis)
C	Total Expenditure of EMP cost (for five years)		
	1. Drinking Water Facility	:	Rs. 1,00,000/-
	2. Sanitary facility & Maintenance	:	Rs. 2,00,000/-
	3. Permanent water sprinkler	:	Rs. 1,50,000/-
	4. Afforestation and its maintenance	:	Rs. 1,10,000
	5. Safety Kits	:	Rs. 1,00,000/-
	6. Provision of tyre washing facility	:	Rs. 1,50,000/-
	7. Blasting materials with blast mat cost	:	Rs. 15,00,000/-
	8. Drainage & Settling Tank (0.08.2Hect or 820 Sq.m x 400)		Rs. 3,28,000/-
	9. Environment monitoring	:	Rs. 5,00,000/-
	Total	:	Rs. 31,38,000/-
D	Total Project Cost (A+B+C)	:	Rs. 1,33,66,000/-



13.0 FINANCIAL ASSURANCE:

Not applicable, it is a small "B" rough stone and gravel quarry.

14.0 CERTIFICATES:

All required certificates are enclosed.

15.0 PLAN AND SECTIONS, ETC:

Plan and Sections are submitted along with mining plan.

16.0 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT

- (i) Care and precautionary measures will be taken for the safety of workers as per Rules and Acts.
- (ii) The applicant will endeavor every attempt to quarry the rough stone economically without any wastage and to improve the environment and ecology.
- (iii) The Mining Plan is prepared by incorporating the conditions stipulated in the precise area communication issued by the Deputy Director, Department of Geology and Mining, Kancheepuram vide letter **Roc.No.314/Q3/2023 Dated 07.10.2024.**
- (iv) Total proposed production rough stone is **355708m³** and gravel is **38942m³** up to a depth of 50m below ground level for five years plan period.

17.0 CSR Expenditure:

CSR (Corporate Social responsibility) shall provide by the applicant @ 2.0% of average net profit of the company for the last three financial years to the nearby village on the Ministry has notified the amendments in section 135 of the Act as well in the CSR Rules on 22nd January 2021 as circular no. CSR-05/01/2021-CSR-MCA dated 25th August 2021.

Place: Dharmapuri, TN

Date: 8/10/24

[Signature]

Signature of the Recognized Qualified Person

Dr.S.KARUPPANNAN,M.Sc,Ph.D.,
RQP/MAS/263/2014/A
GEO TECHNICAL MINING SOLUTIONS
A NABET Accredited and ISO Certified Company
1/213-B, Ground Floor, Natesan Complex,
Collectorate Post Office, Oddapatti,
Dharmapuri-636705, TamilNadu, India

**This Mining Plan is approved subject
to the conditions / stipulations
indicated in the Mining Plan approval
Letter No. 314/23/2024
Dated. 10.2024**

**This Mining Plan is approved as per the
powers conferred Under Rule 41 (2) of
Tamil Nadu Minor Mineral Concession
Rules, 1959**

[Signature]
10.10.24

**Deputy Director of Geology and Mining,
Kancheepuram District.**

[Signature]
10/10/24



நக.எண்.314/க்யூ3/2024 நாள் 07.10.2024.

புவியியல் மற்றும் சுரங்கத்துறை,
மாவட்ட ஆட்சியர் வளாகம்,
காஞ்சிபுரம்.

குறிப்பாணை

பொருள்:- கனிமங்களும் சுரங்கங்களும் - சிறுகனிமம் - சாதாரண கற்கள் - காஞ்சிபுரம் மாவட்டம் - வாலாஜாபாத் வட்டம் - தேவரியம்பாக்கம் கிராமம் - பட்டா புல எண்கள்.293/1B (0.18.00), 293/2A(0.11.50), 293/2B (0.13.00), 293/2C (0.20.00), 295 (0.75.00), 300/1A (0.24.50), 301/1A2 (0.75.00), 301/1A3B (0.16.50), மற்றும் 301/1A1B(P) (0.12.50) மொத்த பரப்பு 2.66.00 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் / கிராவல் வெட்டியெடுத்து குவாரிப் பணி செய்ய திரு.M.தயாளன் என்பவர் பத்து ஆண்டுகளுக்கு அனுமதிக்கோரி 1959ம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் விதி எண்.19-ன் கீழ் விண்ணப்பம் செய்தது - புலத்தணிக்கை செய்யப்பட்டது - கள அலுவலர்களின் அறிக்கைகள் வரப்பெற்றது - மனுதாரரின் கோரிக்கையின் அடிப்படையில் புல எண்கள். 293/1B (0.18.00), 293/2A (0.11.50), 293/2B (0.13.00), 293/2C (0.20.00), 295 (0.75.00), 300/1A (P) 0.18.50, 300/1A2(P) (0.74.20), 301/1A3B (0.16.50), மற்றும் 301/1A1B (0.12.55) மொத்த பரப்பு 2.59.25 ஹெக்டேர் பரப்பில் மட்டும் -05 வருட காலத்திற்கு மட்டும் - உரிமம் வழங்க தகுதியான நிலப்பரப்பாக கருதி ஏற்பளிக்கப்பட்ட சுரங்கதிட்டம் மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மை சான்று பெற்று சமர்ப்பிக்க கோருதல் தொடர்பாக.

- பார்வை:-
1. திரு.M.தயாளன் த/பெ.முனுசாமி எண்.139, சாலை தெரு, தேவரியம்பாக்கம் கிராமம், உள்ளாவுர் அஞ்சல், வாலாஜாபாத் வட்டம், காஞ்சிபுரம் மாவட்டம்-631 606 என்பவரிடமிருந்து விண்ணப்பம் பெறப்பட்ட நாள் 23.08.2024.
 2. இவ்வலுவலக நக.எண்.314/க்யூ3/2024 நாள் 23.08.2024.
 3. வட்டாட்சியர், வாலாஜாபாத் கடிதம் நக.1635/ 2024/ அ1 நாள் 23.09.2024.
 4. வருவாய் கோட்ட அலுவலர், காஞ்சிபுரம் கடிதம் நக.3624/2024/அ1 நாள் 27.09.2024.



5. மாவட்ட ஆட்சித் தலைவர், காஞ்சிபுரம் அவர்களின் தடையின்மைச் சான்று ப.மு. COLKPM 7653/2023/ஆ4 நாள் 02.04.2024.
6. திரு.M.தயாளன் த/பெ.முனுசாமி என்பவரது கடிதம் நாள் 04.10.2024.
7. உதவி புலியியலாளர் (கனிமம்) தனி வருவாய் ஆய்வாளர் (கனிமம்) காஞ்சிபுரம் ஆகியோரின் கூட்டு புலத்தணிக்கை அறிக்கை நாள் 04.10.2024.
8. மற்றும் உரிய ஆவணங்கள்.

பார்வையில் காணும் கடிதங்களின்பால் கனிவான கவனம் வேண்டப்படுகிறது.

2. காஞ்சிபுரம் மாவட்டம், வாலாஜாபாத் வட்டம், தேவரியம்பாக்கம் கிராமம், பட்டா புல எண்கள்.293/1B (0.18.00), 293/2A(0.11.50), 293/2B (0.13.00), 293/2C (0.20.00), 295 (0.75.00), 300/1A(0.24.50), 301/1A2 (0.75.00), 301/1A3B (0.16.50), மற்றும் 301/1A1B(P) (0.12.50) மொத்த பரப்பு 2.66.00 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் / கிராவல் மண் வெட்டியெடுத்து குவாரிப் பணி செய்ய பத்து ஆண்டுகளுக்கு குத்தகை உரிமம் வழங்கக்கோரி திரு.M.தயாளன் த/பெ.முனுசாமி என்பவர் உரிய ஆவணங்களுடன் 23.08.2024 அன்று விண்ணப்பம் அளித்துள்ளார்.

3. மேற்கண்ட விண்ணப்பம் தொடர்பாக வட்டாட்சியர், வாலாஜாபாத், வருவாய் கோட்ட அலுவலர், காஞ்சிபுரம், உதவி புலியியலாளர் (கனிமம்) மற்றும் வருவாய் ஆய்வாளர் (கனிமம்) காஞ்சிபுரம் ஆகியோர் புலத்தணிக்கை மேற்கொண்டு காஞ்சிபுரம் மாவட்டம், வாலாஜாபாத் வட்டம், தேவரியம்பாக்கம் கிராமம், பட்டா புல எண்கள்.293/1B (0.18.00), 293/2A(0.11.50), 293/2B (0.13.00), 293/2C (0.20.00), 295 (0.75.00), 300/1A (P) (0.18.50), 301/1A2(P) (0.74.20), 301/1A3B (0.16.50), மற்றும் 301/1A1B (0.12.55) மொத்த பரப்பு 2.59.25 ஹெக்டேர் பரப்பில் திரு.M.தயாளன் த/பெ.முனுசாமி என்பவருக்கு கிராவல் மண் மற்றும் சாதாரண கற்குவாரி உரிமம் வழங்க



கீழ்க்கண்ட நிபந்தனைகளுக்கு உட்பட்டு அனுமதி வழங்கலாம் என பரிந்துரை செய்துள்ளனர்.

நிபந்தனைகள்

- 1959-ம் வருடத்திய தமிழ்நாடு சிறு கனிய சலுகை விதிகள் , அட்டவணை II-ல் கண்டுள்ளபடி குவாரி செய்யப்படும் கனிமங்களுக்கு சீனியரேஜ் தொகை அவ்வப்போது செலுத்தி கனிமம் கொண்டு செல்லப்பட வேண்டும்.
- அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளிவிட்டு குவாரிப் பணி மேற்கொள்ளப்பட வேண்டும்.
- விண்ணப்ப புலத்தின் தெற்கே புல எண்.300/1B-ல் அமைந்துள்ள பட்டா கோபில் நிலத்திற்கு 10 மீட்டர் பாதுகாப்பு இடைவெளிவிட்டு குவாரிப் பணி மேற்கொள்ள வேண்டும்.
- புல எண்.300/1A (பகுதி)-க்கு தெற்கு பகுதியில் 43 மீட்டர் தொலைவில் புல எண்.300/1B-ல் செல்லும் தாழ்வழுத்த மின்கம்பி பாதைக்கு 50 மீட்டர் பாதுகாப்பு இடைவெளிவிட்டு குவாரிப் பணி மேற்கொள்ள வேண்டும்.
- அனுபவம் வாய்ந்த வெடிபொருள் பயன்படுத்துவோர் மூலம் குறைந்த அளவு சக்தி கொண்ட வெடிபொருட்களை பயன்படுத்தி அருகிலுள்ள பட்டாதாரர்களுக்கு எவ்வித இடையூறுமின்றி / அருகிலுள்ள பட்டா மற்றும் அரசு புலங்களில் எவ்வித ஆக்கிரமிப்பும் இன்றி குவாரிப் பணி மேற்கொள்ள வேண்டும்.
- தமிழ்நாடு சிறுகனிய சலுகை விதிகள் 1959, விதி எண்.41 மற்றும் 42-ன்படி ஏற்பளிக்கப்பட்ட சுரங்கத்திட்டம் மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் தடையின்மை சான்று பெற்று சமர்ப்பிக்கப்பட வேண்டும்.

4. இந்நிலையில் மனுதாரர் திரு.M.தபாளன் த/பெ.முனுசாமி என்பவரது 04.10.2024 நாளிட்ட கடிதத்தில் காஞ்சிபுரம் மாவட்டம், வாலாஜாபாத் வட்டம், தேவரியம்பாக்கம் கிராமம், பட்டா புல எண்கள்.293/1B (0.18.00), 293/2A(0.11.50), 293/2B (0.13.00), 293/2C (0.20.00), 295 (0.75.00), 300/1A (0.24.50), 301/1A2 (0.75.00), 301/1A3B (0.16.50), மற்றும் 301/1A1B(P) மொத்த பரப்பு 2.66.00 ஹெக்டேர் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுத்துக் கொள்ள குத்தகை உரிமம் வழங்கக்கோரி விண்ணப்பம் செய்துள்ளதாகவும் மேற்படி அனுமதி கோரிய புலங்களுக்கு தெற்கே 300 மீட்டர் சுற்றளவிற்குள் குடியிருப்புகள் வருவதால் 300 மீட்டர்



பாதுகாப்பு இடைவெளிக்காக புல எண்.300/1A (பகுதி), (0.18.5), 301/1A1B (0.12.55) மற்றும் 301/1A2 (பகுதி) (0.74.20) ஆக மாற்றம் செய்து அனுமதி கோரியுள்ள 2.66.0 ஹெக்டேர் பரப்பில் 2.59.25 ஹெக்டேர் பரப்பில் மட்டும் குவாரிப் பணி செய்ய அனுமதி வழங்குமாறு கேட்டுக் கொண்டுள்ளார்.

5. இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, சென்னை அவர்களின் 10.08.2020 நாளிட்ட கடிதத்துடன் இணைத்து வரப்பெற்ற அரசாணை எண்.169 தொழில் துறை (எம்.எம்.சி-1) நாள் 04.08.2020 -ன்படி பட்டா புலங்களில் கிராவல், சாதாரண வகை கற்கள் ஆகிய சிறுகனிம உரிமம் வழங்கும் நேர்வுகளில் நடவடிக்கை எடுக்க விதி 19, 19A மற்றும் 33-ல் மாவட்ட ஆட்சியருக்கு வழங்கப்பட்ட அதிகாரம் தற்போது சம்மந்தப்பட்ட உதவி/துணை இயக்குநர் அவர்களுக்கு மாற்றி வழங்க உத்திரவிடப்பட்டுள்ளது.

6. எனவே, வட்டாட்சியர், வாலாஜாபாத், வருவாய் கோட்ட அலுவலர், காஞ்சிபுரம் மற்றும் உதவி புவியியலாளர் (கனிமம்), தனி வருவாய் ஆய்வாளர் (கனிமம்) காஞ்சிபுரம் ஆகியோரின் பரிந்துரை மற்றும் நிபந்தனைகளின் அடிப்படையில் மனுதாரர் கோரிக்கையை ஏற்று காஞ்சிபுரம் மாவட்டம், வாலாஜாபாத் வட்டம், தேவரியம்பாக்கம் கிராமம், பட்டா புல எண்கள். 293/1B (0.18.00), 293/2A(0.11.50), 293/2B (0.13.00), 293/2C (0.20.00), 295 (0.75.00), 300/1A (P) (0.18.50), 301/1A2(P) (0.74.20), 301/1A3B (0.16.50), மற்றும் 301/1A1B (0.12.55) மொத்த பரப்பு 2.59.25 ஹெக்டேர் பரப்பில் மட்டும் 1959-ம் வருட தமிழ்நாடு சிறுகனிம விதிகள், விதி எண்.19 (1) மற்றும் 20-ன்படி மேற்கண்ட நிபந்தனைகளுக்குட்பட்டு 5 (ஐந்து) வருட காலத்திற்கு திரு.M.தயானன் த/பெ.முனுசாமி என்பவருக்கு கிராவல் / சாதாரண கற்கள் குவாரி உரிமம் வழங்குவதற்குரிய தகுதியான நிலப்பரப்பாக கருதப்படுகிறது.



7. மேலும், தமிழ்நாடு சிறுகனிம சலுகை விதிகள் -1959 விதி 41-ன்படி குவாரிப் பணி மேற்கொள்வது தொடர்பாக வரைவு சுரங்க திட்டத்தினை 90 தினங்களுக்குள் சமர்ப்பிக்குமாறு மனுதாரரைக் கேட்டுக் கொள்ளப்படுகிறது. மேலும் ஏற்பளிக்கப்பட்ட சுரங்கத் திட்டத்தின் தொடர்ச்சியாக 1959-ம் வருடத்திய தமிழ்நாடு சிறு கனிம சலுகை விதிகள், விதி எண்.42-ன்படி மாநில சுற்றுச் சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் தடையின்மை சான்று பெற்று சமர்ப்பிக்கும் பட்சத்தில் மட்டுமே குவாரி உரிமம் வழங்கப்படும் என இதன் மூலம் தெரிவிக்கப்படுகிறது.

துணை இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
காஞ்சிபுரம்.

பெறுநர்

திரு.M.தயாளன்,

த/பெ.முனுசாமி,

எண்.139, சாலை தெரு, தேவரியம்பாக்கம் கிராமம்,

உள்ளாவுர் அஞ்சல், வாலாஜாபாத் வட்டம்,

காஞ்சிபுரம் மாவட்டம்-631 606.

நகல்.

1. தலைவர், மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையம், சென்னை
2. ஆணையர், புவியியல் மற்றும் சுரங்கத்துறை, சென்னை-32.

ப.மு.COLKPM7653/2023/ஆ4
நாள். 02.04.2024

மாவட்ட ஆட்சியர் அலுவலகம்
காஞ்சிபுரம்.

தடையின்மைச்சான்று

பொருள் தடையின்மை சான்று - காஞ்சிபுரம் மாவட்டம் - வாலாஜாபாத் வட்டம் - தேவரியம்பாக்கம் கிராமம் - நன்செய் புல எண்கள்.268/1 மற்றும் சிலவற்றின் மொத்த விஸ்தீர்ணம் 4.63.55 எக்டேர் நிலத்தில் தொழில் சார்ந்த பணிகள் செய்வதற்கு தடையின்மைச்சான்று வழங்கக் கோரி தி/ள்.பி.ஜெ.ஆர் ப்ளா மெட்டல்ஸ் (சென்னை) பிரைவேட் லிமிடெட் மனு செய்தது - அறிக்கை வரப்பெற்று - தடையின்மைச்சான்று வழங்குதல் - தொடர்பாக.

- பார்வை 1.நிர்வாக இயக்குநர், தி/ள்.பி.ஜெ.ஆர் ப்ரஃப்ர்டி & டெவலப்மென்ட் பிரைவேட் லிமிடெட் மனு நாள்.22.12.2023.
2.மாவட்டஆட்சித்தலைவர், காஞ்சிபுரம் அவர்களின் கடித COLKPM7653/2023/ஆ4 நாள். 02.01.2024.
3.மாவட்ட ஆட்சியரின் நேர்முக உதவியாளர் (வே)(பொ)/ வேளாண்மை துணை இயக்குநர், காஞ்சிபுரம் கடிதம் ந.க.எண்.2/2024(வே) நாள். 07.02.2024.
4.உதவி இயக்குநர்/துணை இயக்குநர் (பொ), மாவட்ட நகர் ஊரமைப்பு அலுவலகம், காஞ்சிபுரம் கடிதம் மூ.மு.எண்.122/2024/காமா.2 நாள்.20.02.2024.
5.வட்டா வளர்ச்சி அலுவலர்(வ.உ), வாலாஜாபாத் ஊராட்சி ஒன்றியம் கடித ந.க.எண்.373/2024/அ2 நாள்.05.2.2023.
6.செயற்பொறியாளர் ந.வ.து.கீழ்பாலாறு வடிநிலக்கோட்டம், காஞ்சிபுரம்கடிதஎண்.இவஅ2/கோ.28(NOC- தேவரியம்பாக்கம்) /2024 நாள்.05.02.2024.
7.வாலாஜாபாத் வட்டாட்சியரின் அறிக்கை.ந.க.155/2024/அ1 நாள்.10.02.2024.
8.வருவாய் கோட்ட அலுவலர், காஞ்சிபுரம் அறிக்கை ந.க.108/2024/அ1 நாள்.14.02.2024.

((()))

காஞ்சிபுரம் மாவட்டம், வாலாஜாபாத் வட்டம், தேவரியம்பாக்கம் கிராமம், நன்செய் புல எண்கள்.268/1 மற்றும் சிலவற்றின் மொத்த விஸ்தீர்ணம் 4.63.55 எக்டேர்ஸ் நிலத்தில் விவசாயம் தவிர்த்து தொழில் சார்ந்த பணிகள் செய்வதற்கு தடையின்மைச்சான்று வழங்கக் கோரி தி/ள்.பி.ஜெ.ஆர் ப்ளா மெட்டல்ஸ் (சென்னை) பிரைவேட் லிமிடெட் நிறுவனத்தின் நிர்வாக இயக்குநர் மனு அளித்தது தொடர்பாக பார்வையில் காணும் சார்நிலை அலுவலர்களின் அறிக்கையின் அடிப்படையில் கீழ்க்கண்ட நிபந்தனைகளுடன் தடையின்மைச்சான்று வழங்கப்படுகிறது.

(Signature)



தடையின்மைச்சான்று புலங்கள் தேவரியம்பாக்கம் கிராமக்கணக்குகளில் கீழ்க்கண்டவாறு தாக்கலாகியுள்ளது.

வ.எண்.	புல எண். உட்பிரிவு	வகைபாடு	மொத்த பரப்பு	பட்டாளன் / பட்டாதாரர் பெயர்
1	268/1	நன்செய்	0.29.00	பட்டாளன் 722 & 889 PJR Blue Metals (Chennai) Pvt Ltd
2	268/2A	நன்செய்	0.12.50	
3	268/2B	நன்செய்	0.12.25	
4	268/2C	நன்செய்	0.12.25	
5	269/2	நன்செய்	0.12.00	
6	269/3	நன்செய்	0.15.00	
7	269/5	நன்செய்	0.10.50	
8	281/1	நன்செய்	0.15.00	
9	281/2	நன்செய்	0.7.00	
10	281/3	நன்செய்	0.7.50	
11	281/4	நன்செய்	0.11.50	
12	281/5	நன்செய்	0.11.00	
13	302/1	நன்செய்	0.11.50	
14	302/2	நன்செய்	0.9.00	
15	302/3	நன்செய்	0.9.50	
✓16	293/2A	நன்செய்	0.11.50	பட்டாளன் 722 & 889 PJR Blue Metals (Chennai) Pvt Ltd
✓17	293/1B	நன்செய்	0.18.00	
✓18	293/2B	நன்செய்	0.13.00	
✓19	293/2 C	நன்செய்	0.20.0	
✓20	300/1A	நன்செய்	0.24.50	
✓21	295	நன்செய்	0.75.00	
✓22	301/1A2	நன்செய்	0.75.00	
✓23	301/1A3B	நன்செய்	0.16.50	
✓24	301/1A1B	நன்செய்	0.12.55	
25	264/3A	நன்செய்	0.12.00	
மொத்தம்			4.63.55	

காஞ்சிபுரம் மாவட்ட நகர் ஊராமைப்பு துணை இயக்குநர் நிபந்தனை :-

தமிழ்நாடு ஒருங்கிணைந்த வளர்ச்சி மற்றும் கட்டட விதிகள் - 2019-ன்படி குவாரி அமைப்பதற்கான Category விதிமுறைகள் அமையவில்லை. எனவே, கீத்துறையில் குவாரி அமைப்பதற்கான அனுமதி வழங்கும் நடைமுறை வழக்கத்தில் இல்லை.

