

DRAFT EIA / EMP REPORT

FOR

ROUGH STONE AND GRAVEL QUARRY

EXTENT	3.33.50 Ha
REVISED PRODUCTION	ROUGH STONE – 3,53,641.5 m³ WEATHERED ROCK GRAVEL – 62,157 m³ TOP SOIL EARTH – 46,476 m³
PERIOD	5 YEARS
ULTIMATE DEPTH	35 M

SURVEY NO: 919/1 & 919/2A (P)
NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK,
VIRUDHUNAGAR DISTRICT, TAMILNADU.

CATEGORY- B1

- Terms of Reference issued by SEIAA, Tamil Nadu vide SEIAA-TN/F.No.9851/ ToR 1443/2023 dated 09.05.2023.
- Baseline Monitoring Period – December 2022 – February 2023 (Winter)

PROJECT PROPONENT

THIRU J. SAIPREETHAM

81, SRIVILLIPUTHUR TOWN & TALUK,
VIRUDHUNAGAR DISTRICT.

CONSULTANT

CREATIVE ENGINEERS & CONSULTANTS

NABET ACCREDITED, NABL ACCREDITED

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Creating Possibilities

JULY 2023

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

REVISIONS OF EIA/EMP REPORT

Revision number	Report Status	Date of submission
00/JULY/23	Draft EIA /EMP Report	31.07.2023

Environmental Impact Assessment & Environmental Management Plan Report for **Rough Stone and Gravel Quarry of Thiru. J. Saipreetham, At Survey No. 919/1 & 919/2A (P) over an area of 3.33.50 hectares In Nathikudi Village, Vembakottai Taluk, Virudhunagar District, Tamil Nadu** was prepared by Creative Engineers & Consultants and authorized for submission by Mr. P.Giri, EIA Coordinator, CEO, of Creative Engineers & Consultants on 31.07.2023 after due review by the personnel and consultation with **Thiru J. Saipreetham**. Current Revision number of the EIA/EMP report is 00/JULY/23, signifying as per the revision mentioned in the above table that this is a draft EIA/EMP report.



PROJECT PROPONENT DECLARATION

I, Thiru J. Saipreetham received ToR under EIA Notification 2006 from SEIAA, Tamil Nadu vide their **SEIAA-TN/F.No.9851/ ToR 1443/2023 dated 09.05.2023** for mining lease for **Rough Stone and Gravel Quarry of Thiru. J. Saipreetham, At Survey No. 919/1 & 919/2A (P) over an area of 3.33.50 hectares In Nathikudi Village, Vembakottai Taluk, Virudhunagar District, Tamil Nadu.**

I have entrusted the EIA study to M/s. Creative Engineers & Consultants (CEC), Chennai who have been accredited by the National Accreditation Board for Education & Training (NABET), Quality Council of India with their accreditation valid upto 23.11.2023.

The Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) have been prepared as per the generic structure proposed in the EIA notification 2006, ToR issued by SEIAA, Tamil Nadu. The prescribed ToR along with compliance is also incorporated in the EIA Report.

This report is prepared based on the information and data obtained from the Mining Plan and other records and the field study carried out by the consultant. The data given in the EIA/EMP report are factually correct to the best of my knowledge.

Thiru J. Saipreetham

Annexure – VII

Declaration by Experts contributing to the EIA Report for

ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

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

EIA coordinator:



Name: **P.Giri**

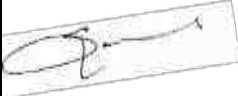



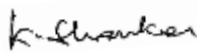
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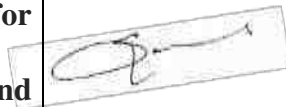

Period of involvement: **October 2022 onwards**


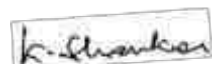
Contact information: **09444133619**

Functional area experts:

S. No.	Functional areas	Name of the expert/s	Involvement (period and task**)	Signature and date
1	AP*	P.Giri	<ul style="list-style-type: none"> • Identification of baseline monitoring stations and study of the monitored data with respect to the applicable standards. • Identification of sources of air pollution comprising dust, gaseous emission due to mining & other activities • Identification of Impacts & suggestion of mitigation measures Period: October 2022 onwards	
		B.Swamynathan	<ul style="list-style-type: none"> • Data interpretation of Micro meteorological data for wind rose. • Identification of polluting source and suggestion of suitable mitigation measures. Period: Dec 2022 onwards	

2	WP*	G.Sandhya	<ul style="list-style-type: none"> • Study of the monitored data with respect to the applicable standards. • Identification of Water requirement & Source • Preparation of water balance diagram • Identification of Water polluting sources • Impact of the project on the water quality, both surface and groundwater • Suggestion of Mitigation measures to control water pollution <p>Period: Dec 2022 onwards</p>	
3	SHW*	P.Giri	<ul style="list-style-type: none"> • Quantification of mineral & waste from mining operation • Waste disposal method evaluation • Providing dump management plan • Providing Surface Runoff Management Structure Requirements. • Identification of Hazardous waste and its details of disposal <p>Period: October 2022 onwards</p>	
4	SE*	R.Baburaj	<ul style="list-style-type: none"> • Identification of villages in the study area and finalization of demographic profile of the villages within the study area. • Preparation of sections relevant to SE functional area in the EIA/EMP report <p>Period: Dec 2022 onwards</p>	
5	EB*	B.Swamynathan	<ul style="list-style-type: none"> • Perusal of existing data relevant to this project. • Studying the details of flora and fauna, separately for core, buffer zone and forest area based on primary field survey. • Identification of species , Indicating the Schedule of the fauna present in the study area • Assessment of impact on Biological environment and suggestion of mitigative measures • Collecting & providing details of existing and proposed Green belt development /plantation in the core zone <p>Period: Dec 2022 onwards</p>	
6	HG*	K.Shankar	<ul style="list-style-type: none"> • Study of existing surface drainage arrangements in the core and buffer zone, impact due to mining on these drainage courses and suggestion of mitigative 	

			<p>measures</p> <ul style="list-style-type: none"> • Perusal of site specific ground water table details for the core zone and the study area. • Studied the hydrological aspects of surface and groundwater in study area • Study about impact on the hydrology due to mining operation • Suggesting mitigative measures like RWH for enhancement of ground water level <p>Period: Dec 2022 onwards</p>	
7	GEO*	K.Shankar	<ul style="list-style-type: none"> • Study of geology of the ML area and the surrounding areas. • Provide details about Mineral composition <p>Period: Dec 2022 onwards</p>	
8	SC*	B.Swamynathan	<ul style="list-style-type: none"> • Study of soil profile • Assessment of Impact on soil and suggesting plantation scheme. <p>Period: Dec 2022 onwards</p>	
9	AQ*	G.Sandhya	<ul style="list-style-type: none"> • Quantification of emission particulars • Air quality modelling for post project impact on the air quality prediction of the study area. <p>Analysis of the Isopleth generated</p> <ul style="list-style-type: none"> • Arriving at the post project concentration at the AAQ monitoring locations • Preparation of meteorological data in suitable form for input into the model • Simulation of model for generation of Isopleth and data interpretation. • Studying the impact on AAQ monitoring locations due to the generated emissions. • Preparation of sections relevant to AQ functional area in the EIA/EMP report. <p>Period: Dec 2022 onwards</p>	
10	NV*	P.Giri	<ul style="list-style-type: none"> • Identification of baseline monitoring stations and study of the monitored data with respect to the applicable standards. • Predict the noise level and vibration level due to proposed mining operation based on scientific evaluation. • Suggesting the Mitigation measures to control noise 	

			<p>pollution, Suggesting the Mitigation measures to control ground vibration Period: October 2022 onwards</p>	
11	LU	B.Swamynathan	<ul style="list-style-type: none"> • Collection of Remote sensing satellite data to study the land use pattern. • Primary field survey and limited field verification • Preparation of Land use map using Satellite data of the project area separately for the core zone and the buffer zone and providing the land use pattern. <p>Period: Dec 2022 onwards</p>	
12	RH*	K.Shankar	<ul style="list-style-type: none"> • Identified Major risks involved in the project Mitigation measures suggested to avoid risk. • Preparation of onsite and offsite emergency management plan <p>Period: Dec 2022 onwards</p>	

*One TM against each FAE may be shown

**Please attach additional sheet if required

Declaration by the Head of the accredited consultant organization/ authorized person

I, **P.Giri** hereby, confirm that the above mentioned experts prepared the EIA report for **Rough Stone And Gravel Quarry Of Thiru. J. Saipreetham, At Survey No. 919/1 & 919/2A (P) Over An Area Of 3.33.50 Hectares In Nathikudi Village, Vembakottai Taluk, Virudhunagar District, Tamil Nadu**

I also confirm that EIA Coordinator (EC) has gone through the report, and the consultant organization shall be fully accountable for any misleading information. It is certified that no unethical practices, plagiarism involved in carrying out the work and external data / text has not been used without proper acknowledgement while preparing this EIA report.