நிபந்தனைகள். -

1. ஏரி புறம்போக்கு பாசன வாய்க்கால்களை ஆக்கிரமிப்புகள் செய்தல் கூடாது எனவும்,
2. அருகாமையிலுள்ள நீர்நிலைகளில் Sanitary / Waste Disposals போன்றவைகளால் மாசுபடுத்துதல் கூடாது.

[Handwritten Signature]



3. உத்தேச இடத்தில் பிற உபயோகங்களுக்கு அபிவிருத்தி செய்யும் முன்னர் இத்துறையின் முன் அனுமதி பெறப்பட வேண்டும் என்ற நிபந்தனைகளுடன் மேற்படி நிலத்தை தொழில் சார்ந்த பணிகள் செய்வதற்கு தடையின்மைச்சான்று வழங்கலாம்.
4. மேலும், பிரஸ்தாப மனையிடத்தை சுற்றி உள்ள அரசு புறம்போக்கு வாங்க்கால் (ம) கால்வாய் ஆகியவற்றினை ஆக்கிரமிப்பு ஏதும் செய்யக்கூடாது. மேற்படி மனையிடத்தில் அபிவிருத்திகள் செய்யப்பட்சத்தில் நீர்நிலையிலிருந்து போதுமான திறவிடம் (இடைவெளி) நிலைநிறுத்தப்பட வேண்டும்.

செயற்பொரியாளர், நீர்வள ஆதாரத்துறை நிபந்தனைகள் :-

1. நிறுவனத்தாரின் புல எண் நிலத்தில் வெள்ள நீர் பாதிப்பு ஏற்படாமலிருக்க கீழே அட்டவணையில் குறிப்பிட்டுள்ளவாறு நிறுவனத்தாரின் புல எண் நிலத்தின் மட்ட அளவுகள் படிப்படியாக ஒரே சீராக உயர்த்தப்பட வேண்டும்.

வ. எண்	நில புல எண்	பரப்பளவு (ஹெக்டேரில்)	நிறுவனத்தாரின் புல எண் நிலங்களின் தற்போதைய தரைமட்ட அளவு (மீ)	நிறுவனத்தாரின் புல எண் நிலங்களில் மண் கொட்டி உயர்த்தப்பட வேண்டிய மட்ட அளவு (மீ)	நிறுவனத்தாரின் புல எண் நிலங்களில் மண் கொட்டி உயர்த்தப்பட வேண்டிய உயரம் (மீட்டரில்)
1	264/3A	0.12.0	(+) 48.380	(+) 49.490	1.110
2	268/1	0.29.0	(+) 48.450	(+) 49.490	1.040
3	268/2A	0.12.5			
4	268/2B	0.12.25			
5	268/2C	0.12.25			
6	269/2	0.12.0	(+) 48.520	(+) 49.490	0.970
7	269/3	0.15.0			
8	269/5	0.10.5			
9	281/1	0.15.0	(+) 48.500	(+) 49.490	0.990
10	281/2	0.07.0			
11	281/3	0.07.5			
12	281/4	0.11.5			
13	281/5	0.11.0			
14	293/1B	0.18.0	(+) 48.250	(+) 49.490	1.240
15	293/2A	0.11.5			



16	293/2B	0.13.0			
17	293/2C	0.20.0			
18	295	0.75.0	(+) 48.270	(+) 49.490	1.220
19	300/1A	0.24.5	(+) 48.120	(+) 49.490	1.370
20	301/1A2	0.75.0			
21	301/1A1B	0.12.55	(+) 48.150	(+) 49.490	1.340
22	301/1A3B	0.16.5			
23	302/1	0.11.5			
24	302/2	0.09.0	(+) 48.480	(+) 49.490	1.010
25	302/3	0.09.50			
	மொத்தம்	4.63.55 ஹெக்டேர் (or) 11.45 ஏக்கர்			

2. நிறுவனத்தார் மேலே அட்டவணையில் குறிப்பிட்டுள்ள உயரத்திற்கு முறையான மண் பரிசோதனை (Soil Test) செய்த மண்ணை கொண்டு நிரப்பப்பட வேண்டும்.
3. நிறுவனத்தாரின் புல எண்கள். 268, 281, 293, 300 & 301-ன் ஊடே பாசன வாய்க்கால் செல்வதாக தேவரியம்பாக்கம் கிராம வரைபடத்தில் குறிப்பிடப்பட்டுள்ளது. இந்த பாசன வாய்க்கால், அரசு வாய்காலாக இல்லாதபோதிலும், நிலவியல் பட்டா வாய்காலாகவே உள்ளதால், நிறுவனத்தார் நிலங்களுக்கு கீழேயுள்ள விளை நிலங்களுக்கு பாசன வசதி பெறும் வகையில் வாய்க்காலாக அமைத்து அதனை தொடர்ந்து பராமரிக்க வேண்டும்.
4. நிறுவனத்தாருக்கு சொந்தமான புல எண் நிலங்களுக்கு இடையில் புல எண். 293/1A-ஆனது பிறருக்கு சொந்தமான தனி நபரின் பட்டா நிலம் அமைந்துள்ளது. தனியருக்கு சொந்தமான இந்த நிலத்தை அணுகிட நிலத்தின் உரிமையாளரிடமிருந்து உரிய அனுமதியை நிறுவனத்தாரே பெற்றுக்கொள்ள வேண்டும். மேலும், புல எண்.264/3A நிலமானது ஒரே தொடர்ச்சியாக இல்லாமல் தனித்து உள்ளது.
5. நிறுவனத்தாரின் புல எண் நிலங்களில் வெள்ள காலங்களில் வெள்ள நீர் வடிய நிறுவனத்தார் தங்களது புல எண் நிலங்களை சுற்றியும் 0.60 மீ x 0.90 மீ என்ற அளவுகளில் வடிகால் கால்வாய் அமைத்து அதனை அருகில் செல்லும் சாலைப்போர கால்வாயுடன் இணைக்கப்பட வேண்டும்.
6. நிறுவனத்தாரின் புல எண் நிலங்களில் தொழில் சார்ந்த பணிகள் மேற்கொள்ளும் பொழுது வெளியேறும் கழிவு நீரை அருகிலுள்ள நீர் நிலைகளில் விடக்கூடாது.



- நிறுவனத்தாரின் நிலத்திலேயே அவர்களது சொந்த செலவில் கழிவுநீர் உட்கட்டமைப்பு அமைக்கப்பட வேண்டும். கழிவுநீர் அருகிலுள்ள நீர்நிலைகளில் சென்றடையாத வண்ணம் அப்பகுதி உள்ளாட்சி அமைப்பின் மூலம் தொடர்ந்து கண்காணிக்கப்பட வேண்டும்.
7. நிறுவனத்தார் பிறர் நிலங்களுக்கு பாசன நீர் செல்வதை எவ்விதத்திலும் தடை செய்யக் கூடாது. மேலும், கீழே உள்ள விளைநிலங்களுக்கு பாசன நீர் செல்வதற்கான உரிய வழிவகை நிறுவனத்தாரால் ஏற்படுத்தி தரப்பட வேண்டும்.
 8. நிறுவனத்தாருக்கு சொந்தமான புல எண் நிலங்களுக்கு கீழே பிறருக்கு சொந்தமான நிலங்கள் இருப்பதால், அவர்களின் விளை நிலங்களுக்கு இடு பொருட்களை எடுத்துச் செல்லவும், நிலங்களை பார்வையிட சென்று வருவதற்கும் நிறுவனத்தார் தடை ஏதும் செய்யக்கூடாது.
 9. நிறுவனத்தாரின் புல எண் நிலத்தில் கட்டப்படும் கட்டிடங்களில் விழும் மழைநீரை சேமிக்க உரிய மழைநீர் சேகரிக்கும் கட்டமைப்பு வசதியை நிறுவனத்தாரின் புல எண் நிலங்களில் நிறுவனத்தாரின் சொந்த செலவிலேயே அமைக்கப்பட வேண்டும்.
 10. நிறுவனத்தாரின் நிலத்தை சுற்றி வருவாய்துறை மூலம் நில அளவை செய்து "ஏரிகள் பாதுகாப்பு மற்றும் ஆக்கிரமிப்பு சட்டம் 2007"-ன் படி எல்லை கற்கள் 30மீ- க்கு ஒரு கல் வீதம் மற்றும் வளைவு பகுதியில் ஒரு கல் பதித்து ஆக்கிரமிப்பு ஏதும் செய்யாமல் தொடர்ந்து பராமரிக்கப்பட வேண்டும்.
 11. நிறுவனத்தார் அளித்துள்ள நில விவர ஆவணங்களின்படி இந்த தடையின்மை சான்று வழங்க பரிந்துரை செய்யப்படுகிறது. நிறுவனத்தாரால் அளிக்கப்பட்ட ஆவணங்களின் உண்மை தன்மைக்கு நிறுவனத்தாரே முழு பொறுப்பு ஆவார்கள்.
 12. எதிர்காலத்தில் நீர்வளத்துறை அலுவலர்கள் ஆய்வு செய்ய வரும் போது நிறுவனத்தார் தடையேதும் செய்யக்கூடாது.
 13. நிறுவனத்தார் நிலத்தில் குடியிருப்பு மற்றும் தொழில் சார்ந்த பணிகளுக்காக நில வகைபாடு மாற்றம் செய்திட தொழில்நுட்ப ரீதியிலான இந்த அறிக்கையானது நிபந்தனைகளின் அடிப்படையில் மட்டுமே வழங்கப்படுகிறது. நிறுவனத்தார் இந்த நிபந்தனைகளை தவறாமல் கண்டிப்பாக பின்பற்றப்பட வேண்டும். மேலும், நிறுவனத்தார் இந்த நிபந்தனைகளை நிறைவேற்றாத பட்சத்தில் இந்நிலத்திற்கு பிற்காலத்தில் ஏற்படக்கூடிய எவ்வகையான பாதிப்பிற்கும் நீர்வளத்துறை எவ்விதத்திலும் பொறுப்பேற்காது.



14. மேற்காணும் நிறுவனத்தாரின் நிலங்களில் அனுமதிக்கப்படும் மட்ட அளவிற்கு மண் கொட்டி உயர்த்தப்பட வேண்டியதும், அந்நிலங்களில் கிடைக்கப்பெறும் மழைநீரினை வெளியேற்றி அமைக்கப்பட வேண்டிய மழைநீர் வடிகால்வாயினை அதன் அளவு மாறாமல் தவறாமல் கடைபிடிக்கப்பட வேண்டும். இந்நிபந்தனைகளை கடைபிடிக்கத் தவறும் பட்சத்தில் இதனால் ஏற்படும் விளைவுகளுக்கு நீர்வளத்துறை பொறுப்பேற்காது. எனவே, இந்நிபந்தனைகள் கடைப்பிடிக்கப்பட்டுள்ளதா என்பதனை வரைபட அனுமதி ஒப்புதல் அளிக்கும் முன் சம்பந்தப்பட்ட துறை உறுதி செய்து கொள்ளப்பட வேண்டும். இதனால் ஏற்படும் இழப்பீட்டிற்கு நீர்வளத்துறை எவ்விதத்திலும் பொறுப்பேற்காது.

பொதுவான நிபந்தனைகள்

1	மனுதாரர் தடையின்மைச் சான்று கோரும் புலம் தற்போதுள்ள சாலையை விட அதிக உயரத்தில் இருக்க வேண்டும்.
2	மனுதாரர் தனது சொந்த இடத்திலேயே போதிய வடிகால் வசதிகள் மற்றும் கழிவுநீர் கால்வாய்களை ஏற்படுத்திக் கொள்ள வேண்டும். மேலும் பிரஸ்தாப புலம் தாழ்வாக இருக்கும்பட்சத்தில் அதனை நீர் குழாதவாறு அமைத்துக் கொள்ள வேண்டும்.
3	மனுதாரரால் முன்மொழியப்பட்ட கட்டுமானத்தை மாற்றுவதற்கு முன்பு சம்மந்தப்பட்ட பொதுப்பணித்துறை மற்றும் நீர்வள ஆதாரத்துறைக்கு முன்னரே அறிவிப்பு வழங்க வேண்டும்.
4	கட்டுமானப் பணிகள் மேற்கொள்ளும் போது ஏற்படும் குப்பைகள் / இடிபாட்டுப் பொருட்களை பொது இடங்களில் கொட்டாமல் சொந்த இடத்திலேயே சேகரித்து முறையாக தமிழ்நாடு மாசு கட்டுப்பாட்டு வாரிய விதிமுறைகளின்படி வெளியேற்றப்பட வேண்டும்.
5	அங்கீகரிக்கப்பட்ட பொறியாளரிடமிருந்து பெறப்பட்ட கட்டட வடிவமைப்பின்படி முறையாக மண் பரிசோதனை செய்து மண்ணின் தன்மைக்கேற்ப பொருத்தமான அடித்தளத்தினை அமைத்து கட்டடம் கட்டப்பட வேண்டும்.
6	மனுதாரரின் புல எண்களில் அமைக்கப்படவுள்ள கட்டிடங்களிலிருந்து வெளியேறும் கழிவு நீரை அருகில் உள்ள மழைநீர் சேகரிப்பு தொட்டி மற்றும் ஓடையில் கலக்காதவாறும் சம்மந்தப்பட்ட தகுதிவாய்ந்த அதிகாரிகளிடம் முறையான வழிமுறைகளைப் பெற்று நிறுவனத்தாரின் நிலத்திலேயே தனது சொந்த செலவில் கழிவு நீர் உட்கட்டமைப்பு அமைக்கப்பட வேண்டும்.
7	மனுதாரர் தடையின்மைச்சான்று கோரியுள்ள புலஎண்ணில் வருவாய்த்துறை மற்றும் பொதுப்பணித்துறை ஆவணங்களில் உள்ள அளவுகளின் படி வளர்ச்சிப் பணிகள் மேற்கொள்ள வேண்டும். அருகில் அரசு புறம்போக்கு கால்வாய்/ஓடை ஏதேனும் இருப்பின் ஆக்கிரமித்தல் கூடாது.
8	மனுதாரர் தடையின்மைச் சான்று கோரும் புலம் கால்வாய், ஏரி போன்ற நீர்நிலைகளை ஒட்டி அமையும் பட்சத்தில் நிறுவனத்தார் சொந்த செலவில் அவருடைய சொந்த இடத்தில் சுவர் எழுப்ப வேண்டும். அரசு அதிகாரிகள் அவ்வப்போது ஆய்வு செய்ய வரும்போது தடையேதும் ஏற்படுத்தக் கூடாது.



9	மனுதாரர் கோரும் புல எண்ணிற்கு அருகில் பொதுப்பணித்துறை ஏரிகள் இருப்பின், கட்டட பணிகள் மேற்கொள்ளும் போது மேற்படி நீர்நிலைகளுக்கு எவ்வித சேதமும் ஏற்படுத்திவிடக் கூடாது. பொதுப்பணித்துறை கால்வாயினை கடந்து பணிகளை மேற்கொள்ளும் போது அத்துறையின் அனுமதி பெறப்பட வேண்டும்.
10	மனுதாரர் கோரும் புல எண்ணிற்கு இடையே இருக்கும் கால்வாய்களை தனது சொந்த செலவில் பராமரிக்க வேண்டும். வருவாய்த் துறை பதிவேடுகளின்படி எந்த ஒரு ஆக்கிரமிப்புகளும் இல்லாமல் கால்வாய்களின் நீள அகலத்தை பராமரிக்க வேண்டும். பிரஸ்தாப புலத்திற்குள் இருக்கும் கால்வாய்களின் வழியாக நீர் செல்வதற்கு எவ்வித தடையும் இல்லாமல் தேவையான ஏற்பாடுகளை கட்டுமான வேலைகள் முடிந்த பின்னரும் தனது சொந்த செலவில் செய்ய வேண்டும்.
11	தற்போதுள்ள அரசு விதிமுறைகளின்படி சம்மந்தப்பட்ட அதிகாரிகளின் முன் அனுமதி பெற்று ஆழ்துறை கிணறுகள் அமைக்கப்பட வேண்டும். அவ்வாறு அமைக்கப்படும் ஆழ்துறை கிணறுகள் விவசாய நீர்நிலைகளை பாதிக்கப்படாதவாறு அமைக்கப்பட வேண்டும்.
12	கடும் வெள்ள காலங்களில் மழைநீர் பிரஸ்தாப புலத்தில் தேங்காதவாறு வெளியேற்றும் வகையில் தடையின்மைச் சான்று கோரும் புலத்தினைச் சுற்றி உறுதியான கல்வெட்டுகள் மற்றும் கால்வாய்கள் அமைத்து மழைநீரை வெளியேற்ற வேண்டும்.
13	மனுதாரருக்கு வழங்கப்பட்ட அனுமதியை வேறு எவருக்கும் பகுதியாகவோ அல்லது முழுமையாகவோ மாற்ற அனுமதி கிடையாது. எதிர்காலத்தில் ஏதேனும் ஆவணங்கள் போலியானவை என கண்டறியப்பட்டால், எவ்வித முன்அறிவிப்பும் இன்றி இத்தடையின்மைச் சான்று ரத்து செய்யப்படும்.
14	இத்தடையின்மைச் சான்றில் குறிப்பிடப்பட்டுள்ள புலங்களில் எவையேனும் நில எடுப்பு, தமிழ்நாடு நில உச்சவரம்பு, நில சீர்திருத்த சட்ட விதிமுறைகளுக்கு உட்படுமாயின் இத்தடையின்மைச் சான்றும் அதற்கு உட்பட்டதாகும்.
15	மேற்படி நிபந்தனைகளை மீறும் பட்சத்தில் இத்தடையின்மைச் சான்றினை எப்பொழுது வேண்டுமானாலும் இரத்து செய்ய மாவட்ட ஆட்சித்தலைவருக்கு அதிகாரம் உண்டு.
16	தடையின்மை சான்று கோரும் புலங்களில் பின்வரும் காலங்களில் நீதிமன்ற வழக்கு ஏதேனும் இருக்கும் பட்சத்தில் இத்தடையின்மைச் சான்று நீதிமன்ற தீர்ப்புக்கு உட்பட்டதாகும்.
17	இச்சான்று அரசாணை எண்,302 வீட்டு வசதி மற்றும் நகர்ப்புற வளர்ச்சி துறை நாள் 29,12,2010 மற்றும் இயக்குநர், வீட்டு வசதி மற்றும் நகர்ப்புற வளர்ச்சி சென்னை 2 சுற்றறிக்கை ந.க,24935/2010/ஜி.ஆர் நாள்,7,3,2011ல் குறிப்பிட்டுள்ளவாறும், மேற்படி நிபந்தனைகள் அடிப்படையிலும், நன்செய் நிலங்களை வணிக பயன்பாட்டிற்கும் மற்றும் பல்வேறு பிற பயன்பாடுகளுக்காகவும் பயன்படுத்திக்கொள்ள மட்டுமே தடையின்மைச் சான்று வழங்கப்படுகிறது. மேற்படி நிலங்களில் மேற்கொள்ளப்படும் அபிவிருத்தி பணிகளுக்கு சம்மந்தப்பட்ட துறையினரிடம் அரசு விதிகளின்படி விண்ணப்பித்து உரிய அனுமதி பெறப்பட வேண்டும்.

சிறப்பு நிபந்தனைகள்

- 1) தடையின்மைச்சான்று கோரும் புலங்களுக்கு இடையில் புலஎண் 311 மற்றும் 314 ஆகியவற்றில் கிராம கணக்கின்படி அரசு புறம்போக்கு வாய்க்கால் செல்வதில்



ஆக்கிரமணம் ஏதும் செய்யாமலும், அதன் தன்மை மாறாமலும் பராமரிக்கப்பட வேண்டும்.

2) தடையின்மைச்சான்று கோரும் புலங்களில் (293/2A, 295, 301/1A2) உள்ள தாழ்மின்னழுத்த கம்பிகளை சம்பந்தப்பட்ட துறையின் முன் அனுமதி பெற்று தனது சொந்த செலவில் மாற்றி அமைத்துக்கொள்ள வேண்டும்.

3) நிறுவனத்தாரின் நிலப்பகுதிகள் ஒன்றோடு ஒன்று ஒரே தொகுப்பாக இல்லாமல் தனித்தனியாக உள்ளதால் மனுதாரர் தனது சொந்த செலவிலேயே வழிப்பாதைகளை அமைத்துக்கொள்ள வேண்டும்.