Signature:



Name: **P.Giri**

Designation: **Chief Executive**

Name of the EIA consultant organization: **Creative Engineers & Consultants, Chennai – 59**

NABET Certificate No. & Issue Date: **No- NABET/EIA/2023/SA 0187 & date 30.01.2023**



National Accreditation Board for Education and Training



Certificate of Accreditation

Creative Engineers and Consultants,
9B/4, Bharathwajar street, East Tambaram, Chennai, 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/ underground mining	1	1 (a) (i)	A
2	Thermal power plants	4	1 (d)	A
3	Mineral beneficiation	7	2 (b)	A
4	Cement Plants	9	3 (b)	A

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in SAAC minutes dated Oct 4, 2022 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/23/2653 dated January 30, 2023. The accreditation needs to be renewed before the expiry date by Creative Engineers and Consultants, following due process of assessment.

Sr. Director, NABET
Dated: January 30, 2023

Certificate No.
NABET/EIA/2023/SA 0187

Valid up to
December 23, 2023

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



CONTENTS

CONTENTS

S.No	PARTICULARS	PG NO.
TERMS OF REFERENCE & ITS COMPLIANCE		
A.	COPY OF TOR	--
B.	COMPLIANCE TO TOR POINTS	T-1
EIA/ EMP REPORT- CHAPTERS		
I	INTRODUCTION	1-1
II	PROJECT DESCRIPTION	2-1
III	DESCRIPTION OF ENVIRONMENT	3-1
IV	ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES	4-1
V	ANALYSIS OF ALTERNATIVES	5-1
VI	ENVIRONMENTAL MONITORING PROGRAMME	6-1
VII	ADDITIONAL STUDIES	7-1
VIII	PROJECT BENEFITS	8-1
IX	ENVIRONMENTAL COST BENEFIT ANALYSIS	9-1
X	ENVIRONMENTAL MANAGEMENT PLAN	10-1
XI	SUMMARY & CONCLUSION	11-1
XII	DISCLOSURE OF CONSULTANTS ENGAGED	12-1
ADDITIONAL ENCLOSURES WITH EIA/EMP REPORT CHAPTERS		
	ANNEXURES	A-1

CHAPTER-WISE CONTENTS

CHAPTER 1 INTRODUCTION	1-1
1.1 PURPOSE OF THE REPORT:	1-1
1.2 IDENTIFICATION OF PROJECT & PROJECT PROPONENT:	1-2
1.3 BRIEF DESCRIPTION OF NATURE, SIZE, LOCATION & PROJECT IMPORTANCE	1-3
1.4 SCOPE OF THE STUDY:	1-4
CHAPTER 2 PROJECT DESCRIPTION	2-1
2.1 TYPE OF PROJECT:	2-1
2.2 NEED & JUSTIFICATION FOR THE PROJECT:	2-1
2.3 LOCATION:	2-1
2.4 LAND CLASSIFICATION	2-11
2.5 GEOLOGY:	2-11
2.6 SIZE AND MAGNITUDE OF THE OPERATION:	2-12
2.7 PROPOSED SCHEDULE FOR APPROVAL AND IMPLEMENTATION:	2-13
2.8 TECHNOLOGY AND PROCESS DESCRIPTION:	2-13
2.9 PROJECT DESCRIPTION:	2-14
2.10 DESCRIPTION OF MITIGATION MEASURES:	2-18
2.11 ASSESSMENT OF NEW & UNTESTED TECHNOLOGY:	2-18
2.12 CONCLUSION:	2-18
CHAPTER 3 DESCRIPTION OF ENVIRONMENT	3-1
3.1 GENERAL:	3-1
3.2 SOCIO-ECONOMIC CONFIGURATIONS OF THE AREA:	3-4
3.3 EXISTING ENVIRONMENTAL QUALITY	3-12
3.4 LAND ENVIRONMENT - LANDUSE & LAND COVER	3-30
3.5 BIOLOGICAL ENVIRONMENT:	3-36
3.6 HYDROGEOLOGICAL STUDY:	3-45

CHAPTER 4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION

MEASURES	4-1
4.1 GENERAL	4-1
4.2 AIR ENVIRONMENT:	4-1
4.3 WATER ENVIRONMENT:	4-9
4.4 NOISE AND VIBRATION:	4-13
4.5 LAND ENVIRONMENT:	4-18
4.6 BIOLOGICAL ENVIRONMENT:	4-19
4.7 SOCIO ECONOMIC ENVIRONMENT:	4-23
4.8 OCCUPATIONAL HEALTH AND SAFETY:	4-24
4.9 LOGISTICAL SYSTEM:	4-25
4.10 WASTE MANAGEMENT:	4-26

CHAPTER 5 ANALYSIS OF ALTERNATIVES 5-1

5.1 ALTERNATE TECHNOLOGY:	5-1
5.2 ALTERNATE SITE:	5-1

CHAPTER 6 ENVIRONMENTAL MONITORING PROGRAMME 6-1

6.1 GENERAL	6-1
6.2 MONITORING SCHEDULES FOR VARIOUS PARAMETERS	6-1
6.3 LEGISLATIVE AND REGULATORY FRAME WORK:	6-3
6.4 ENVIRONMENTAL MONITORING COST:	6-9

CHAPTER 7 ADDITIONAL STUDIES 7-1

7.1 GENERAL:	7-1
7.2 PUBLIC CONSULTATION:	7-1
7.3 RISK ASSESSMENT:	7-1
7.4 REHABILITATION AND RESETTLEMENT (R & R) PLAN:	7-4
7.5 MINE CLOSURE PLAN:	7-4
7.6 CUMULATIVE IMPACT STUDY:	7-5

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

7.7	PIT SLOPE STABILITY PLAN	7-15
	CHAPTER 8 PROJECT BENEFITS	8-1
	CHAPTER 9 ENVIRONMENTAL COST BENEFIT ANALYSIS	9-1
	CHAPTER 10 ENVIRONMENTAL MANAGEMENT PLAN	10-1
10.1	INTRODUCTION:	10-1
10.2	COMPONENTS OF THE ENVIRONMENTAL MANAGEMENT PLAN:	10-1
10.3	ENVIRONMENTAL POLLUTION CONTROL COST:	10-8
10.4	CONCLUSION:	10-10
	CHAPTER 11 SUMMARY & CONCLUSION	11-1
11.1	INTRODUCTION:	11-1
11.2	SALIENT FEATURES OF THE PROJECT:	11-2
11.3	EXISTING ENVIRONMENTAL SCENARIO:	11-5
11.4	ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES:	11-9
11.5	ENVIRONMENTAL MONITORING PROGRAMME:	11-16
11.6	ADDITIONAL STUDIES:	11-17
11.7	CONCLUSION:	11-19
	CHAPTER 12 DISCLOSURE OF CONSULTANTS ENGAGED	12-1



LIST OF FIGURES

Figure 2.1: Location Map	2-3
Figure 2.2: Approachability Map	2-4
Figure 2.3: Lease Plan	2-5
Figure 2.4 : Satellite Imagery Showing Corner Co-ordinates of the Project Area	2-6
Figure 2.5: Village Map	2-8
Figure 2.6: Details of features within 500m Radius	2-9
Figure 2.7: Geological Plan and Cross Section	2-11
Figure 2.8: Process Flow Diagram	2-14
Figure 2.9: Production Plan and Cross Section	2-15
Figure 2.10: Conceptual Plan and Cross Section	2-16
Figure 3.1: Study Area Map	3-2
Figure 3.2: Demographic Structure in Buffer Zone	3-6
Figure 3.3: Cyclone Prone Areas	3-13
Figure 3.4: Seismic Zone Map of India	3-14
Figure 3.5: Total Rainfall	3-16
Figure 3.6: Average Annual Rainfall	3-16
Figure 3.7: Average Wind Rose	3-18
Figure 3.8: Ambient Air Quality Study Stations	3-20
Figure 3.9: Ambient Air Quality Data	3-21
Figure 3.10: Location of Water Sampling Stations	3-23
Figure 3.11: Location of Noise Sampling Stations	3-26
Figure 3.12: Noise Level Data	3-27
Figure 3.13: Location of Soil Sampling Stations	3-29
Figure 3.14: Landsat 8 Satellite Data of the Study Area	3-32
Figure 3.15 : Map Showing Land Use Categories around 10km Buffer	3-33
Figure 3.16: Landuse within the Buffer Zone Area	3-35
Figure 3.17: Species Important Value Index For Trees in PIZ	3-39

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Figure 3.18: Flora species in the Buffer Zone	3-43
Figure 3.19: Fauna Diversity in the Buffer Zone	3-45
Figure 3.20: Drainage Map	3-46
Figure 3.21: Geology Map	3-47
Figure 3.22: Geomorphology Map	3-48
Figure 3.23: Lithology Map	3-49
Figure 3.24: Soil Map	3-50
Figure 3.25: Pre-Monsoon Water Level	3-51
Figure 3.26: Post Monsoon Water Level	3-51
Figure 4.1: Isopleth of GLC Prediction for PM ₁₀	4-6
Figure 4.2: Isopleth of GLC Prediction for PM _{2.5}	4-7
Figure 4.3: Water Balance Diagram	4-9
Figure 4.4: Surface Runoff Management Structures	4-11
Figure 4.5: Mine Closure Plan	4-22
Figure 7.1: Vicinity Map	7-7
Figure 7.2: Cumulative Isopleth of GLC Prediction for PM ₁₀	7-9
Figure 7.3: Cumulative Isopleth of GLC Prediction for PM _{2.5}	7-10
Figure 7.4: Post Mining Land Use	7-14
Figure 10.1: Organization Chart	10-3



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

LIST OF TABLES

Table 1.1: Identification of Project	1-2
Table 1.2: Identification of Project Proponent	1-2
Table 1.3: Statutory Approvals	1-2
Table 1.4: Brief Description of Nature of Project	1-3
Table 1.5: Location of the Project	1-3
Table 2.1: Mine site description	2-1
Table 2.2: Features Within 500m Radius	2-10
Table 2.3: Survey Number wise Area Breakup	2-11
Table 2.4: Geological and Mineable Reserves	2-12
Table 2.5: Details of Equipment	2-13
Table 2.6 : Proposed Schedule of Implementation	2-13
Table 2.7: Existing Pit Dimensions	2-14
Table 2.8: Revised Production Schedule	2-14
Table 2.9: Ultimate Pit Dimensions	2-16
Table 2.10: Land Use Table	2-17
Table 2.11: Project Requirements	2-17
Table 3.1: Type of Baseline Data	3-1
Table 3.2: Environmental Setting of the Study Area	3-3
Table 3.3: Social, Economic and Demographic Profile of the Study Area	3-4
Table 3.4: Primary Schools in the Buffer Zone Rural Villages	3-8
Table 3.5: Education Facility Availability	3-8
Table 3.6: Healthcare Amenities Availability	3-9
Table 3.7: Infrastructure Facilities	3-9
Table 3.8: Average Annual Rainfall Data (2011-2020)	3-15
Table 3.9: Meteorological Data	3-17



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Table 3.10: Air Quality Monitoring	3-19
Table 3.11: Air Quality Monitoring Locations	3-19
Table 3.12: Ambient Air Quality Data	3-21
Table 3.13: Water Quality Monitoring	3-22
Table 3.14: Summary of Water Quality Data	3-24
Table 3.15: Noise Level Monitoring	3-25
Table 3.16: Ambient Noise Level in dB (A)	3-27
Table 3.17: Soil Quality Monitoring	3-28
Table 3.18: Soil Quality Data	3-30
Table 3.19: RS satellite image used for the present study	3-31
Table 3.20: Major Landuse Units of the Study Area	3-32
Table 3.21: Area Estimation of Landuse Categories in Buffer Zone	3-33
Table 3.22: Land Use Pattern of the Study Area Falling Within 10 Km Area in (Ha)	3-35
Table 3.23: List of Floristic Species in the Core Zone	3-38
Table 3.24: Phyto-Sociological Survey Of Trees In PIZ	3-38
Table 3.25: Species Diversity index of trees in PIZ	3-39
Table 3.26: List of Floristic Species in the Buffer Zone	3-40
Table 3.27: List of Fauna in the Buffer Zone	3-44
Table 3.28: General Trend of Depth to Water Level for Vembakottai Block	3-50
Table 4.1: Impact and Mitigation Measures – Air Environment	4-2
Table 4.2: Emission Sources	4-3
Table 4.3: Emission Factors	4-4
Table 4.4: Emission Rate	4-4
Table 4.5: Peak Incremental Concentration	4-5
Table 4.6: Concentrations Of PM ₁₀ after Project Implementation	4-8
Table 4.7: Concentrations Of PM _{2.5} after Project Implementation	4-8
Table 4.8: Ground Water Resources Estimation– VembakottaiTaluk (M.Cum)	4-12
Table 4.9: Main Sources of Noise	4-14



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Table 4.10: Impact of Noise Levels	4-14
Table 4.11: Post Project Noise Levels	4-15
Table 4.12: Permissible Peak Particle Velocity (PPV) In Mining Areas	4-17
Table 4.13: Land Use Table	4-18
Table 4.14: Land Use During Post Operational Period	4-18
Table 4.15: Impact on Biological Environment	4-19
Table 4.16: Proposed Plantation	4-21
Table 4.17: CER Cost	4-24
Table 4.18: Details of Transportation	4-25
Table 6.1: Environmental Monitoring Schedule	6-2
Table 6.2: Environmental Standards	6-3
Table 6.3: National Ambient Air Quality Standards	6-4
Table 6.4: IS – 10500 :2012 Standards	6-6
Table 6.5: Noise Level Standards	6-8
Table 6.6: Permissible Noise For Industrial Workers As Laid Down By CPCB	6-8
Table 6.7: Permissible Peak Particle Velocity (PPV) In Mining Areas	6-9
Table 7.1: Details of quarries within 500m radius	7-5
Table 7.2: Sallient Details of the Proposed quarries	7-8
Table 7.3: Cumulative Peak Incremental Concentration	7-8
Table 7.4: Concentration of PM10 after Project Implementation	7-11
Table 7.5: Concentration of PM2.5 after Project Implementation	7-11
Table 7.6: Post project noise levels	7-12
Table 7.7: Cumulative number of trips	7-13
Table 10.1: Environmental Control Cost	10-8
Table 11.1: Site Details	11-2
Table 11.2: Environment Setting of The Study Area	11-3
Table 11.3: Technical Description	11-4
Table 11.4: Social, Economic And Demographic Profile of the Study Area	11-5



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Table 11.5: Baseline Data	11-6
Table 11.6: Land Use in 10Km Buffer Zone	11-8
Table 11.7: Mitigation Measures – Air Environment	11-10
Table 11.8: Mitigation Measures – Water Pollution	11-12

LIST OF ANNEXURES

ANNEXURE NO.	PARTICULARS	PAGE NO.
1	Precise area communication Letter	A-1
2	Mine plan approval letter	A-4
3	Details of other quarries in 500m radius	A-7
4	Population Breakup and Literacy Levels in the Buffer Zone	A-11
5	Occupational Structure in the Buffer Zone	A-12
6	Educational Facilities in the Buffer Zone	A-13
7	Medical Facilities in the Buffer Zone	A-14
8	Infrastructural Facilities in the Buffer Zone	A-15
9	Ambient Air Quality Data	A-16
10	Water Quality Data	A-22
11	Village-wise Land Use Pattern in the Buffer Zone	A-24



TERMS OF REFERENCE & ITS COMPLIANCE



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

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY-TAMILNADU

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

TERMS OF REFERENCE (ToR)

Lr No.SEIAA-TN/F.No.9851/ToR-1443/2023 Dated:09.05.2023.

To

Thiru J Saipreetham
S/o. Sri.P.Jeyaraman
No 81, Srivilliputhur Town
Srivilliputhur Taluk,
Virudhunagar District

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference with public Hearing (ToR) for the Proposed Rough Stone, Jelly and Gravel Quarry over an extent of 3.33.50Ha SF.No.919/1 & 2A(P) of Nathikudi Village, Vembakottai Taluk, Virudhunagar District by Shri.J.Saipreetham - under project category – “B1” and Schedule S.No.1 (a) – ToR issued along with Public Hearing - preparation of EIA report – Regarding.

Ref: 1. Online proposal No.SIA/TN/MIN/418218/2023, dt: 15.02.2023.
2. Your application submitted for Terms of Reference dated: 23.02.2023.
3. Minutes of the 368th SEAC Meeting held on 19.04.2023.
4. Minutes of the 615th SEIAA meeting held on 08.05.2023 & 09.05.2023

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

The proponent, Thiru J Saipreetham has submitted application for Terms of Reference (ToR) with public Hearing on 23.02.2023, in Form-I. Pre- Feasibility report for the Proposed Rough Stone, Jelly


MEMBER SECRETARY
SEIAA-TN

and Gravel Quarry over an extent of 3.33.50 Ha SF.No.919/1 & 2A(P) of Nathikudi Village, Vembakottai Taluk, Virudhunagar District, Tamil Nadu.

Discussion by SEAC and the Remarks:-

Rough Stone, Jelly and Gravel Quarry over an extent of 3.3350 Ha SF.No.919/1, 2A(P) of Nathikudi Village, Vembakottai Taluk, Virudhunagar District by Shri.J.Saipreetham - For Terms of Reference.

(SIA/TN/MIN/418218/2023, dt: 15.02.2023)

The proposal was placed in the 368th SEAC Meeting held on 19.04.2023. The details of the minutes are available in the website (parivesh. nic. in).

The SEAC noted the following:

1. The project proponent, Shri.J.Saipreetham has applied for Terms of Reference for the Rough Stone, Jelly and Gravel Quarry over an extent of **3.33.50Ha** SF.No.919/1, 2A(P) of Nathikudi Village, Vembakottai Taluk, Virudhunagar District, Tamil Nadu.
2. The project/activity is covered under Category "B1" of Item I(a) "Mining of Minerals Projects" of the Schedule to the EIA Notification, 2006.
3. As per the precise area communication the lease period is for 5 years. The mining plan is for 5years. The production for 5 years shall not to exceed 508494m³ of Rough Stone & 71127m³ of Weathered rock & 47418m³ of Topsoil and the ultimate depth of 35m BGL.