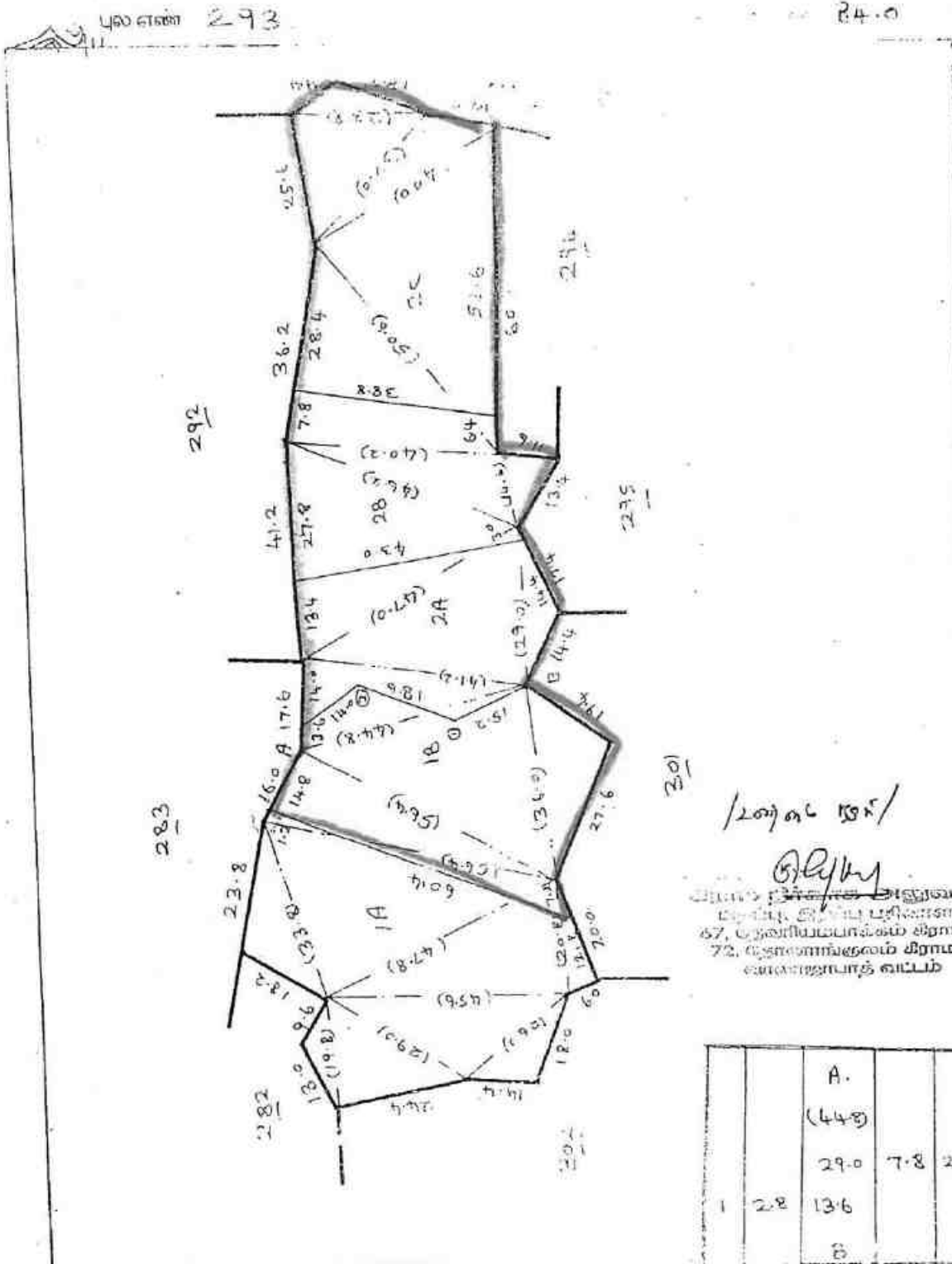
மாவட்ட ஆட்சித்தலைவர்,
காஞ்சிபுரம்.

பெறுநர்

தி/ள் பிஜேஆர் ப்ளா மெட்டல்ஸ் (இலட்சுமி)
பிரைவேட் லிமிடெட்
பிஜேஆர் ஸ்கெயர், எண்.8-பி சிவ சண்முகம் தெரு,
மேற்கு தாம்பரம், சென்னை - 45.

நகல்:-

1. வருவாய் கோட்டாட்சியர், காஞ்சிபுரம்.
2. செயற்பொறியாளர், (நி.ஆ.து)
கீழ்பாலாறு வடிநிலக் கோட்டம், காஞ்சிபுரம்.
3. மாவட்ட ஆட்சியரின் நேர்முக உதவியாளர்(வே)/
வேளாண்மை துணை இயக்குநர்,
காஞ்சிபுரம்.
4. துணை இயக்குநர்,
மாவட்ட நகர் ஊரமைப்பு அலுவலகம்,
காஞ்சிபுரம்.
5. வட்டாட்சியர், வாலாஜாபாத்.
6. வட்டார வளர்ச்சி அலுவலர், வாலாஜாபாத்.



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உயர்நீதிமன்றம்

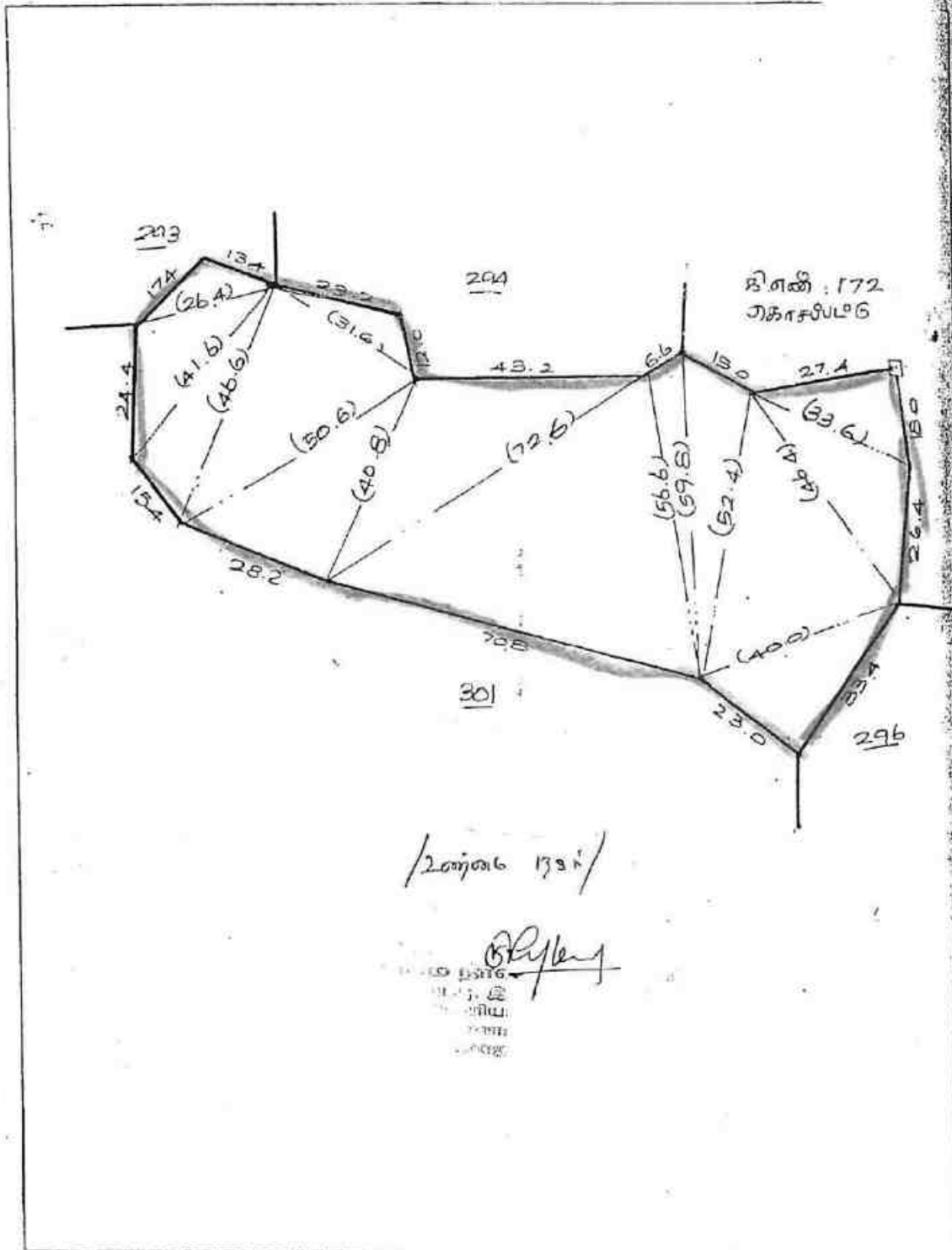
வட்டம்: காளிபுரம்.

1. பெயர், இனியபேர்த்து

படி எண். 295.

பரப்பு. செஞ்செட்டி

○ கா. 75.0



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65. BM. 100

66. BN. 100

67. BO. 100

68. BP. 100

69. BQ. 100

70. BR. 100

71. BS. 100

72. BT. 100

73. BU. 100

74. BV. 100

75. BW. 100

76. BX. 100

77. BY. 100

78. BZ. 100

79. CA. 100

80. CB. 100

81. CC. 100

82. CD. 100

83. CE. 100

84. CF. 100

85. CG. 100

86. CH. 100

87. CI. 100

88. CJ. 100

89. CK. 100

90. CL. 100

91. CM. 100

92. CN. 100

93. CO. 100

94. CP. 100

95. CQ. 100

96. CR. 100

97. CS. 100

98. CT. 100

99. CU. 100

100. CV. 100

101. CW. 100

102. CX. 100

103. CY. 100

104. CZ. 100

105. DA. 100

106. DB. 100

107. DC. 100

108. DD. 100

109. DE. 100

110. DF. 100

111. DG. 100

112. DH. 100

113. DI. 100

114. DJ. 100

115. DK. 100

116. DL. 100

117. DM. 100

118. DN. 100

119. DO. 100

120. DP. 100

121. DQ. 100

122. DR. 100

123. DS. 100

124. DT. 100

125. DU. 100

126. DV. 100

127. DW. 100

128. DX. 100

129. DY. 100

130. DZ. 100

131. EA. 100

132. EB. 100

133. EC. 100

134. ED. 100

135. EE. 100

136. EF. 100

137. EG. 100

138. EH. 100

139. EI. 100

140. EJ. 100

141. EK. 100

142. EL. 100

143. EM. 100

144. EN. 100

145. EO. 100

146. EP. 100

147. EQ. 100

148. ER. 100

149. ES. 100

150. ET. 100

151. EU. 100

152. EV. 100

153. EW. 100

154. EX. 100

155. EY. 100

156. EZ. 100

157. FA. 100

158. FB. 100

159. FC. 100

160. FD. 100

161. FE. 100

162. FF. 100

163. FG. 100

164. FH. 100

165. FI. 100

166. FJ. 100

167. FK. 100

168. FL. 100

169. FM. 100

170. FN. 100

171. FO. 100

172. FP. 100

173. FQ. 100

174. FR. 100

175. FS. 100

176. FT. 100

177. FU. 100

178. FV. 100

179. FW. 100

180. FX. 100

181. FY. 100

182. FZ. 100

183. GA. 100

184. GB. 100

185. GC. 100

186. GD. 100

187. GE. 100

188. GF. 100

189. GG. 100

190. GH. 100

191. GI. 100

192. GJ. 100

193. GK. 100

194. GL. 100

195. GM. 100

196. GN. 100

197. GO. 100

198. GP. 100

199. GQ. 100

200. GR. 100

201. GS. 100

202. GT. 100

203. GU. 100

204. GV. 100

205. GW. 100

206. GX. 100

207. GY. 100

208. GZ. 100

209. HA. 100

210. HB. 100

211. HC. 100

212. HD. 100

213. HE. 100

214. HF. 100

215. HG. 100

216. HH. 100

217. HI. 100

218. HJ. 100

219. HK. 100

220. HL. 100

221. HM. 100

222. HN. 100

223. HO. 100

224. HP. 100

225. HQ. 100

226. HR. 100

227. HS. 100

228. HT. 100

229. HU. 100

230. HV. 100

231. HW. 100

232. HX. 100

233. HY. 100

234. HZ. 100

235. IA. 100

236. IB. 100

237. IC. 100

238. ID. 100

239. IE. 100

240. IF. 100

241. IG. 100

242. IH. 100

243. II. 100

244. IJ. 100

245. IK. 100

246. IL. 100

247. IM. 100

248. IN. 100

249. IO. 100

250. IP. 100

251. IQ. 100

252. IR. 100

253. IS. 100

254. IT. 100

255. IU. 100

256. IV. 100

257. IW. 100

258. IX. 100

259. IY. 100

260. IZ. 100

261. JA. 100

262. JB. 100

263. JC. 100

264. JD. 100

265. JE. 100

266. JF. 100

267. JG. 100

268. JH. 100

269. JI. 100

270. JJ. 100

271. JK. 100

272. JL. 100

273. JM. 100

274. JN. 100

275. JO. 100

276. JP. 100

277. JQ. 100

278. JR. 100

279. JS.

89
2 Dhring

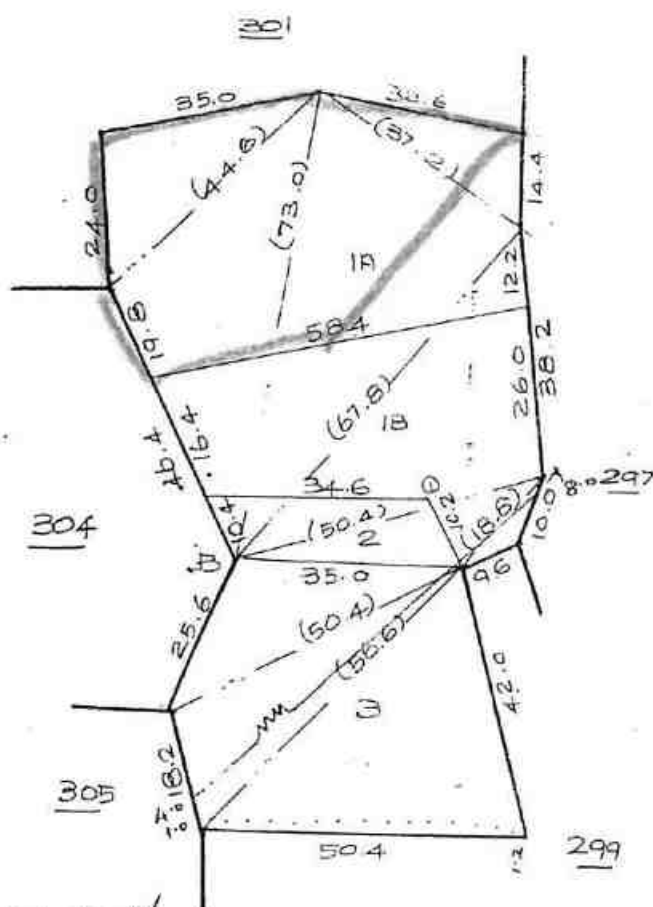


DATE: 06/07/2020

460 எண். 300

अथ चरितम्

2. 9. 1953



/20070016 1321/

5/16/64

67. கருவாறு
72. கருவாறு

		B (50.4)		
		19.2	1.2	1
		A		

பணநிதி

TEASE APPLIED AREA

Thompson

00 *Chung*



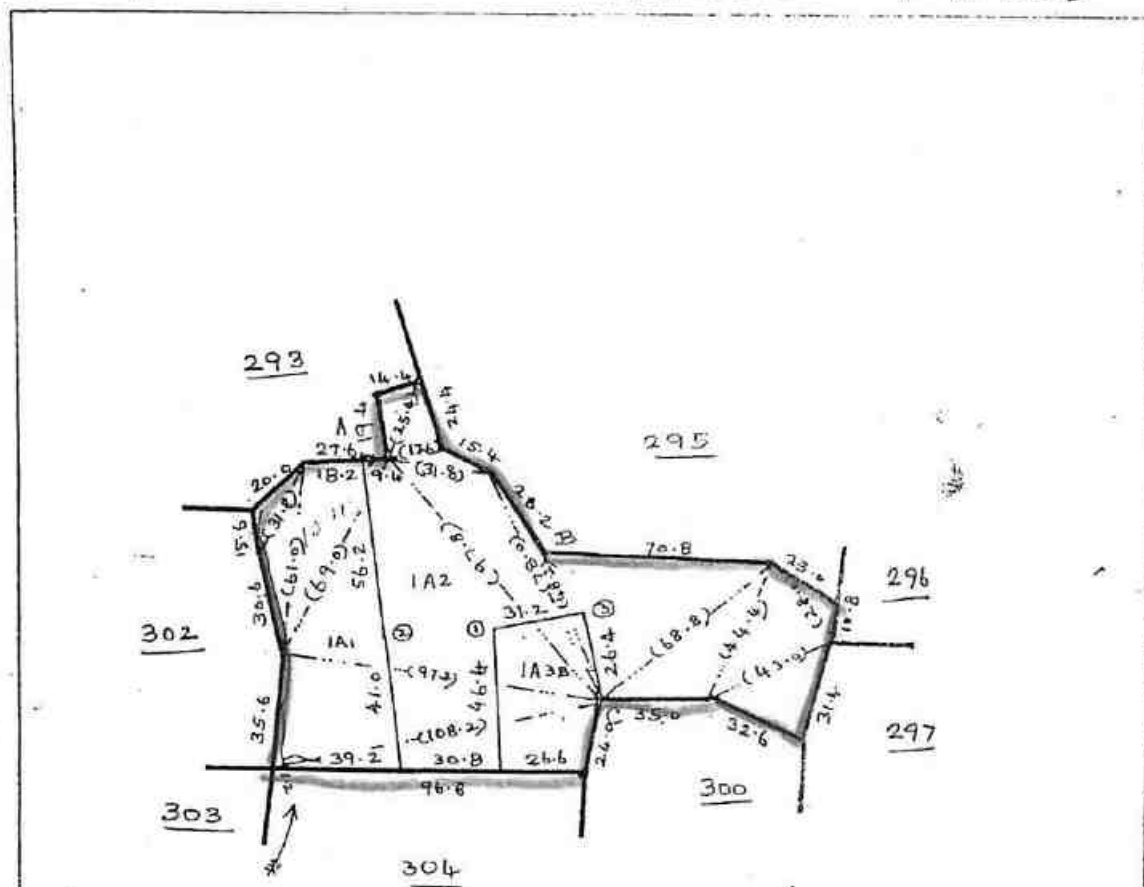
பெரிய சாலை

பெரிய சாலை

பெரிய சாலை 301

பெரிய சாலை

பெரிய சாலை 22.5



பெரிய சாலை

பெரிய சாலை

பெரிய சாலை
67, பெரிய சாலை
72, பெரிய சாலை

		B		
		48.2		
		26.2	4.0	3
		C		
		A		
		97.8		
2	38.6	58.0		
1	9.8	39.6		
		C		

பெரிய சாலை
J. Shanganay

பெரிய சாலை 2000

LEASE APPLIED AREA

291



பெரிய சாலை

பெரிய சாலை
C. W. 4. 6. 910



78

தேவாரங்குடி தாலுகா

1	2	3	4	5	6	7	8	9	10	11	12
791	3	291-3,4	ர	ந A	...	7-1	4	17 21	0 13-0	2 84	175 சி. பாப்பாத்தி அம்மாள்.
	5	-5	ர	ந A	...				0 86-0	12 20	371 ர. வீரம்மாள்.
292	...	292	ர	ந A	1/4	7-1	4	17 17	0 72-0	10 24	17 முக்கேதார கௌரிஸ்வரர் சாமி.
293	1A	293-1A	ர	ந A	...	7-4	7	8 65	0 21-5	1 89	257 தா. வெங்கி டேசன்.
	1B	-1B	ர	ந A	...	7-4	7	8 65	0 18-0	1 54	211 வி. முனுசாமி பண்டிதர்.
	2A	-2A	ர	ந A	...	7-4	7	8 65	0 11-5	1 02	211 வி. முனுசாமி பண்டிதர்.
	2B	-2B	ர	ந A	...	7-	7	8 65	0 13-0	1 12	211 வி. முனுசாமி பண்டிதர்.
	2C	-2C	ர	ந A	...	7-1	7	8 65	0 20-0	1 72	262 ரா. வேலாயுத தாயக்கர்.
									0 84-0	7 29	
294	...	294	ர	ந A	...	7-5	8	7 09	0 22-5	1 58	321 மு. ஆனத் தன் (1), மு. முனுசாமி (2).
295	...	295	ர	ந A	...	7-5	8	7 09	0 75-0	5 31	21 ந. அன்னபூரணி அம்மாள்.
296	...	296	ர	ந A	...	7-5	8	7 09	0 05-0	0 34	149 தெய்வசிகாமணி முதலியார்.
297	...	297	ர	ந A	...	7-5	8	7 09	1 18-5	6 41	149 தெய்வசிகாமணி முதலியார்.
		298	ர	ந A	...	7-5	8	7 09	0 25-0	1 78	149 தெய்வசிகாமணி முதலியார்.
299	...	299	ர	ந A	...	7-5	8	7 09	0 36-0	2 55	149 தெய்வசிகாமணி முதலியார்.
300	1A	300-1A	ர	ந A	...	7-5	8	7 09	0 24-5	1 72	112 வே. சாரதம் மாள்.
	1B	-1B	ர	ந A	...	7-5	8	7 09	0 13-5	0 95	276 அருள்மிகு சந்திரமம்மாள் கோவில் (1), அருள்மிகு தாத் தோணியம் கோவில் (2).
	2	-2	ர	ந A	...	7-5	8	7 09	0 03-0	0 23	112 வே. சாரதம் மாள்.

120/2016 33-1 05/05

A - சிவசுந்தரம்மாள் மன்றாலுது வகுப்பு.