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

1. The PP shall submit photographs of fencing, greenbelt and garland drain.
2. AD mines letter for the existing pit with details of earlier lease period and pit dimension.
3. The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc.
4. The study on impact of the dust & other environmental impacts due to proposed quarrying operations on the Rose flowers being cultivated through greenhouse nearby.
5. The Proponent shall furnish photographs of greenbelt, fencing and garland drain around the boundary of the proposed quarry.


MEMBER SECRETARY
SEIAA-TNY

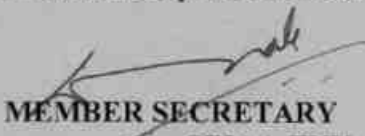
6. The proponent shall furnish a revised EMP budget for entire life of proposed mining.
7. The revised and corrected version of the Production & Development Plan shall be produced with showing the safety berm width of 2m is maintained for the bench height of 2m distinctly in the gravel formation and it shall be duly signed by the concerned QP & approved by the concerned AD (Geology & Mining).
8. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall prepare and submit an 'Action Plan' for carrying out the realignment of the benches in the proposed quarry lease during the time of appraisal for obtaining the EC.
9. The Proponent shall submit a conceptual 'Slope Stability Plan' indicating the mitigating measures for the proposed quarry during the appraisal while obtaining the EC, as the depth of the proposed quarry working is extended beyond 30 m below ground level.
10. 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.
11. 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.
12. 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.
13. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,
 - a. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
 - b. Quantity of minerals mined out.
 - c. Highest production achieved in any one year
 - d. Detail of approved depth of mining.
 - e. Actual depth of the mining achieved earlier.
 - f. Name of the person already mined in that leases area.
 - g. If EC and CTO already obtained, the copy of the same shall be submitted.


MEMBER SECRETARY
SEIAA-TNY

- h. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
14. All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
 15. The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,
 16. The PP shall furnish the revised manpower including the statutory & competent persons as required under the provisions of the MMR 1961 for the proposed quarry based on the volume of rock handled & area of excavation.
 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 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 ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. 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


MEMBER SECRETARY
SEIAA-TNY

- 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. Public Hearing points raised and commitments of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.
 32. The Public hearing advertisement shall be published in one major National daily and one most


MEMBER SECRETARY
SEIAA-TNY

circulated vernacular daily.

33. The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.
34. 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.
35. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the **appendix-I** in consultation with the DFO, State Agriculture University and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
36. Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site-specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner
37. 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.
38. 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.
39. 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


MEMBER SECRETARY
SEIAA-TNY

- occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
40. 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.
 41. 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.
 42. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
 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. 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.
 45. 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.
 46. 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.


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SEIAA-TNY

Appendix -I
List of Native Trees Suggested for Planting

No	Scientific Name	Tamil Name	Tamil Name
1	<i>Aegle marmelos</i>	Vilvam	வில்வம்
2	<i>Adenaanthora pavonina</i>	Manjadi	மஞ்சாடி, ஆனனக்குன்றிமணி
3	<i>Albizia lebbek</i>	Vaagai	வாகை
4	<i>Albizia amara</i>	Usil	உசில்
5	<i>Bauhinia purpurea</i>	Mantharai	மந்தாரை
6	<i>Bauhinia racemosa</i>	Aathi	ஆத்தி
7	<i>Bauhinia tomentosa</i>	Iruvathu	இருவாத்தி
8	<i>Buchanania axillaris</i>	Kattuma	காட்டுமா
9	<i>Borassus flabellifer</i>	Parai	பனை
10	<i>Butea monosperma</i>	Murukkamaram	முருக்கமரம்
11	<i>Bobax ceiba</i>	Ilavu, Sevvilavu	இலவு
12	<i>Calophyllum inophyllum</i>	Punnai	புன்னை
13	<i>Cassia fistula</i>	Sarakondrai	சரக்கொன்றை
14	<i>Cassia roxburghii</i>	Sengondrai	செங்கொன்றை
15	<i>Chloroxyton sweetenia</i>	Purasamaram	பரசு மரம்
16	<i>Cochlospermum religiosum</i>	Kongu, Marjalllavu	கோங்கு, மஞ்சள் இலவு
17	<i>Cordia dichotoma</i>	Naruvuli	நருவூளி
18	<i>Creteva adansonii</i>	Mavalingum	மாவிளங்கம்
19	<i>Dillenia indica</i>	Uva, Uzha	உசா
20	<i>Dillenia pentagyna</i>	SiruUva, Sitruzha	சிறு உசா
21	<i>Diospyro sebenum</i>	Karungali	கருங்காலி
22	<i>Diospyro schloroxyton</i>	Vaganai	வாகனை
23	<i>Ficus amplissima</i>	Kallitcu	கல் இச்சி
24	<i>Hibiscus tiliaceou</i>	Aatrupoovarasu	ஆற்றுப்புரசு
25	<i>Hardwickia binata</i>	Aacha	ஆச்சா
26	<i>Holoptelia integrifolia</i>	Aayili	ஆயா மரம், ஆயிலி
27	<i>Lanea coromandelica</i>	Odham	ஓதியம்
28	<i>Lagerstroemia speciosa</i>	Poo Marudhu	பூ மருது
29	<i>Lepisanthus tetraphylla</i>	Neikottaimaram	நெய் கொட்டை மரம்
30	<i>Limonia acidissima</i>	Vila maram	விலா மரம்
31	<i>Litsea glutinos</i>	Pisinpattai	அரம்பா பிச்சின்பட்டை
32	<i>Madhuca longifolia</i>	Illuppai	இலுப்பை
33	<i>Manilkara hexandra</i>	UlakkaiPaalai	உலக்கை பாலை
34	<i>Mimusops elengi</i>	Magizhamaram	மகிழமரம்
35	<i>Mitrasyna parvifolia</i>	Kadambu	கடம்பு
36	<i>Morinda pubescens</i>	Nuna	நுணா
37	<i>Morinda citrifolia</i>	Vellai Nuna	வெள்ளை நுணா
38	<i>Phoenix sylvestre</i>	Eachai	ஈச்சமரம்
39	<i>Pongamia pinnat</i>	Pungam	புங்கம்

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40	<i>Premna mollissima</i>	Munnai	முன்னை
41	<i>Premna serratifolia</i>	Narumunnai	நறு முன்னை
42	<i>Premna tomentosa</i>	Malaipeovarasu	மலை பூவரசு
43	<i>Prosopis cinerea</i>	Vaaru maram	வள்ளி மரம்
44	<i>Pterocarpus marsupium</i>	Vengai	வேங்கை
45	<i>Pterospermum canescens</i>	Vennangu, Tada	வெண்ணாங்கு
46	<i>Pterospermum xylocarpum</i>	Polavu	புலவு
47	<i>Putranjiva roxburghii</i>	Karipala	கறிபாலா
48	<i>Salvadora persica</i>	Ugaa Maram	ஊகா மரம்
49	<i>Sapindus emarginatus</i>	Manipungan, Soapukai	மணிப்புங்கன் சோப்புக்காய்
50	<i>Saraca asoca</i>	Asoca	அசோகா
51	<i>Streblus asper</i>	Piray maram	பிரய மரம்
52	<i>Strychnos nuxvomica</i>	Yetti	எட்டி
53	<i>Strychnos potatorum</i>	Therthang Kottai	தேத்தான் கொட்டை
54	<i>Syzygium cumini</i>	Naval	நாவல்
55	<i>Terminalia belleric</i>	Thandri	தாண்டி
56	<i>Terminalia arjuna</i>	Ven marudhu	வெண் மருது
57	<i>Toona ciliata</i>	Sandhana vembu	சந்தன வேம்பு
58	<i>Thespesia populnea</i>	Puvarasu	பூவரசு
59	<i>Walsuratrifoliata</i>	valsura	வாலசுரா
60	<i>Wrightia tinctoria</i>	Veppalai	வெப்பாலை
61	<i>Pithecellobium dulce</i>	Kodukkapuli	கொடுக்காபுளி

Appendix-II

Display Board

(Size 6' x5' with Blue Background and White Letters)

கரங்கம்

கரங்கத்தில் குவாரி செயல்பாடுகளுக்கான சுற்றுச்சூழல் அனுமதி கிடைக்க நடவடிக்கைகளுக்கு உட்பட்டு வழங்கப்பட்டுள்ளதால், தேதியிடப்படும் சுற்றுச்சூழல் அனுமதி தேதி வரை செயல்படுத்தக்கூடாது உள்நுழைக்கப்பட்டுள்ளது.