20/05/2016



1	2	3	4	5	6	7	8	9	10	11	12
300	?	300-3	ர	த A		7-5	8	7 09	0 19-5	1 38	248 வண்ணாரதராய்.
									0 60-5	4 28	
301	1A1	301-1A1	ர	த A		7-5	8	7 12	0 31-0	2 18	363 நடராஜ நாயக்கர் மற்றும் ஆறு பேர்களும்.
	1A2	-1A2	ர	த A		7-5	8	7 12	0 25-0	5 34	21 ந. அண்ணபூரணி அம்மாள்.
	1A3B	-1A3B	ர	த A		7-5	8	7 12	0 16-5	1 18	21 ந. அண்ணபூரணி அம்மாள்.
									1 22-5	8 70	
302	1	302-1	ர	த A		7-4	7	8 65	0 11-5	1 02	138 பெ. தாமோதரன்.
	2	-2	ர	த A		7-4	7	8 65	0 09-0	0 77	325 பட்டம்மாள் (1) விஸ்வநாத பண்டிதர் (2).
	3	-3	ர	த A		7-4	7	8 65	0 09-5	0 81	112 வே. சாரதம் மாள்.
	4	-4	ர	த A		7-4	7	8 65	0 67-0	5 81	178 து. பாலன் முதலியார்.
									0 97-0	8 41	
303	1	303-1	ர	த A		7-5	8	7 12	0 04-0	0 29	202 ச. மீனாட்சி அம்மாள்.
	2	-2	ர	த A		7-5	8	7 12	0 32-0	2 27	123 பொ. சுப்பிரமணி.
									0 36-0	2 56	
304	...	304	ர	த A		7-5	8	7 12	0 54-0	3 85	178 து. பாலன் முதலியார்.
305	...	305	ர	த A		7-5	8	7 12	0 96-5	6 86	38 ச. எல்லம் மாள்.
306	...	306	அ	ய					0 56-5		
307	...	307	ர	ய		7-5	7	1 24	0 42-5	0 53	140 ச. தாமோதரன்.
308	...	308	ர	ய		7-5	7	1 24	0 54-0	0 67	140 ச. தாமோதரன்.

A—உள்ளுள்ள பக்கம் குறையாகி வருவது கருத்து.



-269-

தமிழ்நாடு அரசு

வகுவாய்த் துறை

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

மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

வகுவாய் கிராமம் : தேவரியம்பாக்கம்

பட்டா எண் : 722

உரிமையாளர்கள் பெயர்

1. PJR Blue Metals (chennai) Pvt Ltd

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	
264	2B1	--	--	0 - 10.00	0.69	--	--	2021/0103/03/232941- -1873/1422 ----- 09- 12-2021
264	2B2	--	--	0 - 9.50	0.69	--	--	2021/0103/03/232936- -1873/1422 ----- 09- 12-2021
264	3C2	--	--	0 - 6.50	0.47	--	--	2019/0103/03/138397- -2286/1422 ----- 07- 03-2019
266	2B	--	--	0 - 18.00	1.26	--	--	2021/0103/03/232942- ----- 09-12-2021
268	1	--	--	0 - 29.00	2.52	--	--	2018/0103/03/115770- ----- 17-10-2018
268	2A	--	--	0 - 12.50	1.08	--	--	2021/0103/03/232940- -1874/1422 ----- 09- 12-2021
268	2B	--	--	0 - 12.25	1.07	--	--	2021/0103/03/232935- -1874/1422 ----- 09- 12-2021
268	2C	--	--	0 - 12.25	1.04	--	--	2021/0103/03/232935- -1874/1422 ----- 09- 12-2021
269	2	--	--	0 - 12.00	1.05	--	--	2023/0103/03/305150- ----- 10-10-2023
269	3	--	--	0 - 15.00	1.30	--	--	2023/0103/03/305150- ----- 10-10-2023
269	5	--	--	0 - 10.50	0.96	--	--	2023/0103/03/305150- ----- 10-10-2023
270	3	--	--	0 - 10.50	0.91	--	--	2019/0103/03/138397- ----- 07-03-2019
281	1	--	--	0 - 15.00	2.19	--	--	2018/0103/03/115770- ----- 17-10-2018
281	2	--	--	0 - 7.00	0.98	--	--	2023/0103/03/305153- ----- 11-10-2023
281	3	--	--	0 - 7.50	1.04	--	--	2023/0103/03/305153- ----- 11-10-2023



PM

வட்டாட்சிப் பர அலுவலக இணைய சேவை - நில உரிமை விபரங்கள்

281	4	--	--	0 - 11.50	1.61	--	--	2021/0103/03/212938- ----- 09-12-2021
285	5	--	--	0 - 11.00	1.55	--	--	2021/0103/03/232940- ----- 09-12-2021
292	1B	--	--	0 - 18.00	1.54	--	--	2021/0103/03/207402- ----- 07-02-2021
293	2A	--	--	0 - 11.50	1.02	--	--	2023/0103/03/310048- ----- 21-11-2023
293	2B	--	--	0 - 13.00	1.12	--	--	2023/0103/03/310048- ----- 21-11-2023
293	2C	--	--	0 - 20.00	1.72	--	--	2023/0103/03/310048- ----- 21-11-2023
295	-	--	--	0 - 75.00	5.31	--	--	2023/0103/03/310048- ----- 21-11-2023
300	1A	--	--	0 - 24.50	1.72	--	--	2023/0103/03/310048- ----- 21-11-2023
300	2	--	--	0 - 3.00	0.23	--	--	2023/0103/03/310048- ----- 21-11-2023
301	1A1B	--	--	0 - 12.55	1.00	--	--	2023/0105/03/431850- 2023/03/12/000098SD ----- 16-10-2023
301	1A2	--	--	0 - 75.00	5.34	--	--	2023/0103/03/310048- ----- 21-11-2023
301	1A3B	--	--	0 - 16.50	1.18	--	--	2023/0103/03/310048- ----- 21-11-2023
302	1	--	--	0 - 11.50	1.02	--	--	2021/0103/03/232943- ----- 09-12-2021
302	2	--	--	0 - 9.00	0.77	--	--	2023/0103/03/305153- ----- 11-10-2023
302	3	--	--	0 - 9.50	0.81	--	--	2021/0103/03/232943- ----- 09-12-2021
302	4	--	--	0 - 67.00	5.81	--	--	2018/0103/03/115477- ----- 26-10-2018
303	2	--	--	0 - 32.00	2.27	--	--	2019/0103/03/138397- ----- 07-03-2019
304	-	--	--	0 - 54.00	3.85	--	--	2019/0103/03/138397- ----- 07-03-2019
				6 - 62.05	55.12			

குறிப்பு :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 03/12/173/00722/100341 என்ற குறிப்பு எண்ணை உள்ளிட்டு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 23-05-2024 அன்று 07:51:08 PM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

Signature

11.34 - ஆம் பதவியில்
கோத்துப்பேட்டை
பாண்டிநாடு
புலவாசலுக்கு
விட்டல்

[illegible]

3300/22-RF III-A-10-10 00 000 Cps.-GBP-MDU-7-2024,

296 *Alamy*



SP/191848355/2024

6169



BH 339763

தமிழ்நாடு தமிழ்நாடு TAMILNADU

M. Suman
ஜெ.ஸ்.சுமன்

P. வான்டவார்க்குமார்
உரிம எண் : 3202/11/97
பெரிய காஞ்சிபுரம்,
மேல் : 9445790377
தேதி : 22-8-2024

குத்தகை ஆவணம்

மாத வாடகை ரூபாய்.100,000/-,கெடுவு காலம் 6 வருடங்கள்,

முன்பணம் ரூபாய்.100,000/-

2024 ஆம் ஆண்டு ஆகஸ்ட் மாதம் 22 ஆம் தேதி, சென்னை 600 045, மேற்கு தாம்பரம், சிவசண்முகம் சாலை, 8B எண் கொண்ட கட்டிடத்தில் இயங்கிவரும் PJR Blue Metals (Chennai) Private Ltd.,(PAN: AAFCP2235E) என்கிற நிறுவனத்திற்கு, மேற்படி நிறுவனத்திற்காக மேற்படி நிறுவனத்தின் மேனேஜிங் டைரக்டரும், திரு.E.பார்த்தசாரதி அவர்களின் குமாரருமான 70 வயதுள்ள திரு.P.ஜானகிராமன் (AadhaarNo.6461 0941 0206/Cell.9444005022) ஆகிய உங்கள் மூலம் மேற்படி PJR Blue Metals (Chennai) Private Ltd - 1வது பார்ட்டியாகவும்,

காஞ்சிபுரம் மாவட்டம், வாலாஜாபாத் வட்டம், தேவரியம்பாக்கம் கிராமம், உள்ளாவுர் அஞ்சல்-631606, சாலை தெரு, கதவு எண்.139, கொண்ட இல்லத்தில்

(Signature)

பக்கம் 20 ஆண்டின் அனுமதி எண்
18 தாள்களைக்கொண்டது. 1 வது தாள்

6169
Chairman & Managing Director



297

(Signature)



வசிக்கும் திரு.முனுசாமி அவர்களின் குமாரர் 33 வயது திரு.M.தயாளன் (Aadhaar No.8005 7500 2158) 2வது பார்ட்டியாகவும்

ஆக நாமிரு பார்ட்டிகளும் சேர்ந்து சம்மதித்து ஏற்படுத்திக் கொண்ட புஞ்சை நஞ்சை நிலங்கள் குத்தகை ஆவணம் என்னவென்றால்,

இதனடியிற் சொத்துவிவரத்தில் கண்டுள்ள சொத்துகளானது நம்மில் 1வது பார்ட்டியின் நிறுவனத்தின் சுயார்ஜிதம் சொந்தமாகும்.

அதாவது காஞ்சிபுரம் மாவட்டம், வாலாஜாபாத் வட்டம், தேவரியம்பாக்கம் கிராமத்தில் பட்டா எண். அடங்கிய நஞ்சை சர்வே எண்.293/1B பூரா விஸ்தீரணம் ஹெக்டேர் 0.18.00 ஏர்ஸ் ஏக்கர் 0.44 செண்ட் நிலத்தை கடந்த 18-12-2020 தேதியில் காஞ்சிபுரம் மாவட்டம், வாலாஜாபாத் வட்டம், தேவரியம்பாக்கம் கிராமம் பெருமாள் கோயில் தெரு, கதவு எண்.39, கொண்ட இல்லத்தில் வசிக்கும் காலஞ்சென்ற வாசுதேவன் மனைவி திரு.வி.சசிகலா அவர்களிடமிருந்து 1வது பார்ட்டியானவர் தனது PJR Blue Metals (Chennai) Private Ltd என்கிற நிறுவனத்திற்காக வேண்டி நம்மில் 1வது பார்ட்டி P.ஜானகிராமன் அவர்கள் சுத்த கிரையம் பெற்று அப்பத்திரமானது வாலாஜாபாத் சார் பதிவாளர் அலுவலகத்தில் 1-வது புத்தகத்தில் 2020 ஆம் ஆண்டின் 5197 எண்ணாக பதிவுச்செய்யப்பட்ட கிரைய ஆவணபடிக்கு 1வது பார்ட்டியின் நிறுவனத்திற்கு பாத்தியபட்டும் மற்றும்,

1வது பார்ட்டியானவர் இதனடியிற் சொத்து விவரத்தில் கண்டுள்ள காஞ்சிபுரம் மாவட்டம், வாலாஜாபாத் வட்டம், தேவரியம்பாக்கம் கிராமத்தில் பட்டா எண்.722, அடங்கிய

சர்வே எண்.293/2C பூரா விஸ்தீரணம் ஹெக்டேர் 0.20.00 ஏர்ஸ்க்கு ஏக்கர் 0.50 செண்ட் நிலம்,

சர்வே எண்.295 பூரா விஸ்தீரணம் ஹெக்டேர் 0.75.00 ஏர்ஸ்க்கு ஏக்கர் 1.85 செண்ட் நிலம்,

சர்வே எண்.301/1A2 பூரா விஸ்தீரணம் ஹெக்டேர் 0.75.00 ஏர்ஸ்க்கு ஏக்கர் 1.85 செண்ட் கொண்ட நிலம்,

(Signature)

For M/s PJR BLUE METALS (Chennai) Pvt. Ltd

Chairman & Managing Director

புத்தகம் 20... ஆண்டின் அவணம் எண்...
தாள்களைக்கொண்டது... 2...வது தாள்

298





சர்வே எண்.301/1A3B பூரா விஸ்தீரணம் ஹெக்டேர் 0.16.50 ஏர்ஸ்க்கு ஏக்கர்

0.41 செண்ட் கொண்ட நிலம்,

சர்வே எண்.300/1A பூரா விஸ்தீரணம் ஹெக்டேர் 0.24.50 ஏர்ஸ்க்கு ஏக்கர்

0.60 செண்ட் கொண்ட நிலம்,

சர்வே எண்.293/2A பூரா விஸ்தீரணம் ஹெக்டேர் 0.11.50 ஏர்ஸ்க்கு ஏக்கர்

0.29 செண்ட் கொண்ட நிலம்,

சர்வே எண்.293/2B பூரா விஸ்தீரணம் ஹெக்டேர் 0.13.00 ஏர்ஸ்க்கு ஏக்கர்

0.32 செண்ட் கொண்ட நிலம் ஆக ஏக்கர் 5.82 செண்ட் கொண்ட நிலங்களை கடந்த

20-11-2023 தேதியில் காஞ்சிபுரம் மாவட்டம், வாலாஜாபாத் வட்டம், தேவரியம்பாக்கம்

கிராமத்தில் தாந்தோணியம்மன் கோயில் தெரு, கதவு எண்.62/1 கொண்ட இல்லத்தில்

வசிக்கும் திரு.D.N.பலராம நாயக்கர் அவர்களின் குமாரர் 62 வயதுள்ள

திரு.ப.கோவிந்தராஜன் அவர்களிடமிருந்து 1வது பார்ட்டியானவர் தனது PJR Blue Metals

(Chennai) Private Ltd என்கிற நிறுவனத்திற்காக வேண்டி நம்மில் 1வது பார்ட்டி

P.ஜானகிராமன் அவர்கள் சுத்த கிரையம் பெற்று அப்பத்திரமானது வாலாஜாபாத் சார்

பதிவாளர் அலுவலகத்தில் 1-வது புத்தகத்தில் 2023 ஆம் ஆண்டின் 7360 எண்ணாக

பதிவுச்செய்யப்பட்ட கிரைய ஆவணபடிக்கு 1வது பார்ட்டியின் நிறுவனத்திற்கு

பாத்தியப்படும் மற்றும்,

நஞ்சை சர்வே எண்.301/1A1 பூரா விஸ்தீரணம் ஹெக்டேர் 0.31.00 ஏர்ஸில்

வடபுறம் ஏக்கர் 0.31 செண்ட் நிலத்தை கடந்த 05-10-2023 தேதியில் காஞ்சிபுரம்

மாவட்டம், வாலாஜாபாத் வட்டம், தேவரியம்பாக்கம் கிராமம் தாந்தோணியம்மன் கோயில்

தெரு,கதவு எண்.97 கொண்ட இல்லத்தில் வசிக்கும் மு.வீரபத்திரநாயகர் அவர்களின்

குமாரர் 57 வயதுள்ள திரு. வீ.கோபிகாரமணன் அவர்களிடமிருந்து 1வது

பார்ட்டியானவர் தனது PJR Blue Metals (Chennai) Private Ltd என்கிற நிறுவனத்திற்காக

வேண்டி நம்மில் 1வது பார்ட்டி P.ஜானகிராமன் அவர்கள் சுத்த கிரையம் பெற்று

அப்பத்திரமானது வாலாஜாபாத் சார் பதிவாளர் அலுவலகத்தில் 1-வது புத்தகத்தில் 2023

ஆம் ஆண்டின் 6450 எண்ணாக பதிவுச்செய்யப்பட்ட கிரைய ஆவணபடிக்கு 1வது

பார்ட்டியின் நிறுவனத்திற்கு பாத்தியப்படும், ஆக மூன்று கிரைய ஆவணங்கள்படி

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புத்தகம் 20.....ஆண்டின் அலுவலர் எண்.....

தாள்களைக்கொண்டது.....வது தாள்

For M/s PJR BLUE METALS (Chennai) Pvt. Ltd

6169

Chairman & Managing Director

299





1வது பார்ட்டியின் நிறுவனத்தின் கைப்பற்றிலும் சுவாதீன அனுபவத்திலும் ஸ்தந்திரங்களுடன் ஆண்டனுபவித்து வரும் இதனடியிற்கண்ட சொத்தினத்தை 2வதுபார்ட்டியானவர் குத்தகை கேட்டதற்கிணங்க அதற்கு 1வது பார்ட்டியின் நிறுவனத்தின் சார்பாக திரு.P.ஜானகிராமன் அவர்கள் நம்மில் 2வது பார்ட்டி திரு.M.தயாளன் அவர்களுக்கு 6 வருடத்திற்கு அதாவது 23-08-2024 முதல் 29-07-2030 வரையில் 6 வருடங்களுக்கு மட்டும் கல்குவாரி நடத்த குத்தகை ஆவணம் ஏற்படுத்திக் கொண்டும் மற்றும் இனி நாம் இருபார்ட்டிகளும் அதாவது கீழ்க்கண்ட கண்டிஷன்களின்படி குத்தகை ஒப்பந்தம், ஷரத்துக்கள் செய்துக் கொள்கிறோம்.

அதாவது கீழ்க்கண்ட நிலத்தில் உள்ள நிலத்திற்கு 2வது பார்ட்டியானவர் மாதம் பிரதி மாதம் ரூபாய்.100,000/-மட்டும் (எழுத்தால் ரூபாய்.ஒரு லட்சம் மட்டும்) 1வது பார்ட்டிக்கு கொடுத்து விட வேண்டியது. வாடகை தொகையை ஒவ்வொரு மாதமும் 1ம் தேதிக்குள் 2வது பார்ட்டியானவர் 1வது பார்ட்டியின் நிறுவனத்திற்கு செலுத்த வேண்டியது. மற்றும் இதற்கு முன்பணமாக 2வது பார்ட்டியானவர் 1வது பார்ட்டியின் நிறுவனத்திற்கு ரூபாய்.100,000/-ஒரு லட்சம் மட்டும் செலுத்தியுள்ளார்.

2வது பார்ட்டிக்கு கல்குவாரி சென்று வர அணுகு பாதை குவாரி நடத்த அரசாங்க ஒப்புதல் பெற விண்ணப்பிக்கவும், குவாரி உரிமம் அரசு விதிகளுக்குட்பட்டு பெறவும் மற்றும் மாசு கட்டுப்பாட்டு வாரியத்தின் விதிகளுக்கு உட்பட்டும், அரசின் அனுமதி பெற்றும், ஒப்புகை சீட்டு (பாஸ்) பெற்றுக் கொள்ளவும் மற்றும் அரசின் இதர நடிவடிக்கை உட்பட்டு நடந்துக் கொள்ள 2வது பார்ட்டிக்கு அனுமதி அளிக்கப்படுகிறது.

கீழ்க்கண்ட சொத்தில் 2வது பார்ட்டி செய்யும் தொழிலின் அனைத்து செலவுகளும் நம்மில் 2வது பார்ட்டியையே சாரும் 2வது பார்ட்டி மேற்படி சொத்தை வேறு நபர்களுக்கு குத்தகைக்கு வழங்குவதாது மேற்படி அனைத்து அரசாங்க கட்டணங்களையும் 2வது பார்ட்டியே செலுத்த வேண்டியது.

2வது பார்ட்டியானவர் குத்தகை நிலங்களை காலிசெய்யும் போது குத்தகை காலத்திற்குள் அரசுக்கு செலுத்த வேண்டிய முழுதொகையும் பாக்கி எதுவும் இல்லாமல்

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For M/s PJR BLUE METALS (Chennai) Pvt. Ltd
Chairman & Managing Director

புத்தகம் 20.....ஆண்டின் அனுமதி எண்.....
தாக்கனைக்கொண்டது.....வது தாள்



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-283-

2வது பார்ட்டியானவர் செலுத்த வேண்டியது. குத்தகை காலம் முடிந்த பின்னர் குத்தகை காலத்திற்குட்பட்ட காலத்தில் அரசுக்கு செலுத்த வேண்டிய வரிவகையறாக்கள் ஏதேனும் நிலுவையில் இருப்பது பின்னர் தெரியவருமேயானால் அதற்கு 2வது பார்ட்டியே பொறுப்பாகும். 1வதுபார்ட்டியின் நிறுவனத்திற்கு எந்த வகையிலும் பொறுப்பு கிடையாது.

கீழ்க்கண்ட சொத்தை காலிசெய்யும் சமயத்தில் அரசுக்கு செலுத்த வேண்டிய வரி வகையறாக்களை நிலுவை ஏதுமின்றி 2வது பார்ட்டியானவர் செலுத்திய பிறகு 1வது பார்ட்டி வசம் ஒப்படைக்க வேண்டியது. குத்தகை காலம் முடிந்த பின்பு குத்தகை காலத்திற்கு உட்பட்ட காலத்தில் அரசுக்கு செலுத்த வேண்டிய வரி வகையறாக்கள் ஏதேனும் நிலுவையில் இருப்பது தெரியவருமேயானால் 2வது பார்ட்டியே அதற்கு பொறுப்பாகும். 1வது பார்ட்டியின் நிறுவனமானது எந்த வகையிலும் அதற்கு பொறுப்பேற்க வேண்டியதில்லை பொறுப்பும் கிடையாது என இருபார்ட்டிகளும் ஒப்புக் கொள்கிறார்கள்.

குவாரி செய்யும் காலத்தில் அரசாங்க விதிகளுக்கு உட்பட்டும் மற்றும் கனிமவள துறையின் சட்டப்படியும் அதன் விதிகளின்படியும் தொழில் செய்யவேண்டும் அதை மீறினால் அரசாங்கம் கோரும் அபராதம் மற்றும் கனிமவள துறையின் விதிகளுக்குட்பட்ட அபராதம் மற்றும் தண்டனை, குற்றபுரிவுக்குண்டான தண்டனை அனைத்தும் 2வது பார்ட்டியே சார்ந்தாகும்.

குவாரியில் நடக்கும் அசாம்பவிதங்கள் வெடி விபத்துகள் அதனால் ஏற்படும் காயங்கள் மற்றும் உயிரிழப்புகளுக்கு உண்டான நஷ்ட ஈடு தொகைகளை மற்றும் குற்ற நடவடிக்கைகளுக்குண்டான தண்டனைகள் அனைத்தும் 2வது பார்ட்டியே சார்ந்ததாகும்.

குவாரியில் கல் உடைக்க வெடி வைத்து உடைக்கும்போது மின்னொயர்கள் மற்றும் ஏதேனும் இதர வகையில் நஷ்டம் உண்டானால் அதனை 2வது பார்ட்டியே சொந்த செலவில் சரிசெய்து கொடுக்க வேண்டியது.

For M/s PJR BLUE METALS (Chennai) Pvt. Ltd

Chairman & Managing Director

புத்தகம் 20...ம் ஆண்டின் அவணம் எண்... 6169
...தாள்களெக்கொண்டது... 5...வது தாள்



1வது பார்ட்டியின் நிறுவனமானது நிலங்களை மட்டும் தான் 2வது பார்ட்டிக்கு குத்தகை கொடுத்துள்ளார். இந்த நிலங்களில் 2வது பார்ட்டியானவர் செய்யும் தொழிலுக்கும் மற்ற நடவடிக்கைக்கும் 1வது பார்ட்டியின் நிறுவனத்திற்கு எவ்வித சம்மந்தமும் கிடையாது. இதனை 2வது பார்ட்டி ஒப்புக் கொள்கிறார்.

மேற்கூறிய ஒப்பந்த காலத்தில் 2வதுபார்ட்டியானவர் 1வது பார்ட்டிக்கு கொடுக்க வேண்டிய மாத வாடகையை கொடுக்க தவறினாலும் இன்னும் பிற காரணங் களுக்காகவும் இந்த குத்தகையை 1வது பார்ட்டியின் நிறுவனமானது எப்பொழுது வேண்டுமானாலும் ரத்து செய்ய 1வது பார்ட்டியின் நிறுவனத்திற்கு முழு உரிமையுண்டு.

மேலும் குத்தகை காலம் முடிவதற்கு முன்னதாகவே 2வது பார்ட்டியானவர் காலி செய்ய விருப்பப்பட்டால் 2 மாதம் முன்னதாக எழுத்து மூலம் முன்னறிவிப்பு கொடுக்க வேண்டியது. மேற்படி சொத்தில் சட்ட சிக்கல்கள் இருந்தால் 1வது பார்ட்டியின் நிறுவனம் அதை தீர்த்து வைக்கவேண்டும் மற்றும் காலம் நீடிக்க வேண்டும் என்றால் இருபார்ட்டிகளும் வேறு புதிய உடன்படிக்கை ஆவணம் மூலம் நீடிக்கவும் செய்யலாம்

எதிர்காலத்தில் குத்தகை எடுத்துக் கொண்ட இதனடியிற்கண்ட நிலங்களில் குவாரி செய்யும்போது கல் உடைக்கும்போதும் மற்றும் தோண்டி எடுக்கும்போதும் ஏற்படும் அதனால் ஏற்படும் பள்ளங்கள் ஒழுங்கற்ற நில அமைப்புகளுக்கு வருங்காலத்தில் அரசால் எடுக்கும் குற்ற நடவடிக்கைகளுக்கும் மற்றும் அபராதம் கட்டணங்களையும் இதர கட்டணங்களை 2வது பார்ட்டியே பொறுப்பு உடையவர் ஆவார் அதனை 2வது பார்ட்டியே தன்னுடைய சொந்த செலவில் செலுத்த வேண்டியது.

2வதுபார்ட்டியானவர் குவாரி உரிமம் அரசின் ஒப்புதல் பெறாதவரையிலும் குவாரி தொழில் நடைபெறாத காலத்தில் மட்டுமே இந்த மேற்கூறிய வாடகை தொகையாகும் ஆனால் 2வதுபார்ட்டியானவர் அரசிடம் குவாரி உரிமம் பெற்று இதனடியிற்கண்ட சொத்தில் குவாரி தொழில் நடத்தி கொண்டு வரும்போது புதிய வாடகை தொகை வருங்காலத்தில் நிர்ணயம் செய்துக் கொள்ளவேண்டியது இதற்கு இருபார்ட்டிகளும் சம்மதிக்கிறோம்.

மேற்கண்ட குத்தகை ஆவண சரத்துகள்யாவும் 2வது பார்ட்டி படித்து பார்த்து அனைத்து சரத்துகள் அறிந்த பின்னர்தான் இந்த குத்தகை ஒப்பந்த பத்திரத்தில் கையொப்பம் செய்துள்ளார்.

For M/s PJR BLUE METALS (Chennai) Pvt. Ltd

Chairman & Managing Director

புத்தகம் 20.....ம் ஆண்டின் அவணம் எண்.....

தாள்களைக்கொண்டது.....வது தாள்





இந்தப்படிக்கு நாம் இருபார்ட்டிகளும் சேர்ந்து மனப்பூர்வமாய் சம்மதித்து எப்போதும்
கொண்ட புஞ்சை நஞ்சை நிலங்கள் குத்தகை ஒப்பந்தப் பத்திரம்.

குத்தகை சொத்து விவரம்

காஞ்சிபுரம் மாவட்டம், காஞ்சிபுரம் பதிவு மாவட்டம், வாலாஜாபாத் வட்டம்,
தேவரியம்பாக்கம் கிராமத்தில் இருக்கும் பட்டா எண்.722ல், அடங்கிய

சர்வே எண்.293/1B பூரா விஸ்தீரணம் ஹெக்டேர் 0.18.00 ஏர்ஸ்க்கு ஏக்கர்
0.44 செண்ட் நிலம்,

சர்வே எண்.293/2C பூரா விஸ்தீரணம் ஹெக்டேர் 0.20.00 ஏர்ஸ்க்கு ஏக்கர்
0.50 செண்ட் நிலம்,

சர்வே எண்.295 பூரா விஸ்தீரணம் ஹெக்டேர் 0.75.00 ஏர்ஸ்க்கு ஏக்கர் 1.85
செண்ட் நிலம்,

சர்வே எண்.301/1A2 பூரா விஸ்தீரணம் ஹெக்டேர் 0.75.00 ஏர்ஸ்க்கு ஏக்கர்
1.85 செண்ட் கொண்ட நிலம்,

சர்வே எண்.301/1A3B பூரா விஸ்தீரணம் ஹெக்டேர் 0.16.50 ஏர்ஸ்க்கு ஏக்கர்
0.41 செண்ட் கொண்ட நிலம்,

சர்வே எண்.300/1A பூரா விஸ்தீரணம் ஹெக்டேர் 0.24.50 ஏர்ஸ்க்கு ஏக்கர்
0.60 செண்ட் கொண்ட நிலம்,

சர்வே எண்.293/2A பூரா விஸ்தீரணம் ஹெக்டேர் 0.11.50 ஏர்ஸ்க்கு ஏக்கர்
0.29 செண்ட் கொண்ட நிலம்,

சர்வே எண்.293/2B பூரா விஸ்தீரணம் ஹெக்டேர் 0.13.00 ஏர்ஸ்க்கு ஏக்கர் 0.32
செண்ட் கொண்ட நிலம்,

For M/s PJR BLUE METALS (Chennai) Pvt. Ltd
Chairman & Managing Director

புத்தகம் 20... ஆண்டின் அவணம் எண்... 6169
தாள்களைக்கொண்டது... 7... வது தாள்





ஆவணப்படி சர்வே எண்.301/1A1 உட்பிரிவுப்படி சர்வே எண்.301/1A1
விஸ்தீரணம் ஹெக்டேர் 0.31.00 ஏர்ஸில் வடபுறம் ஏக்கர் 0.31 செண்ட் நிலம் இதற்கு
நான்கெல்லை விவரம் பின்வருமாறு:-

- வடக்கில் - சர்வே எண்.293 கொண்ட நிலம்,
- தெற்கில் - சர்வே எண்.301/1A1 மிகுதியுள்ள நிலம்,
- கிழக்கில் - சர்வே எண்.301/1A2 கொண்ட நிலம்,
- மேற்கில் - சர்வே எண்.302 மற்றும் 293 கொண்ட நிலங்கள்

இதன்மத்தியில் ஏக்கர் 0.31 செண்ட் கொண்ட நிலம் இந்த குத்தகை
ஆவணத்திற்குட்பட்ட சொத்தாகும்.

For M/s PJR BLUE METALS (Chennai) Pvt. Ltd
Chairman & Managing Director

சாட்சிகள்

1. D. சௌந்தரம்
% சௌந்தரம்
No. 288 பன்னாத்தாதி
சத்தாபாபாக்கம்

புத்தகம் 20.....ஆண்டின் அலுவல் 6169
தாள்களைக்கொண்டது.....8.....வது தாள்



2. D. சௌந்தரம்

சௌந்தரம்
274 பன்னாத்தாதி
சத்தாபாபாக்கம்

16/11/2019



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தமிழ்நாடு அரசு

வருவாய்த் துறை

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

பாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

ருவாய் கிராமம் : தேவரியம்பாக்கம்

பட்டா எண் : 722

உரிமையாளர்கள் பெயர்

1. - ... PJR Blue Metals (chennai) Pvt Ltd

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	
264	2B1	--	--	0 - 10.00	0.69	--	--	2021/0103/03/232941- -1873/1422 -- 09-12- 2021
264	2B2	--	--	0 - 9.50	0.69	--	--	2021/0103/03/232936- -1873/1422 -- 09-12- 2021
264	3C2	--	--	0 - 6.50	0.47	--	--	2019/0103/03/138397- -2286/1422 -- 07-03- 2019
266	2B	--	--	0 - 18.00	1.26	--	--	2021/0103/03/232942- -- -- 09-12-2021
268	1	--	--	0 - 29.00	2.52	--	--	2018/0103/03/115770- -- -- 17-10-2018
268	2A	--	--	0 - 12.50	1.08	--	--	2021/0103/03/232940- -1874/1422 -- 09-12- 2021
268	2B	--	--	0 - 12.25	1.07	--	--	2021/0103/03/232935- -1874/1422 -- 09-12- 2021
268	2C	--	--	0 - 12.25	1.04	--	--	2021/0103/03/232935- -1874/1422 -- 09-12- 2021
269	2	--	--	0 - 12.00	1.05	--	--	2023/0103/03/305150- -- -- 10-10-2023
269	3	--	--	0 - 15.00	1.30	--	--	2023/0103/03/305150- -- -- 10-10-2023
269	5	--	--	0 - 10.50	0.91	--	--	2023/0103/03/305150- -- -- 10-10-2023
270	3	--	--	0 - 10.50	0.91	--	--	2019/0103/03/138397- -- -- 07-03-2019
281	1	--	--	0 - 15.00	2.19	--	--	2018/0103/03/115770- -- -- 17-10-2018
281	2	--	--	0 - 7.00	0.98	--	--	2023/0103/03/305153- -- -- 11-10-2023
281	3	--	--	0 - 7.50	1.04	--	--	2023/0103/03/305153- -- -- 11-10-2023
281	4	--	--	0 - 11.50	1.61	--	--	2021/0103/03/232938- -- -- 09-12-2021

2:56 PM

வட்டாட்சியர் அலுவலக இணையதளம் மூலம் பதிவு செய்துள்ள பரிசு வரி வரிகள்



281	5	--	--	0 - 11.00	1.55	--	--	2021/0103/03/232940- --- 09-12-2021
293	1B	--	--	0 - 18.00	1.54	--	--	2021/0103/03/207402- --- 07-02-2021
293	2A	--	--	0 - 11.50	1.02	--	--	2023/0103/03/310048- --- 21-11-2023
293	2B	--	--	0 - 13.00	1.12	--	--	2023/0103/03/310048- --- 21-11-2023
293	2C	--	--	0 - 20.00	1.72	--	--	2023/0103/03/310048- --- 21-11-2023
295	-	--	--	0 - 75.00	5.31	--	--	2023/0103/03/310048- --- 21-11-2023
300	1A	--	--	0 - 24.50	1.72	--	--	2023/0103/03/310048- --- 21-11-2023
300	2	--	--	0 - 3.00	0.23	--	--	2023/0103/03/310048- --- 21-11-2023
301	1A1B	--	--	0 - 12.55	1.00	--	--	2023/0105/03/431850- -2023/03/12/000098SD -- 16-10-2023
301	1A2	--	--	0 - 75.00	5.34	--	--	2023/0103/03/310048- --- 21-11-2023
301	1A3B	--	--	0 - 16.50	1.18	--	--	2023/0103/03/310048- --- 21-11-2023
302	1	--	--	0 - 11.50	1.02	--	--	2021/0103/03/232943- --- 09-12-2021
302	2	--	--	0 - 9.00	0.77	--	--	2023/0103/03/305153- --- 11-10-2023
302	3	--	--	0 - 9.50	0.81	--	--	2021/0103/03/232943- --- 09-12-2021
302	4	--	--	0 - 67.00	5.81	--	--	2018/0103/03/115477- --- 26-10-2018
303	2	--	--	0 - 32.00	2.27	--	--	2019/0103/03/138397- --- 07-03-2019
304	-	--	--	0 - 54.00	3.85	--	--	2019/0103/03/138397- --- 07-03-2019
				6 - 62.05	55.12			

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 03/12/173/00722/100341 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 05-12-2023 அன்று 12:50:41 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

பத்தகம் 20... 26... ஆண்டின் அலகம் 6169
தார்களைக் கொண்டது 10... வது தாள்

306





சதானந்தம் பாலசுப்பிரமணியன்
Sadhanandam
Balasubbiramanian
பிறந்த தாள் / DOB: 14/06/1971
பால / MALE
3284 9908 2626
பிரதம அலுவலர், மீனாட்சி பதவன்

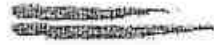
சதானந்தம் பாலசுப்பிரமணியன்
Sadhanandam Balasubbiramanian
பிறந்த தாள் / DOB: 14/06/1971
பால / MALE
3284 9908 2626
பிரதம அலுவலர், மீனாட்சி பதவன்

B சதானந்தம்

பித்தம் 20...ம் ஆண்டின் அலுவலர் எண்...
18...தாள்களைக் கொண்டது... 11...வது தாள்

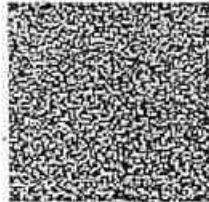
6169





பதிவேட்டில் எண்/ Enrolment No.: 2193/10554/036-25

To
Quarantine Officer
Quarantine B
5/11, Esplanade
283
DALLA STREET SITHALABAKKAM
ARASAPPAI POST
Chidambaram
Tamil Nadu - 613 752
294820117

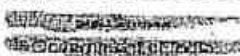


உங்கள் ஆதார் எண் / Your Aadhaar No. :

6841 2905 5852

VTD : 9112 7424 4703 5060

எனவந்து விடுவார் எனவந்து அழகியா... || ஸரஸ்வதி ||

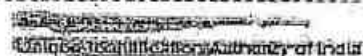


සමස්ත ප්‍රතිචාරය
පිටුපස අංකය: 7/65/1995
අග/ඇද

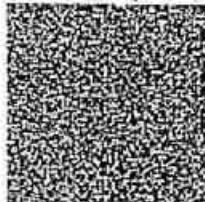
6841 2905 5852

VOO 3 9112 7424 4703 6050

எனது சூதார். எனது சிந்தனாளர்

[illegible]

Address:
S/O: Desingh, 288, PALLA STREET
SITTALAPALLEM, APASAKPULAI POST,
Chinnai, Tamilnadu, India
Tamil Nadu - 601 202



6841 2905 5852

YTD: 9112 7424 4703 5060

1947 <http://www.ushmm.org>

D. Group 5 (16).

புத்தம் 20.28 ஆண்டின் அவணம் எண்..... 6169
தாள்களைக் கொண்டு 18 வது தாள்

308



சென்னை - 600 009, பம்பாய்



GPS Map Camera

Devariambakkam, Tamil Nadu, India
Devariambakkam-Ullavur Rd, Devariambakkam, Tamil Nadu 631605, India
Lat 12.812833°
Long 79.87165°
22/08/24 02:41 PM GMT +05:30

Google

Almij

.....புத்தகம் 20.....ம் ஆண்டின் அவணம் எண்.....
.....தாள்களைக் கொண்டது.....வது தாள்
For M/s PJR BLUE METALS (Chennai) Pvt. Ltd
Chairman & Managing Director

Almij



BLUE METALS (CHENNAI)
PRIVATE LIMITED

RECEIVED
OFFICE



For M/s PJR BLUE METALS (Chennai) Pvt. Ltd
Chairman & Managing Director

புத்தகம் 20... 26... 6169
18... தாள்களைக் கொண்டது... 14... வது தாள்



524

310
Dining



இந்திய அரசாங்கம்
Government of India

தயாள் முனுசாமி
Dhayalan Munusamy
தந்தை முனுசாமி
Father : MUNUSAMY

பிறந்த நாள்/Year of Birth: 1991
ஆண்/ Male

8005 7500 2158

சாதாரண மனிதனின் அதிகாரம்

இந்திய அரசாங்கம்
Government of India

தயாள் முனுசாமி
Dhayalan Munusamy
தந்தை முனுசாமி
Father : MUNUSAMY

பிறந்த நாள்/Year of Birth: 1991
ஆண்/ Male

8005 7500 2158

சாதாரண மனிதனின் அதிகாரம்

Dhanyu

புத்தகம் 20.....ம ஆண்டின் அலணம் எண்.....6169
 18.....தாக்கனைகள்கொண்டது.....15.....வது தான்



311



भारत सरकार
GOVERNMENT OF INDIA



ஜானகிராமன் பார்த்தசாரதி
Janakiraman Parthasarathy
பிறந்த தாள்/ DOB: 22/05/1953
ஆண் / MALE



6461 0941 0206

எனது ஆதார், எனது அடையாளம்.

[Signature]
For M/s PJR BLUE METALS (Chennai) Pvt. Ltd.

For M/s PJR BLUE METALS (Chennai) Pvt. Ltd.

Chairman & Managing Director



भारतीय विशिष्ट पहचान प्राधिकरण
UNIQUE IDENTIFICATION AUTHORITY OF INDIA

முகவரி:
தந்தை / தாய் பெயர்:
பார்த்தசாரதி, என் 9, என்
என் தெரு,
ஆறுமுகபேட்டை,
வாலாஜாபாத், காஞ்சிபுரம்,
தமிழ் நாடு - 631605

Address:
S/O: Parthasarathy, NO 9, N N
STREET, ARUMUGAPETTAI,
WALAJABAD, Kanchipuram,
Tamil Nadu - 631605

புத்தகம் 20... 28... 6169
18... தூன்களைக் கொண்டது... 16... வது தாள்

6461 0941 0206

MEERA AADHAAR, MERI PEHACHAN

ஊர்
/ லா



1899ம் ஆண்டு இந்திய முத்திரைச் சட்டம் 42வது பிரிவின் கீழான சான்று



2024ம் ஆண்டு வரிசை எண் 5080

139 சாலை தெரு உள்ளவூர் அஞ்சல் தேவரியம்பாக்கம் கிராமம், காஞ்சிபுரம், தமிழ்நாடு, இந்தியா, 631606-ல் வசிக்கும் திரு எம்.தயாள் என்பவரிடமிருந்து ₹ 72,000/- (ரூபாய் எழுபத்திரண்டாயிரம் மட்டும்) இந்த ஆவணத்திற்காக இந்திய முத்திரைச் சட்டம் 41வது பிரிவின் படி குறைவாயிருந்த முத்திரைக் கட்டணம் வசூலிக்கப்பட்டது என நான் இதன் மூலம் சான்றளிக்கிறேன்.

சார்பதிவாளர் : வாலாஜாபாத்

நாள்: 22/08/2024

சார்பதிவாளர் மற்றும் இந்திய முத்திரைச் சட்டம் 41வது பிரிவின் படி

41ன் படி ஆட்சியர்

சார்பதிவாளர்

2024 ஆம் ஆண்டு ஆகஸ்ட் மாதம் -22ம் தேதி பி.ப. 07:00 மணியளவில் வாலாஜாபாத் சார்பதிவாளர் அலுவலகத்தில் தாக்கல் செய்து கட்டணம் ₹ 41,110/- செலுத்தியவர்.

புத்தகம் 20.....ம் ஆண்டின் அவணம் எண்.....

18.....தாள்களைக்கொண்டது.....வது தாள்

இடது பெருவிரல்



கூடுதல் விவரங்கள் ஆவண வாசகத்தில் உள்ளபடி

பதிவு செய்யப்பட்டது

எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர்
இடது பெருவிரல்

"சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்" என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது. ஒப்பீட்டு எண் :
UKC:3473719552748043cc4aeeaf8601feadb6e54c
(Details from UIDAI : Janakiraman Parthasarathy S/O: Parthasarathy, 22-05-1953, xxxxxxxx0206)

எழுதி வாங்கியதாக ஒப்புக் கொண்டவர்
இடது பெருவிரல்

"சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்" என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது. ஒப்பீட்டு எண் :
UKC:3131214b8b7438a1348cc9f5992f6bc4c68b5
(Details from UIDAI : Dhayalan Munusamy S/O



R/வாலாஜாபாத்/புத்தகம்-1/6169/2024

Munusamy, 25-07-1991, xxxxxxxx2156)



2024 ஆம் ஆண்டு ஆகஸ்ட் மாதம் 22ம் நாள்

ஜெ. பதிவு
Jayaiothi sethura

சான்றிதழ்வாளர்
வாலாஜாபாத்

R/வாலாஜாபாத்/புத்தகம்-1/6169/2024 எண்ணாகப் பதிவு செய்யப்பட்டது.