பகைம பகுதி வளர்ச்சி செயல்பாடுகளை கண்காணிக்க திட்டம்	குவாரியின் எல்லைவாய் சுற்று வேலி அமைக்க வேண்டும் கரங்கப்பாளையின் ஆறும் தளையட்டத்திலிருந்து மீட்டர் க்கு மிகாமல் இடக்க வேண்டும் கரங்கில் மாசு ஏற்படாதவாறு கரங்க பணிகளை மேற்கொள்ள வேண்டும்.
நட்புபட்டு பராமரிக்கப்பட வேண்டிய மரங்கள் எண்ணிக்கை	வாகனங்கள் செல்லும் பாதையில் மாசு ஏற்படாத அளவிற்கு தண்ணீரை முறையாக தண்ணீர் வாரிகளின் மூலமாக தய்வப்போது தெளிக்க வேண்டும் இளரச்சை அளவையும் தூசி மாசுபாட்டையும் குறைப்பதற்காக குவாரியின் எல்லைவாய் சுற்றி அடர்த்தியான பகைம பகுதியை ஏற்படுத்த வேண்டும்
கரங்கத்தில் வெடிகளும்பொருது நிலத்திற்கான ஏற்படாதவாறும் மற்றும் கடுகான பறக்காதவாறும் பாதுகாப்பு நடவடிக்கைகளை உள்விப்பாக செயல்படுத்தப்பட வேண்டும்	கரங்கத்தில் இருந்து ஏற்படும் இளரச்சை அளவு 85 டி.சி.பி.எஸ் (dBA) அளவிற்கு மேல் ஏற்படாதவாறு தகுந்த கட்டுப்பாடுகளை மேற்கொள்ள வேண்டும்.
கரங்க எட்டி விதிகள் 1988 கீழ் கரங்கத்தில் உள்ள பணியாளர்களுக்கு தகுந்த பாதுகாப்பு கருவிகள் வழங்குவதோடு கைதளாழும்கள் கழிப்பறை வசதிகளை செய்து தர வேண்டும்.	
கிராமம் அல்லது பஞ்சாயத்து வட்டமாக வாகனங்கள் செல்லும் சாலைவாய் தெரிந்து நகர பராமரிக்க வேண்டும்	கரங்கப்பாளையினால் அருகில் உள்ள விவசாய பணிகள் மற்றும் தீர்மானங்களை பாதிக்கப்படக் கூடாது.
நிதிப்புகள் பாதிக்கப்படாமல் இருப்பதை உறுதி செய்யும் வகையில் திட்டம் தீர்மானங்களை தெரிந்து வகைப்பாடு வேண்டும்	கரங்கத்தில் இருந்து கனிம பொருட்களை எடுத்துச் செல்வது கிராம மக்களுக்கு எந்த சிரமத்தினையும் ஏற்படுத்தாதவாறு பாதுகாப்பாகவும் மற்றும் சுற்றுச்சூழல் பாதிக்காத வகையில் வாகனங்களை இயக்க வேண்டும்.
கரங்கப்பணிகள் முடிக்கப்பட்டவுடன் கரங்க முட்டை திட்டத்தில் உள்ளவாறு கரங்கத்தின் முட்டை வேண்டும்	கரங்க நடவடிக்கைகளை முடித்தபின்னர் கரங்க பகுதி மற்றும் கரங்க நடவடிக்கைகளை இடையூறு ஏற்படக்கூடிய வேறு ஏதும் பகுதியையும் மறுகட்டுமானம் செய்து தரவாய்கள் விவங்குகள் ஆகியவற்றின் வளர்ச்சிக்கு ஏற்ற வகையில் பகைமப்பகுதியை உருவாக்க வேண்டும்.
முடிவான நிலத்தளங்களை அநிய பாரிவேஷ் (non-pavehment) என்கிற இணைப்பதளங்களை பரணவட்டியம் மேலும் எந்தவித சுற்றுச்சூழல் சார்ந்த பாதிக்காத செயல்களில் உள்ள சுற்றுச்சூழல் மற்றும் வன அமைச்சகத்தின் ஒருங்கிணைந்த வட்டாள அனுமதி: 044 - 28221325 (அல்லது) தமிழ்நாடு மாசு கட்டுப்பாட்டு வாரியத்தின் மாவட்ட சுற்றுச்சூழல் பொறியாளர் அலுவலகம்	

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Discussion by SEIAA and the Remarks:-

The proposal was placed in the 615th Authority meeting held on 08.05.2023 & 09.05.2023. The Authority noted that this proposal was placed for appraisal in this 368th SEAC meeting held on 19.04.2023. After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant **Terms of Reference (ToR) along with Public Hearing** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions in addition to the conditions in '**Annexure B**' of this minute.

1. The project proponent shall prepare mine closure plan considering quantity of Topsoil & Weathered rock. If any.
2. 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.
3. Letter from local Director of Agriculture that proposed land is unsuitable for Agriculture.

Annexure 'B'**Cluster Management Committee**

1. Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.
2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,
3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.
4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.
5. The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.
6. The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.


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7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.
8. The committee shall furnish the Emergency Management plan within the cluster.
9. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.
10. The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.
11. The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.

Impact study of mining

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

Agriculture & Agro-Biodiversity

13. Impact on surrounding agricultural fields around the proposed mining Area.
14. Impact on soil flora & vegetation around the project site.
15. Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.
16. The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.


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17. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.
18. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.

Forests

19. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.
20. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.
21. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.
22. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.

Water Environment

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


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29. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
30. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.

Energy

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

Climate Change

32. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.
33. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.

Mine Closure Plan

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

EMP


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

Risk Assessment

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

Disaster Management Plan

38. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in &


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

Others

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

A. STANDARD TERMS OF REFERENCE

- 1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
- 2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the 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


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- 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


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SEIAA-TNY

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


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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.


MEMBER SECRETARY
SEIAA-TNY


- 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


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SEIAA-TNY

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


MEMBER SECRETARY
SEIAA-TNY

- 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.


MEMBER SECRETARY
SEIAA-TNY

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

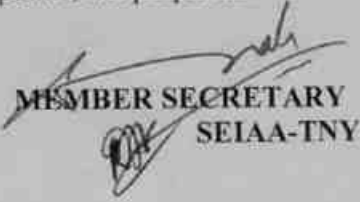

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Accredited agencies.

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


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further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.

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


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Copy to:

1. The Additional Chief Secretary to Government, Environment & Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi 110032.
3. The Member Secretary, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-600 032.
4. The APCCF (C), Regional Office, MoEF & CC (SZ), 34, HEPC Building, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai -34.
5. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC, Paryavaran Bhavan, CGO Complex, New Delhi 110003
6. The District Collector, Virudhunagar District.
7. The EO/BDO, Paladurai Village, Madukkarai Taluk, Coimbatore District
8. Stock File.

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

TOR COMPLIANCE

S.No	ToR Points	Reply	Pg.No
A. ToR in Addition to Standard ToR			
1.	The PP shall submit photographs of fencing, greenbelt and garland drain.	• Agreed.	--
2	AD mines letter for the existing pit with details of earlier lease period and pit dimension.	• Shown in approved mining plan in Figure 2.7, Chapter-II.	2-11
3	The structures within the radius of (i) 50 m, (ii) 100 m. (iii) 200 m and (iv) 300 m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc.	• The details of the features within the 300m radius has been provided in Figure 2.6, Chapter-II.	2-9
4	The study on impact of the dust & other environmental impacts due to proposed quarrying operations on the Rose flowers being cultivated through greenhouse nearby.	<ul style="list-style-type: none"> • No adverse impact on the surrounding cultivation envisaged due to strict enforcement of mitigative measures. • Besides, as is it a mining project, no adverse generation of heat is envisaged. • Certified vehicles with low carbon emissions will only be used. These equipments will be properly and regularly maintained. Besides, regular vehicular emission tests will be done for the transport vehicles to ensure minimal impact due to carbon emissions. To further mediate the carbon emissions, a good greenbelt and plantation plan has been planned wherein 1700 number of plants will be planted in and around the lease area. 	7-16
5	The Proponent shall furnish photographs of greenbelt, fencing and garland drain	• Agreed	--



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

	around the boundary of the proposed quarry		
6	The proponent shall furnish a revised EMP budget for entire life of proposed mining	• Complied and details are given in Table No.10.1, Chapter-X .	10-8
7	The revised and corrected version of the Production & Development Plan shall be produced with showing the safety berm width of 2 m is maintained for the bench height of 2m distinctly in the gravel formation and it shall be duly signed by the concerned QP & approved by the concerned AD (Geology & Mining).	• It is proposed to mine the revised quantity of 3,53,641.5 m ³ of Rough Stone, 62,157 m ³ Weathered rock gravel and 46,476 m ³ of top soil earth upto depth of 35 m for the period of Five years after complying with ToR condition as against the mining plan approved quantity of 5,08,494 m ³ of Rough Stone, 71,127 m ³ Weathered rock gravel and 47,418m ³ of top soil earth upto depth of 35 m for the period of Five years and has initiated action towards obtaining environmental clearance.	11-1
8	In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall prepare and submit an 'Action Plan' for carrying out the realignment of the benches in the proposed quarry lease during the time of appraisal for obtaining the EC.	• Fresh lease, the lease period is 5 years. Part of the lease area is mined earlier.	2-14
9	The Proponent shall submit a conceptual 'Slope Stability Plan' indicating the mitigating measures for the proposed quarry during the appraisal while obtaining the EC, as the depth of the proposed quarry working is extended beyond 30 m below ground level.	• Details are given para.7.7, Chapter-VII .	7-15
10	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	• Agreed	--