நாள்: 22/08/2024

வாலாஜாபாத்

ஜெ. பதிவு
Jayaiothi sethura

சான்றிதழ்வாளர்
வாலாஜாபாத்



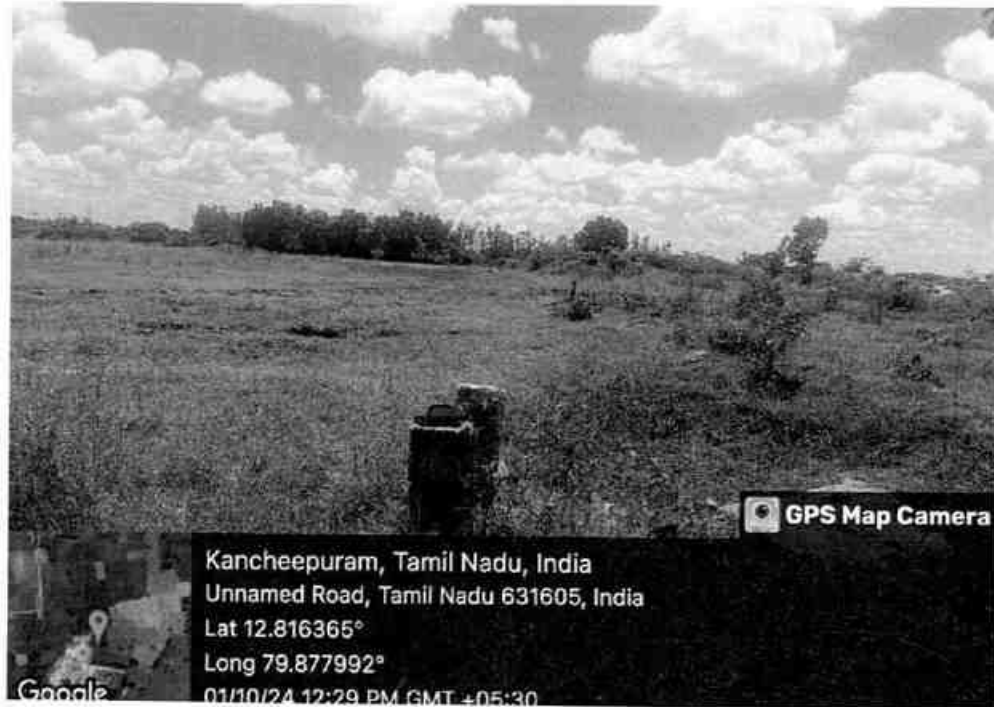
புத்தகம் 2024 ஆண்டின் அலுவல் எண்
தாள்களளக்கொண்டது வது தாள்

பதிவு அலுவலர்



PHOTOCOPY OF THE APPLIED LEASE AREA

Site photos in respect of rough stone and gravel quarry lease in S.F.No's: 293/1B, 293/2A, 293/2B, 293/2C, 295, 300/1A (Part), 301/1A1B 301/1A2 (Part) & 301/1A3B Patta Land - over an extent of 2.59.25 hectares - Devariyambakkam village - Walajabad Taluk - Kancheepuram District, Tamil Nadu State in belongs to Mr. M.Dhayalan





இந்திய அரசாங்கம்
Government of India

தாயன் முனுசாமி
Dhayalan Munusamy
பிதர் : முனுசாமி
Father : MUNUSAMY

பிறந்த ஆண்டு (Year of Birth) 1991
ஆண் / Male

8005 7500 2158

- சாதாரண மனிதனின் அதிகாரம்

இந்திய அரசாங்கம்
Government of India

முகவரி : S/O Munusamy,
NO 139, SALAF STREET,
ULLAVUR POST,
DEVARIYAMPAKKAM,
Devariyampakkam, Ullavur,
Kanchipuram, Tamil Nadu,
631606

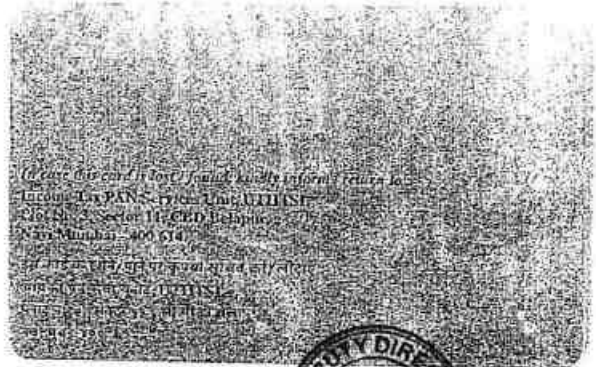
8005 7500 2158

Devi

புத்தகம் 20... 26 ஆண்டின் அலுவலம் எண்... 6169
18... தாள்களைக் கொண்டு... 15... வது தாள்



Devi



dhing

भारत सरकार / GOVERNMENT OF INDIA
खान मंत्रालय / MINISTRY OF MINES
भारतीय खान ब्यूरो / INDIAN BUREAU OF MINES



[Signature]

अर्हता प्राप्त व्यक्ति के रूप में मान्यता प्रमाण पत्र
(खनिज रियायत नियमावली, 1960 के नियम 22सी के तहत)
CERTIFICATE OF RECOGNITION AS QUALIFIED PERSON
(Under Rule 22C of Mineral Concession Rules, 1960)

श्री एस. करुप्पन्नन, मॉगनीकाडू, मुत्तमपट्टी पोस्ट, बोम्मीडी वर्यो, ओमलूर तालुक, सेलम डीस्ट्रिक्ट, तमिलनाडू - 635 301, जिनका फोटो और हस्ताक्षर ऊपर दिया हुआ है, तथा जिनोंने अपनी अर्हता और अनुभव का संतोष जनक साक्ष्य दिया है, को खनन योजना तैयार करने हेतु खनिज रियायत नियमावली 1960 के नियम 22सी के तहत अर्हता प्राप्त व्यक्ति के रूप में मान्यता प्रदान की जाती है।

Shri S. Karuppannan, Manganikadu, Muthampatty (Post), Bommidi (Via), Omalur Taluk, Salem District, Tamilnadu - 635 301, whose **Photograph and signature** is affixed herein above, having given satisfactory evidence of his qualifications & experience hereby **RECOGNISED** under Rule 22C of the Mineral Concession Rule, 1960 as a Qualified Person to prepare Mining Plans.

उनकीपंजीयन संख्या है
His registration number is

RQP /MAS/263/2014/A

यह मान्यता 10 वर्षों की अवधि के लिए मान्यता है जो दिनांक 15.12.2024 को समाप्त होगी।
This recognition is valid for a period of 10 years ending on 15.12.2024.

उनके द्वारा प्रस्तुत खनन योजना में गलत जानकारी / दस्तावेज पाए जाने की स्थिति में यह प्रमाण पत्र वापस लिया जाएगा / निरस्त किया जाएगा।

This certificate will liable to be withdrawn / cancelled in the event of furnishing the wrong information / documents in the Mining Plan submitted by him.

स्थान/ Place : Chennai
दिनांक/ Date : 16.12.2014.

[Signature]
क्षेत्रीय खाननियंत्रक / Regional Controller of Mines
भारतीय खानब्यूरो/ Indian Bureau of Mines
चेन्नई क्षेत्र / Chennai Region

[Signature]

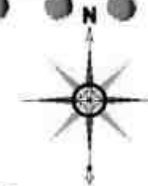
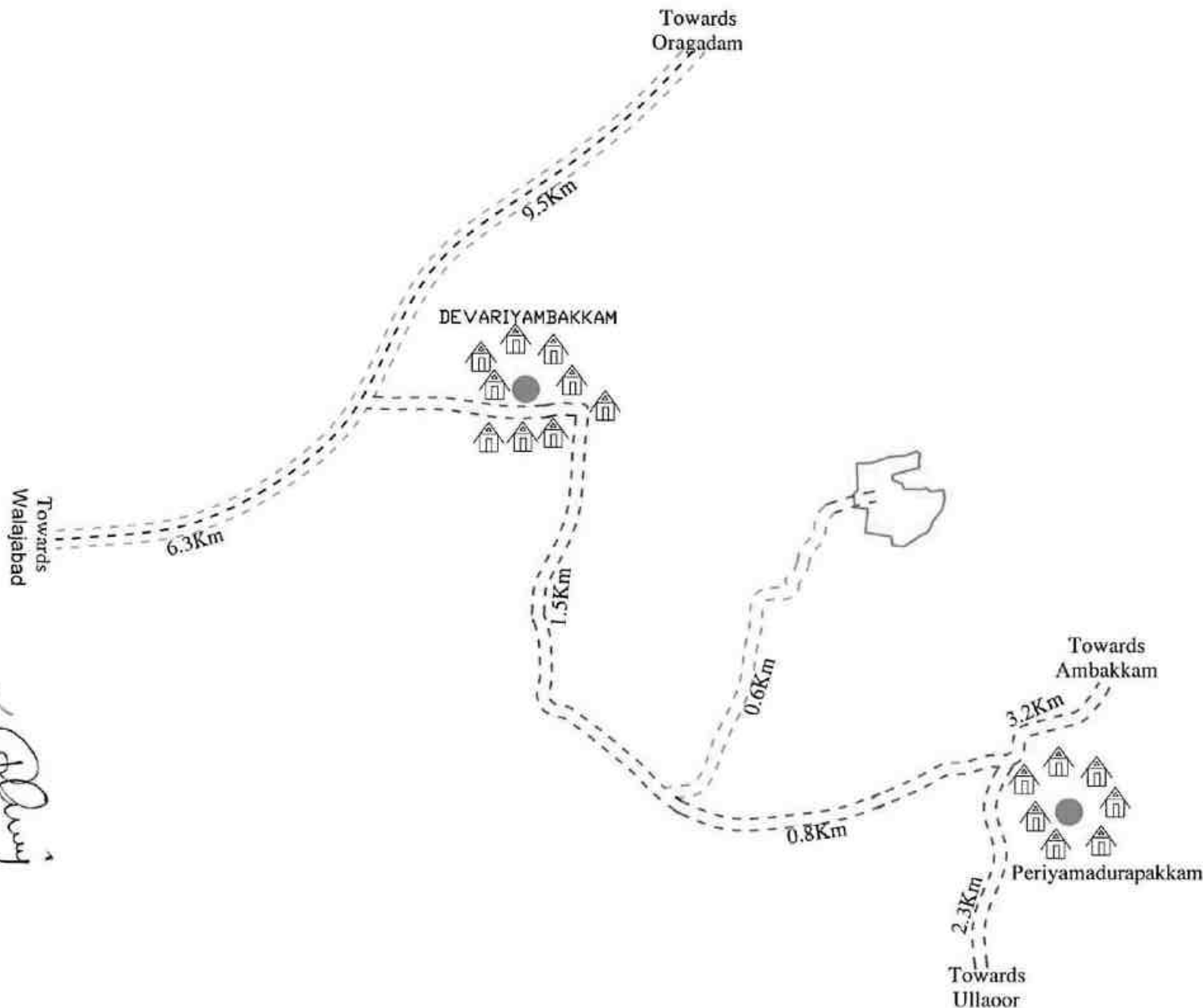


PLATE No-I

APPLICANT:

Mr.DHAYALAN,
S/o.MUNUSAMY,
ULLAVUR POST,
DEVARIYAMBAKKAM,
WALAJABAD TALUK,
KANCHEEPURAM - 631 606.

LEASE APPLIED AREA:

S.F.No : 293/1B, 293/2A, 293/2B, 293/2C,
295, 300/1A (P), 301/1A2 (P),
301/1A3B (P) & 301/1A1B

EXTENT : 2.59.20 Hectares

VILLAGE : DEVARIYAMBAKKAM,

TALUK : WALAJABAD,

DISTRICT : KANCHEEPURAM.

INDEX

MINE LEASE AREA



APPROACH ROAD



CART ROAD



VILLAGE ROAD



NH-48 ROAD



HABITATION



KEY MAP

Not to Scale

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS
BEEN CHECKED BY ME AND IS CORRECT
TO THE BEST OF MY KNOWLEDGE

[Signature]

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
RECOGNIZED QUALIFIED PERSON
RQP/MAS/263/2014/A

12°49'1.67"N

79°52'40.61"E

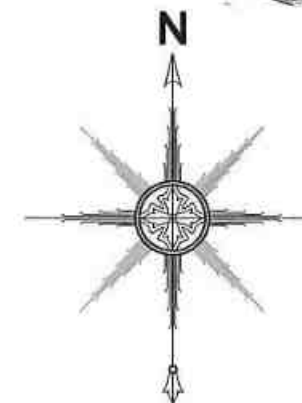


PLATE NO-IA

APPLICANT:
Mr.DHAYALAN,
S/o.MUNUSAMY,
ULLAVUR POST,
DEVARIYAMBAKKAM,
WALAJABAD TALUK,
KANCHEEPURAM - 631 606.

LEASE APPLIED AREA:
S.F.No : 293/1B, 293/2A, 293/2B, 293/2C,
295, 300/1A (P), 301/1A2 (P),
301/1A3B (P) & 301/1A1B
EXTENT : 2.59.20 Hectares
VILLAGE : DEVARIYAMBAKKAM,
TALUK : WALAJABAD,
DISTRICT : KANCHEEPURAM.

INDEX

MINE LEASE AREA: ●
TOPO SHEET No : 57-P/14
LATITUDE : 12°48'54.71"N to 12°49'1.67"N
LONGITUDE : 79°52'40.61"E to 79°52'47.37"E

LOCATION PLAN NOT TO SCALE

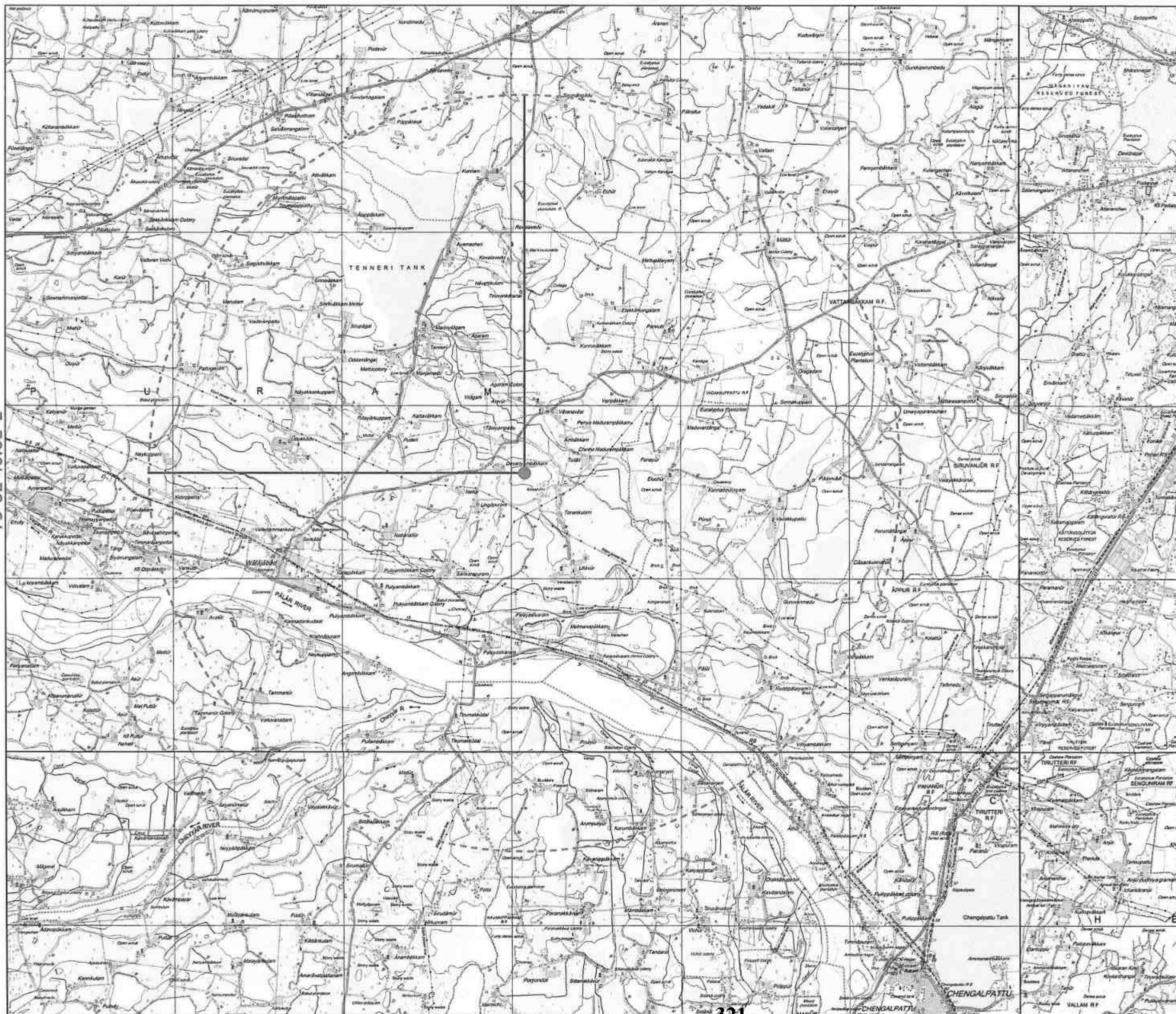
Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS
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TO THE BEST OF MY KNOWLEDGE

[Signature]

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
RECOGNIZED QUALIFIED PERSON
RQP/MAS/263/2014/A

79°52'40.61"E



Mr.DHAYALAN,
S/o.MUNUSAMY,
ULLAVUR POST,
DEVARIYAMBAKKA
WALAJABAD TALUK
KANCHEEPURAM - 631 001

S.F.No : 293/1B, 293/2A, 293/2B, 293/2C
295, 300/1A (P), 301/1A2 (P),
301/1A3B (P) & 301/1A1B

EXTENT : 2.59.20 Hectares
VILLAGE : DEVARIYAMBAKKAM,
TALUK : WALAJABAD,
DISTRICT : KANCHEEPURAM.

LATITUDE : 12°48'54.71"N to 12°49'1.67"N

LONGITUDE : 79°52'40.61"E to 79°52'47.37"E



Express highway, with left, with bridge, with distance stone		1	20
Roads, unimproved, according to importance		150	
Roads, double cartway, according to importance			
Unimproved road, Cart-track, Packed-earth with pease, Foot-path			
Stream, with bank in bed, unimproved, Canal			
Dam, masonry or rock-flood, cart-track, Weir			
River, dry, with same channel, with sand & rocks, Tidal river			
Submerged rocks, Shallow, Steady flow			
Wells, brick, unroofed, Tube-well, Spring, Tanka, permanent, dry			
Embankment, road is not, rail, Broken ground			
Highways, broad gauge, double, single with various, under, over, on			
Railways, other gauges, double, single with distance stone, etc.		20	
Mineral line or tramway, Rail, Cutting with tunnel			
Contours with sub-heights, Rocky slopes, Cliffs			
Sand features (Hill) (Sandy Hills), permanent, (Sandy shifting)		7	
Towns or Villages, unimproved, deserted, Fort			
State permanent, temporary, Tower, Antiquities		74	
Temple, Chhatra, Chattr, Movable, Jagin, Tomb, Grave			
Lighthouse, Lightship, Buoy, light, unlighted, Anchorage			
Mine, Wind on table, Green, Conical			
Herms, solitary, other, Platan, Conical, Bamboo, Other trees			
Arms, unimproved, wooded, Surveyed line			
Boundary, unimproved			
State, unimproved, unimproved			
State, unimproved, unimproved			
Boundary pillars, surveyed, unimproved			
Highly, unimproved, state, post, approximate		△200	200 200
Benchmark, geodetic, survey, level		BM 63-3	BM 63-3
Post office, Telegraph office, Overhead tank			
Rail road, or Independent branch, Great house, Police station			
Camping ground, Forest, reserved, protected			
Spaced, narrow, air, red, red, red, red, red, red, red, red		KKRI	NAGA
Hospital, Dispensary, Veterinary Hospital / Dispensary			
Reservoir, Hill-top, Tanka, etc.			
Power line, with pylons, surveyed, with poles, unsurveyed			

SCALE- 1:1,00,000

I DO HEREBY CERTIFY THAT THE PLATE HAS
BEEN CHECKED BY ME AND IS CORRECT
TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
RECOGNIZED QUALIFIED PERSON
RQP/MAS/263/2014/A

12°49'1.67"N

79°52'40.61"E

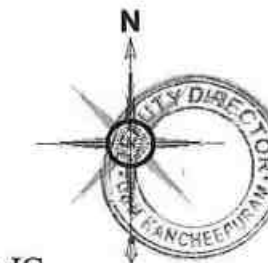


PLATE No-IC

APPLICANT:
Mr.DHAYALAN,
 S/o.MUNUSAMY,
 ULLAVUR POST,
 DEVARIYAMBAKKAM,
 WALAJABAD TALUK,
 KANCHEEPURAM - 631 606.

LEASE APPLIED AREA:
 S.F.No : 293/1B, 293/2A, 293/2B, 293/2C,
 295, 300/1A (P), 301/1A2 (P),
 301/1A3B (P) & 301/1A1B
 EXTENT : 2.59.20 Hectares
 VILLAGE : DEVARIYAMBAKKAM,
 TALUK : WALAJABAD,
 DISTRICT : KANCHEEPURAM.

INDEX

MINE LEASE AREA	
APPROACH ROAD	
CART ROAD	
VILLAGE ROAD	
100m RADIUS	
200m RADIUS	
300m RADIUS	
400m RADIUS	
500m RADIUS	
EXISTING PIT	
CANAL	

TOPO SHEET No : 57-P/14

LATITUDE : 12°48'54.71"N to 12°49'1.67"N

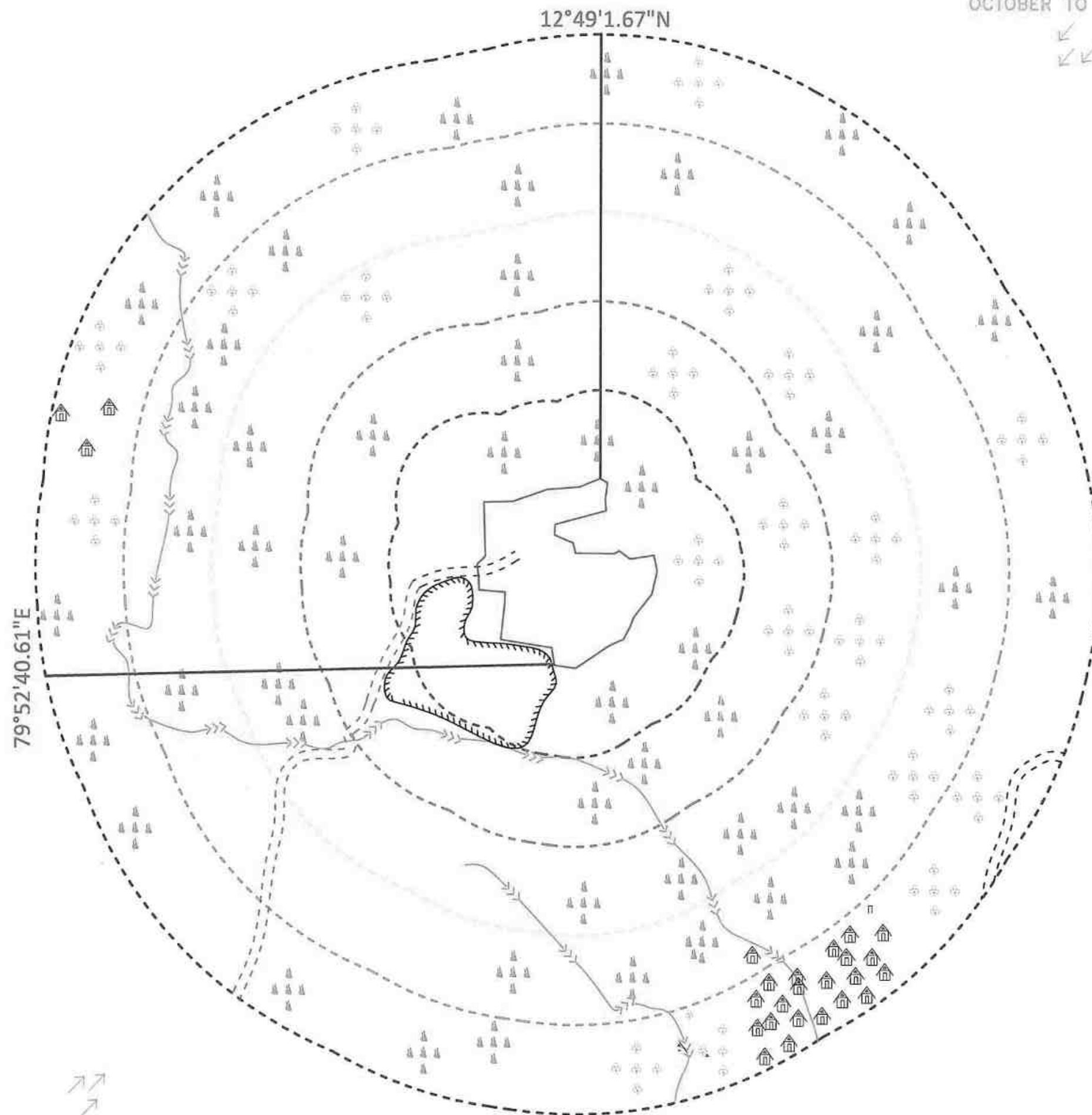
LONGITUDE : 79°52'40.61"E to 79°52'47.37"E

SATELITE IMAGERY MAP
 SCALE- 1:5000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS
 BEEN CHECKED BY ME AND IS CORRECT
 TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
 RECOGNIZED QUALIFIED PERSON
 RQP/MAS/263/2014/A



OCTOBER TO DECEMBER

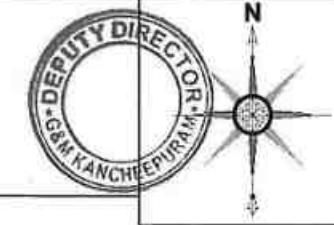


PLATE NO-ID

APPLICANT:
Mr.DHAYALAN,
 S/o.MUNUSAMY,
 ULLAVUR POST,
 DEVARIYAMBAKKAM,
 WALAJABAD TALUK,
 KANCHEEPURAM - 631 606.

LEASE APPLIED AREA:
 S.F.No : 293/1B, 293/2A, 293/2B, 293/2C,
 295, 300/1A (P), 301/1A2 (P),
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EXTENT : 2.59.20 Hectares
VILLAGE : DEVARIYAMBAKKAM,
TALUK : WALAJABAD,
DISTRICT : KANCHEEPURAM.

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MINE LEASE AREA	
APPROACH ROAD	
CART ROAD	
VILLAGE ROAD	
100m RADIUS	
200m RADIUS	
300m RADIUS	
400m RADIUS	
500m RADIUS	
SHRUBS & TREES	
HABITATION	
CANAL	
WIND DIRECTION	

TOPO SHEET No : 57-P/14
 LATITUDE : 12°48'54.71"N to 12°49'1.67"N
 LONGITUDE : 79°52'40.61"E to 79°52'47.37"E

ENVIRONMENTAL PLAN

SCALE- 1:5000

Prepared By:

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Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
 RECOGNIZED QUALIFIED PERSON
 RQP/MAS/263/2014/A

JULY TO SEPTEMBER

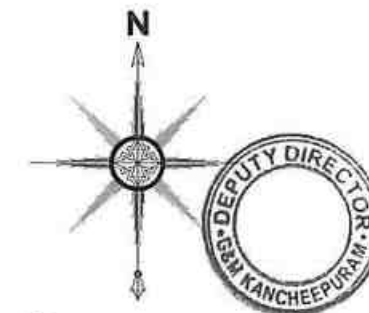
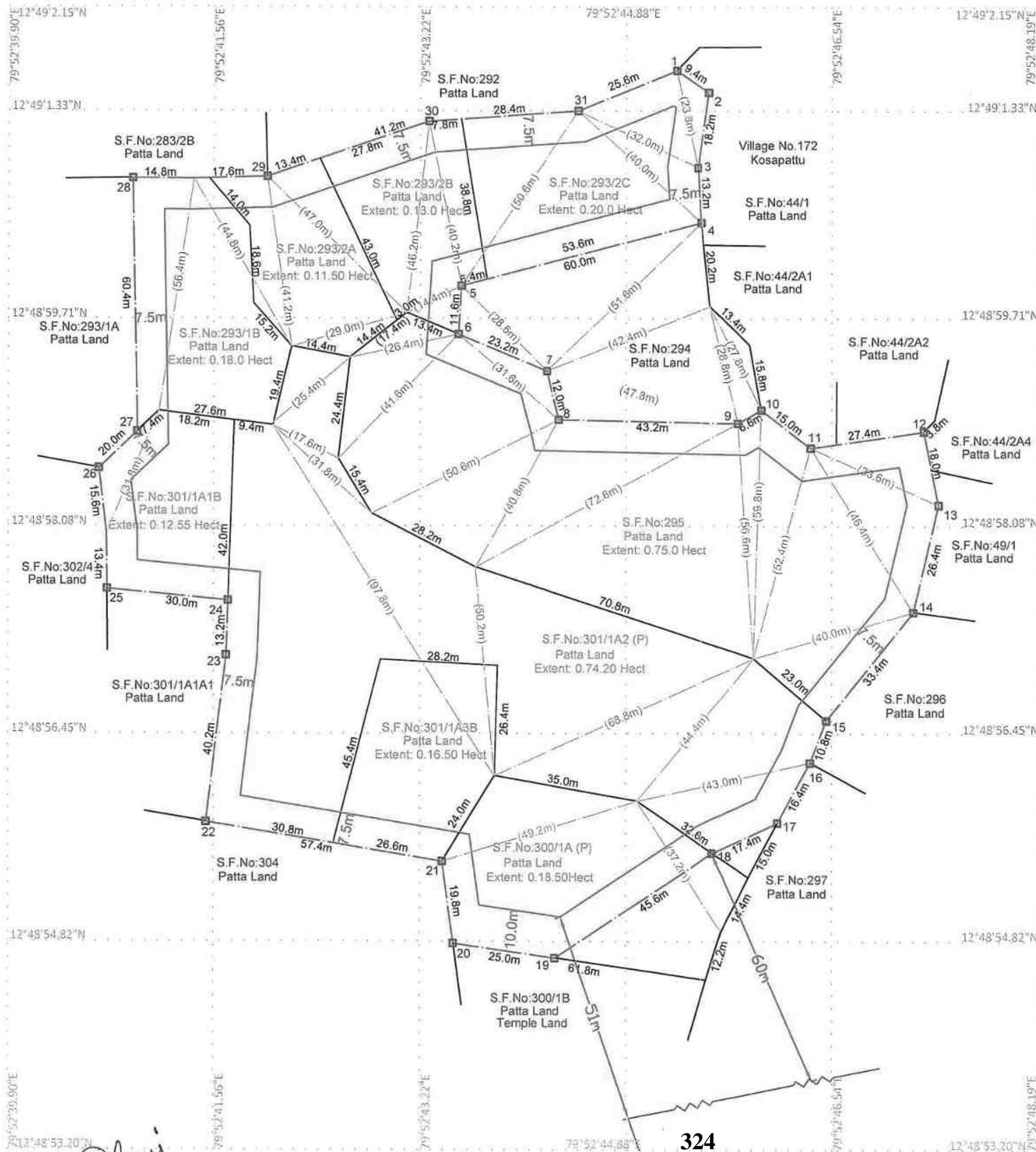


PLATE No- II

APPLICANT:

Mr.DHAYALAN,
S/o.MUNUSAMY,
ULLAVUR POST,
DEVARIYAMBAKKAM,
WALAJABAD TALUK,
KANCHEEPURAM - 631 606.

LEASE APPLIED AREA:

S.F.No : 293/1B, 293/2A, 293/2B, 293/2C,
295, 300/1A (P), 301/1A2 (P),
301/1A3B (P) & 301/1A1B

EXTENT : 2.59.25 Hectares

VILLAGE : DEVARIYAMBAKKAM,

TALUK : WALAJABAD,

DISTRICT : KANCHEEPURAM.

S.No	LATITUDE	LONGITUDE	S.No	LATITUDE	LONGITUDE
1	12°49'1.67"N	79°52'45.24"E	17	12°48'55.78"N	79°52'46.09"E
2	12°49'1.50"N	79°52'45.51"E	18	12°48'55.54"N	79°52'45.56"E
3	12°49'0.91"N	79°52'45.42"E	19	12°48'54.71"N	79°52'44.30"E
4	12°49'0.48"N	79°52'45.45"E	20	12°48'54.82"N	79°52'43.48"E
5	12°48'59.98"N	79°52'43.52"E	21	12°48'55.47"N	79°52'43.39"E
6	12°48'59.60"N	79°52'43.50"E	22	12°48'55.76"N	79°52'41.49"E
7	12°48'59.31"N	79°52'44.21"E	23	12°48'57.07"N	79°52'41.64"E
8	12°48'58.93"N	79°52'44.31"E	24	12°48'57.50"N	79°52'41.66"E
9	12°48'58.91"N	79°52'45.75"E	25	12°48'57.59"N	79°52'40.68"E
10	12°48'59.02"N	79°52'45.94"E	26	12°48'58.53"N	79°52'40.61"E
11	12°48'58.72"N	79°52'46.34"E	27	12°48'58.82"N	79°52'40.92"E
12	12°48'58.85"N	79°52'47.25"E	28	12°49'0.81"N	79°52'40.87"E
13	12°48'58.28"N	79°52'47.37"E	29	12°49'0.83"N	79°52'41.95"E
14	12°48'57.44"N	79°52'47.17"E	30	12°49'1.27"N	79°52'43.25"E
15	12°48'56.58"N	79°52'46.48"E	31	12°49'1.35"N	79°52'44.46"E
16	12°48'56.25"N	79°52'46.35"E			

INDEX

MINE LEASE BOUNDARY	
SAFETY DISTANCE	
APPROACH ROAD	
BOUNDARY PILLAR STONES	
EB LINE	

MINE LEASE PLAN

SCALE 1 : 1000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS
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Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
RECOGNIZED QUALIFIED PERSON
RQP/MAS/263/2014/A

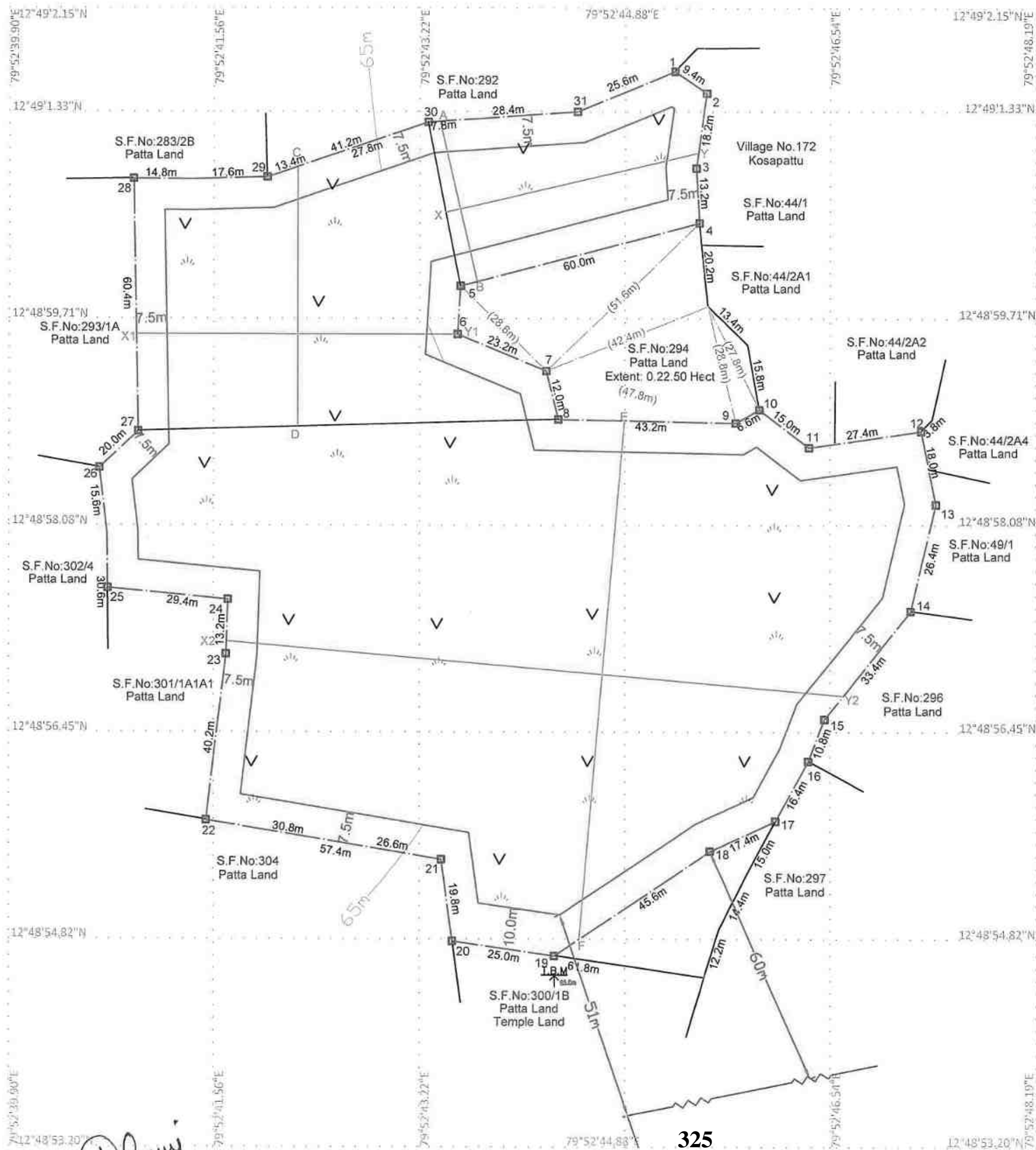


PLATE No- III

APPLICANT:

Mr.DHAYALAN,
S/o.MUNUSAMY,
ULLAVUR POST, DEVARIYAMBAKKAM,
WALAJABAD TALUK,
KANCHEEPURAM - 631 606.

LEASE APPLIED AREA:

S.F.No : 293/1B, 293/2A, 293/2B, 293/2C,
295, 300/1A (P), 301/1A2 (P),
301/1A3B (P) & 301/1A1B

EXTENT : 2.59.25 Hectares

VILLAGE : DEVARIYAMBAKKAM,

TALUK : WALAJABAD,

DISTRICT : KANCHEEPURAM.

INDEX

MINE LEASE BOUNDARY	
SAFETY DISTANCE	
APPROACH ROAD	
BOUNDARY PILLAR STONES	
EB LINE	
CONTOUR LINES	
TEMPORARY BENCH MARK	
GRAVEL & SHRUBS	

SURFACE & GEOLOGICAL PLAN

SCALE 1 : 1000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS
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Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
RECOGNIZED QUALIFIED PERSON
RQP/MAS/263/2014/A

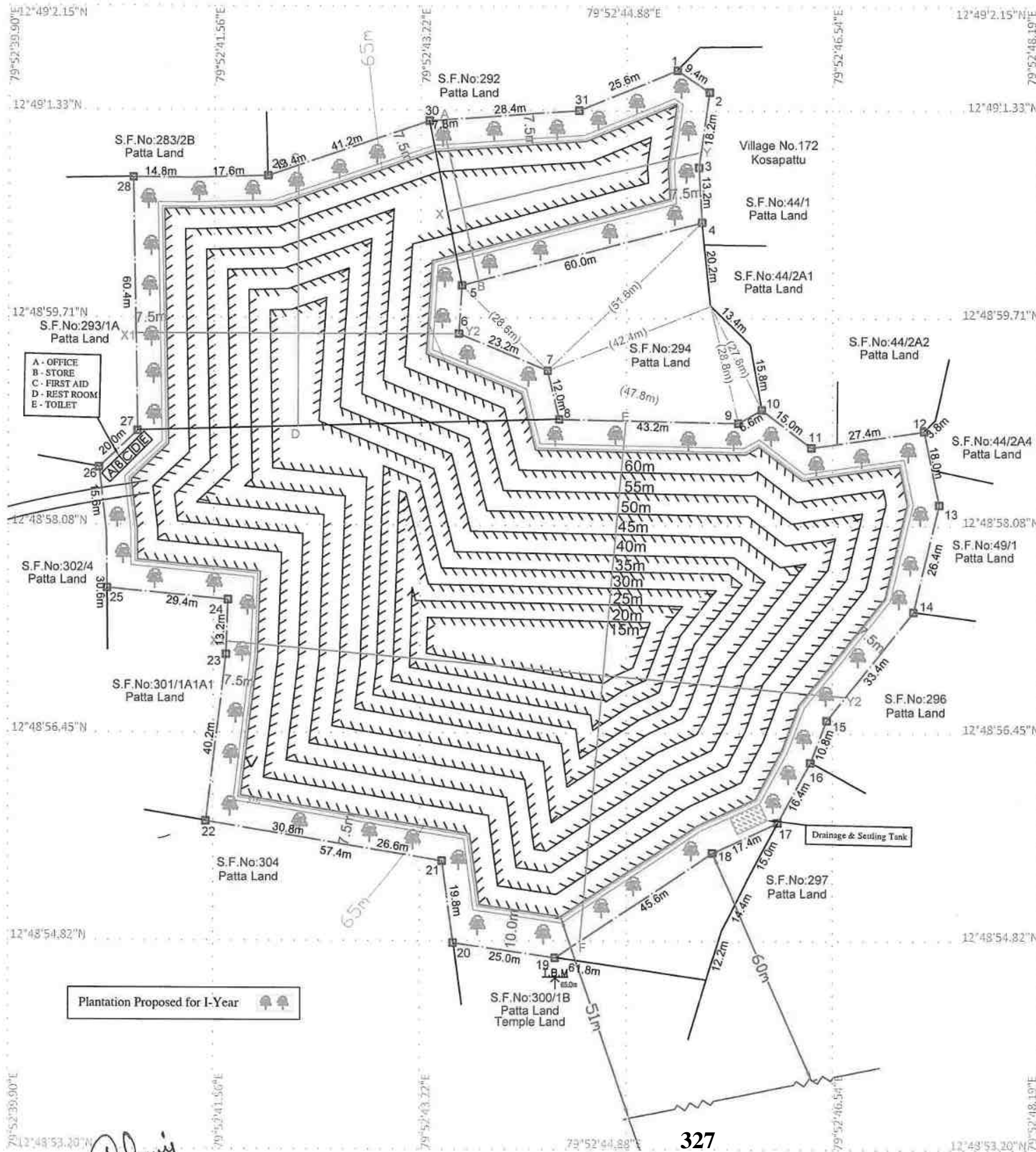


PLATE No- IV

APPLICANT:
Mr.DHAYALAN,
 S/o.MUNUSAMY,
 ULLAVUR POST, DEVARIYAMBAKKAM,
 WALAJABAD TALUK,
 KANCHEEPURAM - 631 606.