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

	foreman, II/1 Class mines manager appointed by the proponent.		
11	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.	• Agreed	--
12	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.	• Agreed	--
13	<p>If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,</p> <ol style="list-style-type: none"> What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines? 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 milling was carried out as per the approved mine plan (or 	• Fresh lease, the lease period is 5 years. Part of the lease area is mined prior to this period.	2-12



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

	EC if issued)with stipulated benches.		
14	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	<ul style="list-style-type: none"> •Project coordinates superimposed in satellite imagery and given as Figure No - 2.4 in Chapter – II. •The 10km Radius Index plan showing buffer zone is given in Figure No.3.1 in Chapter – III. •Geology Map, Geomorphology, Lithology map are enclosed as Figure No.3.21, 3.22 and 3.23, Chapter-III. 	2-6 3-1 3-47 & 3-49
15	The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,	<ul style="list-style-type: none"> •Agreed 	--
16	The PP shall furnish the revised manpower including the statutory & competent persons as required under the provisions of the MMR 1961 for the proposed quarry based on the volume of rock handled & area of excavation.	<ul style="list-style-type: none"> •Agreed 	--
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.	<ul style="list-style-type: none"> •In the lease area, safety barrier 7.5m around the periphery of the lease area. Greenbelt / Plantation will be carried out to enhance the vegetative growth and aesthetic in the safety zone area. About 1700 trees will be planted in and around the lease area. Details of the same is provided under Table No.4.16, Chapter-IV. 	4-20 4-21
18	The Project Proponent shall provide the details of geological reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the	<ul style="list-style-type: none"> •The details of the geological and mineable reserves are provided in Table No.2.4, Chapter-II. •The mining method will be Opencast semi mechanized mining using jackhammer drilling, blasting, excavation through 	2-12



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

	surrounding environment and the proposed mitigation measures for the same.	excavator & mineral transport through tippers. •The production schedule during plan period is given in Table No.2.7, Chapter-II. •Anticipated Impacts of the mining operations and mitigation measures are discussed elaborately in Chapter-IV.	2-13 4-1
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 Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	•The organization chart has been provided in Figure No.10.1, Chapter-X.	10-3
20	The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.	•Details of hydrogeological scenario of this project is provided under section 3.6, Chapter-III.	3-45
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	•The baseline data on micro- meteorology, ambient air quality, Water quality, noise level, soil and flora & fauna are collected during Winter Season (December 2022 to February 2023) and detailed in Section 3.3	3-17 & 3-43



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

	traffic/vehicular movement study.	to 3.5 of Chapter-III. The details of Traffic Study is provided under Section 4.9, Chapter-IV.	4-25
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.	<ul style="list-style-type: none"> • The details of the quarries located within the 500m radius of the project is given vide Annexure-3. • A cumulative impact study has been carried out and furnished in Para 7.3, Chapter-VII. • Environmental Management Plan is provided under Chapter-X. 	A-16 7-1 10-1
23	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	<ul style="list-style-type: none"> • The rain water falling in the quarry will be harvested in the sump at the lowest level of the quarry. This sump will act as a settling pond to prevent solids escaping along with discharge, before outlet. etc. Towards surface runoff management, a garland drain of length 754 m will be constructed around the quarry and will be connected to a settling pond with silt traps. The supernatant clear water from the settling pond will be flow to the downstream users. The surface runoff management structures diagram is given in Figure No 4.4, Chapter-IV. • Details of rainwater harvesting are provided under Section 4.3.4.2, Chapter-IV. 	4-10 4-13
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	<ul style="list-style-type: none"> • The land use of the study area was studied to demarcate various LULC categories and its details are provided under section 3.4, Chapter-III. • The land use pattern at present and at the end of the quarrying period has been provided under section 4.5.1, Chapter-IV. • The post mining land use has been provided in Table No. 4.16. .The post 	3-30 4-18



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

	and post operational phases and submitted. Impact, if any, of change of land use should be given.	mining land use plan showing afforestation and water body is shown in Figure No- 4.5.	4-21 & 4-22
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.	<ul style="list-style-type: none"> • There is no waste generation anticipated in this quarry operation since the entire excavated material will be utilized. Hence, there is no external overburden dump involved. Besides, there is no proposal for overburden dump outside the lease area. 	2-15
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.	<ul style="list-style-type: none"> • Not Applicable 	--
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.	<ul style="list-style-type: none"> • The rain water falling in the quarry will be harvested in the sump at the lowest level of the quarry. This sump will act as a settling pond to prevent solids escaping along with discharge, before outlet. etc. • Towards surface runoff management, garland drain will be constructed around the quarry and will be connected to a settling pond with silt traps. The supernatant clear water from the settling pond will be flow to the downstream users. The surface runoff management structures diagram is given in Figure No 4.4, Chapter-IV. • The methods for reducing water consumption and rainwater harvesting is provided in section 4.3.4, Chapter-IV. 	4-11 4-13



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

28	Impact on local transport infrastructure due to the Project should be indicated.	<ul style="list-style-type: none"> From this proposed quarry the entire output will be transported to the crusher units for producing stone aggregates of different sizes or construction of roads, bridges, buildings and other buyers etc. Details of the traffic study is provided under section 4.9, Chapter-IV. 	4.25
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.	<ul style="list-style-type: none"> The details of flora in the core zone, project impact zone (PIZ) and the buffer zone are provided from Table No.3.23-3.24, Chapter-III. 	3-38
30	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	<ul style="list-style-type: none"> Details of Mine Closure Plan is provided under section 7.5, Chapter-VII. 	7-4
31	Public Hearing points raised and commitments of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.	<ul style="list-style-type: none"> This draft EIA/EMP report will be submitted for public consultation as per mandatory procedures through the District Collector and State Pollution Control Board officials after giving 30 days advance notice in two local newspapers about the scheduled date and time for conduct of the public hearing procedures. The opinions, concerns and objections of stakeholders will be recorded during the public hearing. All the public queries and the replies to the query by the project proponent and officials concerned will be recorded and incorporated in the EIA/EMP report for approval by SEIAA, Tamil Nadu. 	11-17
32	The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.	<ul style="list-style-type: none"> Agreed. 	--
33	The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.	<ul style="list-style-type: none"> Agreed. 	--



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

34	As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.	• Agreed.	--
35	The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.	• Agreed.	--
36	Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted in proper espacement as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner.	• Agreed	--
37	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	• The disaster management plan has been provided under section 7.3.1, Chapter-VII.	7-3
38	A Risk Assessment and management Plan shall be prepared and included in the	• Details about Risk Assessment has been	7-1



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

	EIA/EMP Report.	provided under section 7.3, Chapter-VII.	
39	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.	<ul style="list-style-type: none"> • Details of occupational health and safety aspects are given under the subsections of Para 4.8, Chapter-IV. 	4-24
40	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.	<ul style="list-style-type: none"> • Details of the socio-economic survey conducted in the buffer zone has been provided in Para 3.2.4, Chapter-III. • Public health facilities will be further aimed to be developed through CER activities wherein periodic health checkups, medical camps for the locals will be conducted. 	3-9
41	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.	<ul style="list-style-type: none"> • Nearby villages were visited for conducting study to know about socio-economic conditions, including aspirations and requirements of the people for a better living and collected relevant data. The details are provided under section 3.2.4, Chapter-III. • Towards the socio economic development of the surrounding area, the proponent has earmarked an amount of Rs.5 Lakhs under Corporate Environmental Responsibility. The activities identified under CER will be implemented in a phased manner in the nearby Government schools. In consultation with the locals based on the need & priority it will be implemented. 	3-9 4-24
42	Details of litigation pending against the project. if any, with direction /order passed by any Court of Law against the Project	<ul style="list-style-type: none"> • Nil 	--



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

	should be given.		
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.	<ul style="list-style-type: none"> • The Roughstone and Gravel Quarry will benefit this region in the fields of employment opportunities, improved per capita income for local people, improved social welfare facilities in respect of education, health, infrastructural etc. • Direct employment to about 15 people and indirect employment to scores of people. • By means of carrying out the socio-economic development activities, local community development is expected. Towards the same, the proponent has planned to allocate Rs.5 Lakhs for various activities under CER for the projects. From the CER activities allocated for various social welfare activities, the villages near the lease area will be benefited. 	11-15
44	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.	<ul style="list-style-type: none"> • Not Applicable 	--
45	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.	<ul style="list-style-type: none"> • EMP for the peak production considering entire life of the mine is prepared 	--
46	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 Reference besides attracting penal provisions in the	<ul style="list-style-type: none"> • Agreed. 	--



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

	Environment (Protection) Act, 1986"		
B. Additional ToR			
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.	<ul style="list-style-type: none"> • Details of the cluster management committee is provided under Section 10.2.2, Chapter-X. 	10-2
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.,	<ul style="list-style-type: none"> • Details of the cluster management committee is provided under Section 10.2.2, Chapter-X. 	10-2
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.	<ul style="list-style-type: none"> • Details of the cluster management committee is provided under Section 10.2.2, Chapter-X. 	10-2
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.	<ul style="list-style-type: none"> • Details of the cluster management committee is provided under Section 10.2.2, Chapter-X. 	10-2
5	The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.	<ul style="list-style-type: none"> • Details of the cluster management committee is provided under Section 10.2.2, Chapter-X. 	10-2
6	The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and	<ul style="list-style-type: none"> • Details of the cluster management committee is provided under Section 	10-2