LEASE APPLIED AREA:
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 295, 300/1A (P), 301/1A2 (P),
 301/1A3B (P) & 301/1A1B
EXTENT : 2.59.20 Hectares
VILLAGE : DEVARIYAMBAKKAM,
TALUK : WALAJABAD,
DISTRICT : KANCHEEPURAM.

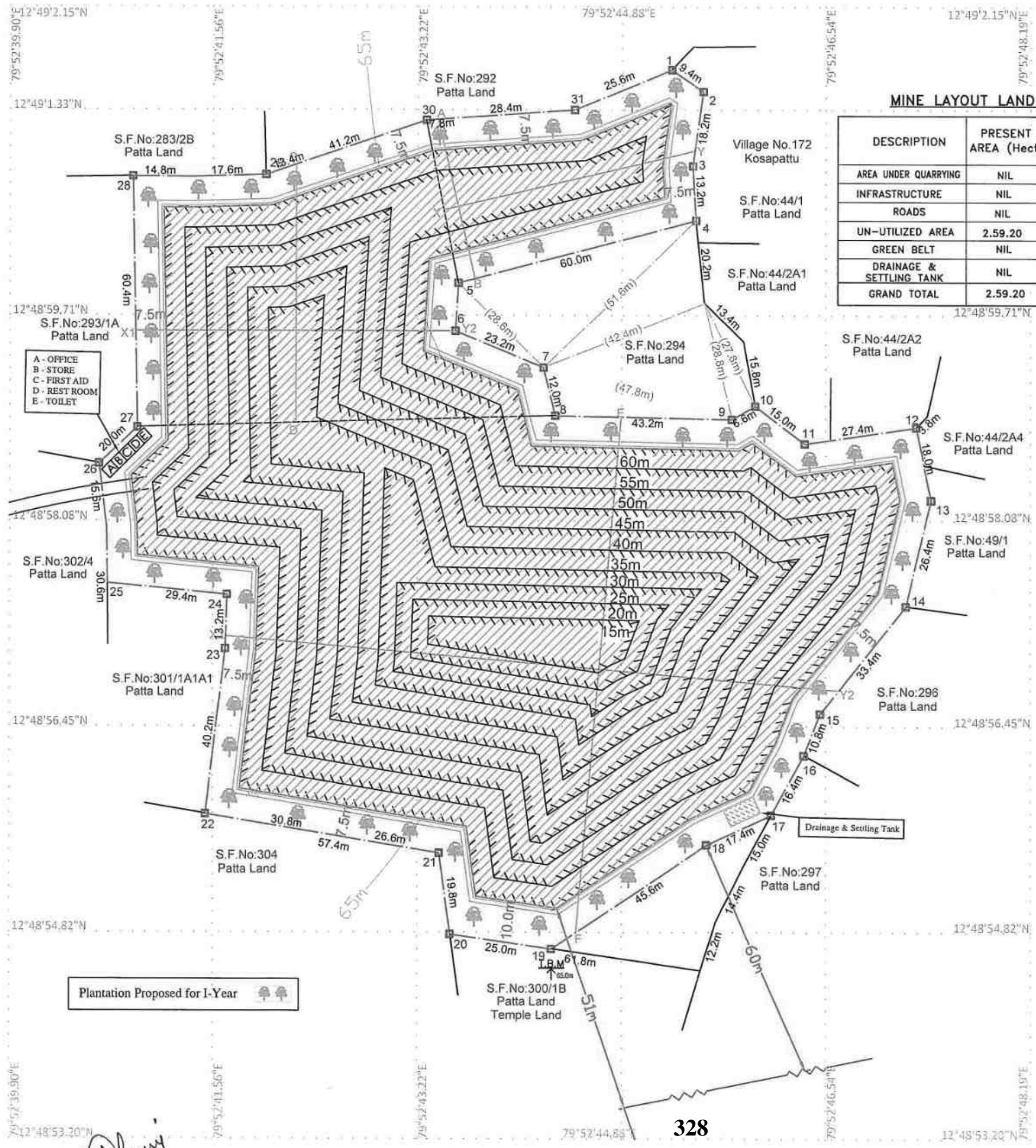
INDEX

MINE LEASE BOUNDARY	
SAFETY DISTANCE	
APPROACH ROAD	
BOUNDARY PILLAR STONES	
EB LINE	
CONTOUR LINES	
TEMPORARY BENCH MARK	
GRAVEL & SHRUBS	
FENCING	
DRAINAGE & SETTLING TANK	
ULTIMATE BENCH	

CONCEPTUAL PLAN SCALE 1: 1000

Prepared By:
 I DO HEREBY CERTIFY THAT THE PLATE HAS
 BEEN CHECKED BY ME AND IS CORRECT
 TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
 RECOGNIZED QUALIFIED PERSON
 RQP/MAS/263/2014/A



MINE LAYOUT LAND USE PATTERN

DESCRIPTION	PRESENT AREA (Hect)	AREA IN USE DURING THE QUARRYING PERIOD(Hect)	COLOR CODE
AREA UNDER QUARRYING	NIL	1.98.25	
INFRASTRUCTURE	NIL	0.02.0	
ROADS	NIL	0.05.0	
UN-UTILIZED AREA	2.59.20	NIL	
GREEN BELT	NIL	0.45.75	
DRAINAGE & SETTLING TANK	NIL	0.08.20	
GRAND TOTAL	2.59.20	2.59.20	

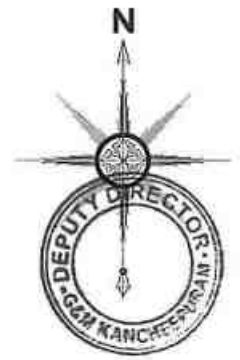


PLATE No- V

APPLICANT:
Mr.DHAYALAN,
 S/o.MUNUSAMY,
 ULLAVUR POST, DEVARIYAMBAKKAM,
 WALAJABAD TALUK,
 KANCHEEPURAM - 631 606.

LEASE APPLIED AREA:
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 301/1A3B (P) & 301/1A1B
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APPROACH ROAD	
BOUNDARY PILLAR STONES	
EB LINE	
CONTOUR LINES	
TEMPORARY BENCH MARK	
GRAVEL & SHRUBS	
FENCING	
DRAINAGE & SETTLING TANK	
ULTIMATE BENCH	

MINE LAYOUT PLAN & LAND USE PATTERN SCALE 1 : 1000

Prepared By:
 I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
 RECOGNIZED QUALIFIED PERSON
 RQP/MAS/263/2014/A

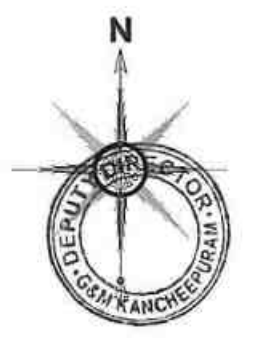
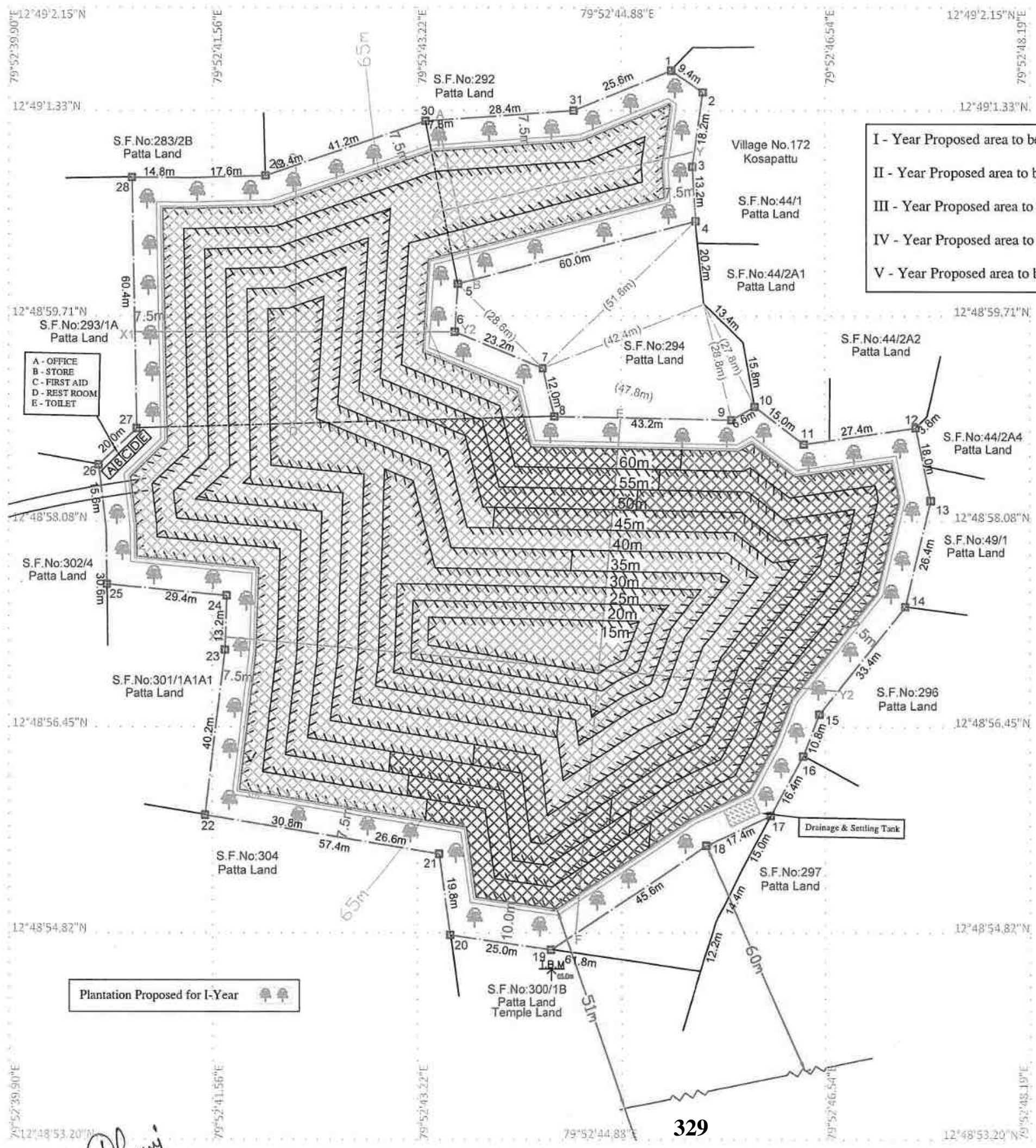


PLATE No- VI

APPLICANT:
Mr.DHAYALAN,
 S/o.MUNUSAMY,
 ULLAVUR POST, DEVARIYAMBAKKAM,
 WALAJABAD TALUK,
 KANCHEEPURAM - 631 606.

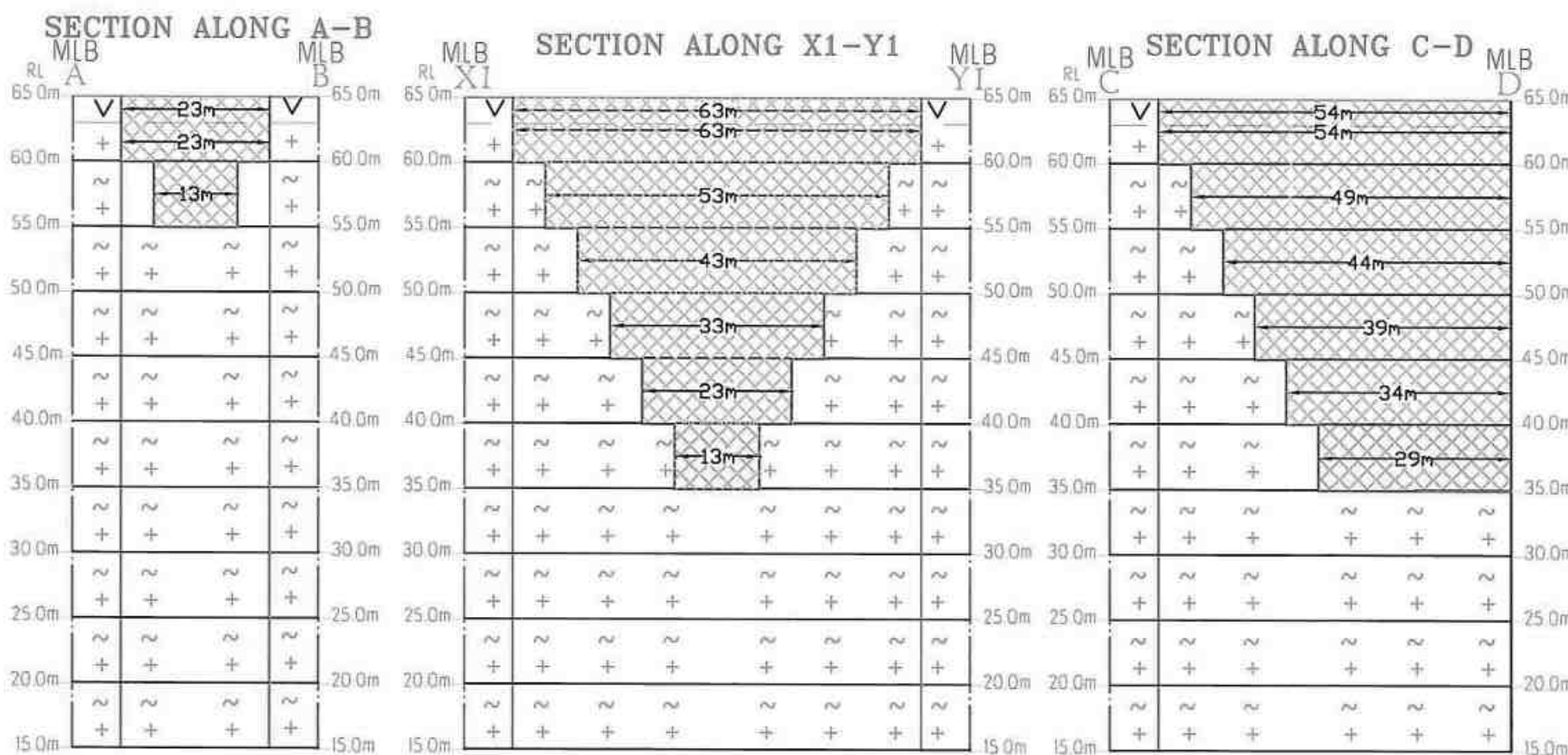
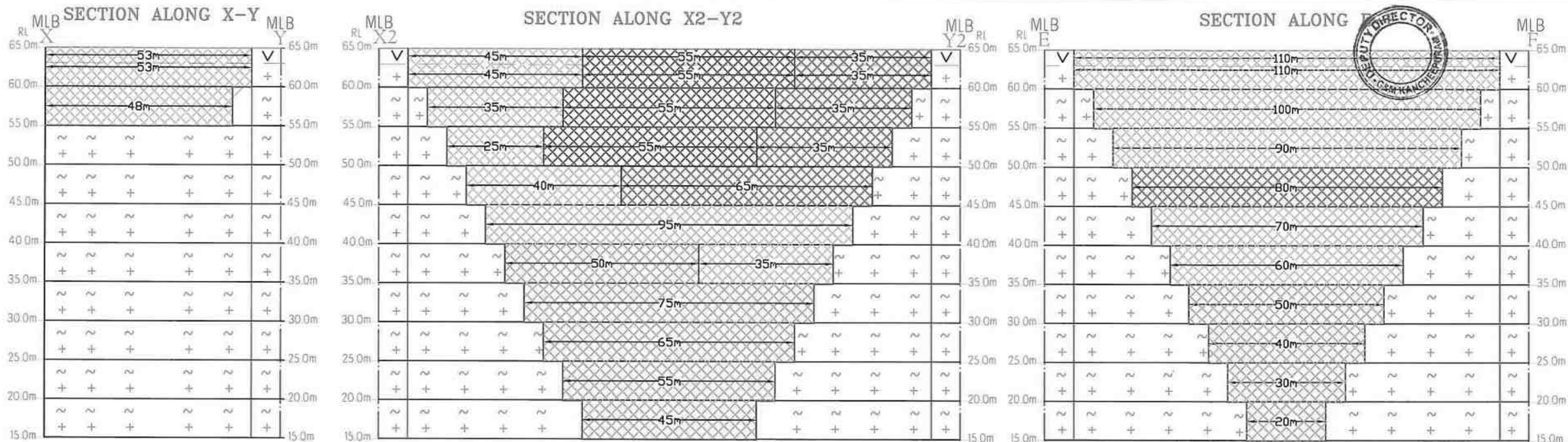
LEASE APPLIED AREA:
 S.F.No : 293/1B, 293/2A, 293/2B, 293/2C,
 295, 300/1A (P), 301/1A2 (P),
 301/1A3B (P) & 301/1A1B
EXTENT : 2.59.20 Hectares
VILLAGE : DEVARIYAMBAKKAM,
TALUK : WALAJABAD,
DISTRICT : KANCHEEPURAM.

INDEX	
MINE LEASE BOUNDARY	
SAFETY DISTANCE	
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BOUNDARY PILLAR STONES	
EB LINE	
CONTOUR LINES	
TEMPORARY BENCH MARK	
GRAVEL & SHRUBS	
FENCING	
DRAINAGE & SETTLING TANK	
PROPOSED BENCH	

YEARWISE DEVELOPMENT & PRODUCTION PLAN SCALE 1: 1000

Prepared By:
 I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
 RECOGNIZED QUALIFIED PERSON
 RQP/MAS/263/2014/A



YEARWISE PRODUCTION RESERVE								
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m³	Rough Stone in m³	Gravel in m³
I - Year	XY-AB	I	53	23	2	2438	.....	2438
		I	53	23	3	3657	3657	.....
		II	48	13	5	3120	3120	.....
	X1Y1-CD	I	63	54	2	6804	.....	6804
		I	63	54	3	10206	10206	.....
		I	45	110	2	9900	.....	9900
	X2Y2-EF	I	45	110	3	14850	14850	.....
		II	35	100	5	17500	17500	.....
		II	53	49	5	12985	12985	.....
	X1Y1-CD	III	43	44	5	9460	9460	.....
X2Y2-EF	III	25	90	5	11250	11250	.....	
TOTAL						102170	83028	19142
II - Year	X2Y2-EF	I	55	110	2	12100	.....	12100
		I	55	110	3	18150	18150	.....
		II	55	100	5	27500	27500	.....
		III	55	90	5	24750	24750	.....
TOTAL						82500	70400	12100
III - Year	X2Y2-EF	I	35	110	2	7700	.....	7700
		I	35	110	3	11550	11550	.....
		II	35	100	5	17500	17500	.....
		III	35	90	5	15750	15750	.....
		IV	65	80	5	26000	26000	.....
TOTAL						78500	70800	7700
IV - Year	X2Y2-EF	IV	40	80	5	16000	16000	.....
	X1Y1-CD	IV	33	39	5	6435	6435	.....
		V	23	34	5	3910	3910	.....
		V	95	70	5	33250	33250	.....
	X2Y2-EF	VI	35	60	5	10500	10500	.....
TOTAL						70095	70095	0
IV - Year	X2Y2-EF	VI	50	60	5	15000	15000	.....
	X1Y1-CD	VI	13	29	5	1885	1885	.....
		VII	75	50	5	18750	18750	.....
	X2Y2-EF	VIII	65	40	5	13000	13000	.....
		IX	55	30	5	8250	8250	.....
		X	45	20	5	4500	4500	.....
TOTAL						61385	61385	0
GRAND TOTAL						394650	355708	38942

PLATE No- VIA

YEARWISE DEVELOPMENT &
PRODUCTION SECTIONS
SCALE - HOR 1 : 1000 & VER 1 : 500

INDEX

MINE LEASE BOUNDARY

SAFETY DISTANCE

GRAVEL

ROUGH STONE

PROPOSED BENCH

I - Year Proposed area to be Quarried

II - Year Proposed area to be Quarried

III - Year Proposed area to be Quarried

IV - Year Proposed area to be Quarried

V - Year Proposed area to be Quarried

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS
BEEN CHECKED BY ME AND IS CORRECT
TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
RECOGNIZED QUALIFIED PERSON
RQP/MAS/263/2014/A

APPLICANT:
Mr.DHAYALAN,
S/o.MUNUSAMY,
ULLAVUR POST,
DEVARIYAMBAKKAM,
WALAJABAD TALUK,
KANCHEEPURAM - 631 606.

LEASE APPLIED AREA:
S.F.No : 293/1B, 293/2A, 293/2B, 293/2C,
295, 300/1A (P), 301/1A2 (P),
301/1A3B (P) & 301/1A1B
EXTENT : 2.59.20 Hectares
VILLAGE : DEVARIYAMBAKKAM,
TALUK : WALAJABAD,
DISTRICT : KANCHEEPURAM.

சான்றிதழைப்பெற்று

கனகசுந்தரி, மயங்குண்டி, அனந்தநாயகி, அம்மா, விஜயலக்ஷ்மி, சீதா

67. *Chrysomelidae* (Coleoptera)



भारतीय गुणवत्ता परिषद्
QUALITY COUNCIL
OF INDIA
Creating an Ecosystem for Quality



National Accreditation Board for Education and Training

Certificate of Accreditation

Geo Technical Mining Solutions, Dharmapuri

5/1485-3, Salem Main Road, Elakkiyampatty, Dharmapuri, Tamil Nadu

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

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

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated January 24, 2024, posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no QCI/NABET/ENV/ACO/24/3142 dated Feb 19, 2024. The accreditation needs to be renewed before the expiry date by Geo Technical Mining Solutions, Dharmapuri following due process of assessment.

Issue Date
Feb 19, 2024

Valid up to
Dec 31, 2026



Mr. Ajay Kumar Jha
Sr. Director, NABET

Certificate No.
NABET/EIA/23-26/RA 0319

Prof (Dr) Varinder S Kanwar
(CEO NABET)

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