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

	systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy' devised shall be given in detail.	10.2.2, Chapter-X.	
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.	•Details of the cluster management committee is provided under Section 10.2.2, Chapter-X.	10-2
8	The committee shall furnish the Emergency Management plan within the cluster.	•Details of the cluster management committee is provided under Section 10.2.2, Chapter-X.	10-2
9	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.	•Details of the cluster management committee is provided under Section 10.2.2, Chapter-X.	10-2
10	The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.	•Details of the cluster management committee is provided under Section 10.2.2, Chapter-X.	10-2
11	The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.	•Details of the cluster management committee is provided under Section 10.2.2, Chapter-X.	10-2
Impact study of mining			
12	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following. a) Soil health & soil biological, physical land chemical features .	•As such the production from this lease is very low to cause any appreciable impact. •No adverse impact on the surrounding environment is envisaged since the number of equipments to be used to achieve this small production is very less and the magnitude of operation is of very small level. •Besides, as is it a mining project, no	7-16



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

	<p>b) Climate change leading to Droughts, Floods etc.</p> <p>c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.</p> <p>d) Possibilities of water contamination and impact on aquatic ecosystem health.</p> <p>e) Agriculture, Forestry & Traditional practices.</p> <p>f) Hydrothermal/Geothermal effect due to destruction in the Environment.</p> <p>g) Bio-geochemical processes and its foot prints including environmental stress.</p> <p>h) Sediment geochemistry in the surface streams.</p>	<p>adverse generation of heat is envisaged.</p> <ul style="list-style-type: none"> • Certified vehicles with low carbon emissions will only be used. These equipments will be properly and regularly maintained. Besides, regular vehicular emission tests will be done for the transport vehicles to ensure minimal impact due to carbon emissions. To further mediate the carbon emissions, a good greenbelt and plantation plan has been planned wherein 1700 number of plants will be planted in and around the lease area. • Geologically the area in and around the lease area contains charnokite type rock formation containing mostly fallow land. As such there no major vegetation or agricultural activities are observed. • There are no Protected or Eco-Sensitive Zone or forest land nearby wherein it can have an impact. • It will be ensured that mining will be carried out adhering to all the statutory rules and regulations and maintaining the environmental quality within the prescribed standards by effective implementation of various mitigative measures. • These mitigative measures will be continued for the entire lease period ensuring no impact on the environment. • As such release of Greenhouse gases (GHG), rise in temperature, affecting livelihood of the local people ,loss of Agriculture, Forestry and Traditional Practices is not envisaged. Such a limited scope will not induce any climatic change leading to droughts, floods etc. 	
Agriculture & Agro-Biodiversity			
13	Impact on surrounding agricultural fields	<ul style="list-style-type: none"> • Most of the study area remain uncultivated 	4-20



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

	around the proposed mining Area.	and only in patches of land away from the lease area, agricultural activities are carried during monsoon rainfall. Due to poor quality of the soil, inconsistent rainfall, water scarcity, high agricultural labor cost, manpower shortage and less yield are reason for very little agricultural activity in this region	
14	Impact on soil flora & vegetation around the project site.	•The impact of mining on biological environment is provided under Table 4.15, Chapter-IV.	4-19
15	Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.	•The details of flora in the core zone is provided in Table 3.24, Chapter-III. There is no major clearance of vegetation or transplantation involved.	3-38
16	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	•An ecological survey of the study area was conducted with reference to listing of species and assessment of the existing baseline ecological conditions. Details are provided under Section 3.5.1, Chapter-III.	3-36
17	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	•The post mining land use has been provided in Table No. 4.16. The post mining land use plan showing afforestation and water body is shown in Figure No- 4.5.	4-21 & 4-22
18	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.	•Due to poor soil condition and non-availability of perrineal water source, no major agricultural activity is carried out in and around the lease area. Only patches of plantation are observed in few places in the monsoon season based on water availability	4-20
Forests			
19	The project proponent shall detailed study on impact of mining on Reserve forests	•There are no reserve forest within 10km radius and as such no impact on this front	--



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

	free ranging wild life.	envisaged.	
20	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	•An ecological survey of the study area was conducted with reference to listing of species and assessment of the existing baseline ecological conditions. Details are provided under section 3.5.1, Chapter-	3-36
21	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	•An ecological survey of the study area was conducted with reference to listing of species and assessment of the existing baseline ecological conditions. Details are provided under section 3.5.1, Chapter-III.	3-36
22	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	•There are no national parks or corridors in the 10k radius. There are no reserve forest in the proximity of the lease area.	4-19
Water Environment			
23	Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.	•The details of hydrogeological study is provided under Section 3.6, Chapter-III.	3-45
24	Erosion Control measures.	•Since the entire material from the quarry face will be directly dispatched to the consumers, there will not be any stockpiles. There are no waste dumps in this quarry. As such there will not be any wash out due to stock pile or waste dumps.	4-10



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

		<ul style="list-style-type: none"> •Towards surface runoff management, a garland drain will be constructed around the quarry and will be connected to a settling pond with silt traps. The supernatant clear water from the settling pond will be flow to the downstream users 	
25	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.	<ul style="list-style-type: none"> •There is no proposal to discharge any effluent into this waterbody. No major impact is envisaged on the nearby water bodies due to project operations 	11-12
26	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	<ul style="list-style-type: none"> •There is no major perennial waterbody in close proximity of the lease area. 	7-3
27	The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.	<ul style="list-style-type: none"> •The post mining land use has been provided in Table No. 4.16. The post mining land use plan showing afforestation and water body is shown in Figure No- 4.5. 	4-21 & 4-22
28	The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.	<ul style="list-style-type: none"> •An ecological survey of the study area was conducted with reference to listing of species and assessment of the existing baseline ecological conditions. Details are provided under section 3.5.1, Chapter-III. •The land use pattern details are provided under section 4.5.1, Chapter-IV. 	3-36 4-18
30	The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.	<ul style="list-style-type: none"> •The nearest major water bodies is provided in Table No.3.1, Chapter-III. •The mining area consists of hard compact rock, hence no major water seepage within the mine is expected from the periphery. The ultimate pit depth of mining is 35 m. The ground water table in this area is below this level. Hence, ground water intersection in not envisaged and ground water will not be affected appreciably due to the quarrying operation. 	3-1 11-12



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

Energy			
31	The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.	<ul style="list-style-type: none"> The dust control measures are listed under Table 4.1, Water pollution control measures under Section 4.3.2, and noise pollution control measures under Section 4.4.1.2, Chapter-IV. Besides, energy consumption in this project will be optimum and as per requirement. 	<p>4-2</p> <p>4-9</p> <p>4-16</p>
Climate Change			
32	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.	<ul style="list-style-type: none"> Certified vehicles with low carbon emissions will only be used. These equipments will be properly and regularly maintained. Besides, regular vehicular emission tests will be done for the transport vehicles to ensure minimal impact due to carbon emissions. To further mediate the carbon emissions, a good greenbelt and plantation plan has been planned wherein 1700 number of plants will be planted in and around the lease area. 	7-16
33	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.	<ul style="list-style-type: none"> Certified vehicles with low carbon emissions will only be used. These equipments will be properly and regularly maintained. Besides, regular vehicular emission tests will be done for the transport vehicles to ensure minimal impact due to carbon emissions. To further mediate the carbon emissions, a good greenbelt and plantation plan has been planned wherein 1700 number of plants will be planted in and around the lease area. 	7-16
Mine Closure Plan			
34	Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.	<ul style="list-style-type: none"> Details of Mine Closure Plan is provided under section 7.5, Chapter-VII. 	7-4



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

EMP			
35	Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.	• Detailed environmental management plan is provided under Chapter-X.	10-1
36	The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.	• Detailed environmental management plan is provided under Chapter-X.	10-1
Risk Assessment			
37	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	• Various risks likely to arise due to mining activities are detailed under section 7.3, Chapter-VII.	7-1
Disaster Management Plan			
38	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.	• The disaster management plan has been provided under section 7.3.1, Chapter-VII.	7-3
Others			
39	The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.	• Given in Vide Annexure No – 14 of EIA EMP report	A-XX



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

40	As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	• Agreed	--
41	The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.	• Single use plastics/ use and throwaway plastics will be banned in the site as directed by the Tamil Nadu Government vide GO(Ms)No.84 regarding ban on use of plastic products. The employees will be encouraged to use compostable material or reusable material.	11-16
C. Standard ToR			
1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.	• It is a fresh lease and no mining was carried out by the Applicant. But Mining in this pit was carried out much before the land acquisition by the PP	2-14
2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given	• Precise area communication letter was obtained from the District Collector Virudhanagar Vide Vide KV1/33/2022-Kanimum, dated 19.10.2022.	A-1
3	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.	• The production capacity, quantity of waste, its management and mining technology in mine plan and EIA, etc., are compatible with one another.	--
4	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/	• Project coordinates superimposed in satellite imagery and given as Figure No -	2-6



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

	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).	<p>2.4 in Chapter – II.</p> <ul style="list-style-type: none"> •The geology and geomorphology map is provided in Figure No.3.21, 3.22, Chapter-III. The Lithology map and Soil map are provided under Figure No. 3.23, 3.24, Chapter-III. •The 10km Radius Index plan showing buffer zone is given in Figure No.3.1 in Chapter – III. 	<p>3-47</p> <p>3-48</p> <p>3-49</p> <p>3-50</p> <p>3-2</p>
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.	<ul style="list-style-type: none"> •Replied in Standard ToR point no.4 	--
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.	<ul style="list-style-type: none"> •Not Applicable 	--
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	<ul style="list-style-type: none"> •The proponent will frame a well-planned environmental policy. Its details are provided under Section 10.2.1, Chapter-X. •The Mines Manager will undertake effective monitoring and implementation of various environmental control measures promptly and effectively and to oversee various environmental management schemes for air quality control, water quality status, noise level control, plantation programme, social development schemes, etc in the mine. The organizational chart for the same has been provided in Figure No.10.1, Chapter-X. 	<p>10-1</p> <p>10-3</p>



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

	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.	<ul style="list-style-type: none"> • Various risks likely to arise due to mining activities are detailed under section 7.4, Chapter-VII. This being an opencast mine, subsidence is not applicable. The impact due to ground vibrations due to blasting is given in para 4.3.2, Chapter-IV. 	7-4 4-9
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.	<ul style="list-style-type: none"> • The study area chosen for collecting existing environmental status covers 10 km radial distance from the project periphery (Figure No - 3.1). Data given in the report is for the life of the mine. 	3-2
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.	<ul style="list-style-type: none"> • The land use of the study area was studied to demarcate various LULC categories and its details are provided under section 3.4, Chapter-III. • The land use pattern at present and at the end of the quarrying period has been provided under section 4.5, Chapter-IV. • In the post mining stage, entire entire 2.89.5 Ha will be left as water body, 0.08.0 Ha will be the mine roads & infrastructure, 0.27.0 Ha will be covered with vegetation and 0.09.0 will be fencing.. 	3-30 4-18
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.	<ul style="list-style-type: none"> • There is no waste generation anticipated in this quarry operation since the entire excavated material will be utilized. Hence, there is no external overburden dump involved. Besides, there is no proposal for overburden dump outside the lease area. 	2-15
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	<ul style="list-style-type: none"> • There is no forest land in the lease area. 	--



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

	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.	• There is no forest land in the lease area.	--
14	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.	• Not Applicable	--
15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	• There is no forest land in the lease area.	--
16	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.	• The mining lease area and the 10 km buffer zone from the periphery of the core zone is devoid of declared ecologically sensitive features like national parks, biospheres, sanctuaries, etc.	4-19
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	• Replied in Standard ToR point No.16	--



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

	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.	<ul style="list-style-type: none"> •A detailed study of flora and fauna composition in the core and buffer zone of the project has been made through primary field surveys. The details are furnished in para 3.5, Chapter III. 	3-36
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.	<ul style="list-style-type: none"> •Not Applicable 	--
20	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).	<ul style="list-style-type: none"> •Not Applicable 	--
21	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the	<ul style="list-style-type: none"> •The mining activities will be carried out within the mine lease area only. The entire 	7-4



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

	<p>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 shilling of village(s) including their R&R and socio-economic aspects should be discussed in the Report.</p>	<p>mine lease area is a patta land in proponent's possession. There is no population within the ML area. Hence, the question of R& R does not arise.</p>	
22	<p>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.</p>	<ul style="list-style-type: none"> • The baseline data on micro- meteorology, ambient air quality, Water quality, noise level, soil and flora & fauna are collected during Winter Season (December 2022 to February 2023) and detailed in para 3.3 to 3.5 of Chapter-III. • Monitoring stations were selected taking into account, wind direction and location of sensitive receptors. • Free silica composition in PM10 sample has been done and the values are found to be Below Detectable Limit (DL 0.05mg/m3) which is well within the prescribed limit of 5mg/m3. 	<p>3-12 & 3-36</p>
23	<p>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</p>	<ul style="list-style-type: none"> • Air quality modeling details are furnished in para 4.2.2 and its continuous sub paras in Chapter-IV of EIA report. • The impact on air quality due to the 	<p>4-3</p>



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.3350 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

	<p>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 predominant wind direction may also be indicated on the map.</p>	<p>proposed project is estimated using AERMOD View Gaussian Plume Air Dispersion Model developed by Lakes Environmental Software which is based on steady state Gaussian plume dispersion.</p> <ul style="list-style-type: none"> • The model simulations are done for the air pollutant arising from the mining operations, namely, PM10, PM2.5. Ground Level Concentration (GLC) have been computed using hourly meteorological data. • The Isopleths of PM10, PM2.5 concentrations for with control measures scenario have also been drawn and these are given in Figure No.4.1 and 4.2. • It can be seen that the resultant added concentrations with baseline figures even at worst scenario, show that the values of ambient air quality with respect to PM10 are in the range of 54.1µg/m3 to 80.8µg/m3 and with respect to PM2.5 are in the range of 26.6µg/m3 to 39.7µg/m3 which are within the statutory limits in each case. 	<p>4-6 & 4-7</p>
24	<p>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.</p>	<ul style="list-style-type: none"> • The total water requirement for this project will be 10.0 KLD comprising 1.0 KLD for drinking water and domestic use, 8.0 KLD for dust suppression and 1.0 KLD for greenbelt. The water will be sourced initially from outside agencies. Later the rainwater collected in the mine pit sump will be used for this purpose. The water balance diagram for the same is shown in Figure No 4.3. 	<p>4-9</p>
25	<p>Necessary clearance from the Competent Authority for drawl of requisite quantity of</p>	<ul style="list-style-type: none"> • Not Applicable. 	<p>--</p>



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

	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.	<ul style="list-style-type: none"> • The rain water falling in the quarry will be harvested in the sump at the lowest level of the quarry. This sump will act as a settling pond to prevent solids escaping along with discharge, before outlet. etc. 	4-10
		<ul style="list-style-type: none"> • Towards surface runoff management, a garland drain of length 754 m will be constructed around the quarry and will be connected to a settling pond with silt traps. The supernatant clear water from the settling pond will be flow to the downstream users. The surface runoff management structures diagram is given in Figure No 4.4, Chapter-IV. 	4-11
		<ul style="list-style-type: none"> • The methods for reducing water consumption and rainwater harvesting is provided in section 4.3.4, Chapter-IV. 	4-13
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.	<ul style="list-style-type: none"> • Kayalkudi river a seasonal rainwater carrying stream located about 1.7km on the SW side. No major water flow is observed in this river and it remains dry for major part of the year. There will be no generation of effluent or its discharge from the mining operation in this lease area and as such no impact on water quality of this river is expected.. 	4-10
		<ul style="list-style-type: none"> • The ultimate pit depth of mining is 35m. The ground water table in this area is below this level. Hence, ground water intersection in not envisaged and ground water will not be affected appreciably due 	11-12



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

	provided both in AMSL and bgl. A schematic diagram may also be provided for the same.	<p>has already been mined out.</p> <ul style="list-style-type: none"> • The ultimate pit depth of mining is 35 m. The ground water table in this area is below this level. 	4-11
31	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the. Project. Phasc-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.	<ul style="list-style-type: none"> • In the lease area, safety barrier 7.5m around the periphery of the lease area. Greenbelt / Plantation will be carried out to enhance the vegetative growth and aesthetic in the safety zone area. About 1700 trees will be planted in and around the lease area. Details of the same is provided under TableNo.4.16, Chapter-IV. 	4-21
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.	<ul style="list-style-type: none"> • From this proposed quarry the entire output will be transported to the crusher units for producing stone aggregates of different sizes or construction of roads, bridges, buildings and other buyers etc. Details of the traffic study is provided under section 4.9, Chapter-IV. 	4-25
33	Details of the onsite shelter and facilities to be provided to the mine workers should be	<ul style="list-style-type: none"> • This is a proposed project. Site services like 	2-17



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

	included in the EIA Report.	mine office, first aid room, rest shelters, toilets etc. will be provided as semi-permanent structures.	
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.	<ul style="list-style-type: none"> • In the post mining stage, entire 2.89.5 Ha of mined out area will be left as water body, 0.08.0 Ha will be the mine roads & infrastructure, 0.27.0 Ha will be covered with vegetation and 0.09.0 will be fencing. Entire mined out area will be properly fenced to prevent inadvertent entry of men and animals. In the post mining stage the rainwater harvested in the mined out void shall be utilized in the area. 	4-21
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	<ul style="list-style-type: none"> • Details of occupational health and safety aspects are given under the subsections of Para 4.8, Chapter-IV. 	4-24
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	<ul style="list-style-type: none"> • Details of the socio economic survey conducted in the buffer zone has been provided in Para 3.2.4, Chapter-III. • Public health facilities will be further aimed to be developed through CER activities wherein periodic health checkups, medical camps for the locals will be conducted. 	3-9
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.	<ul style="list-style-type: none"> • Towards the socio economic development of the surrounding area, the proponent has earmarked an amount of Rs. 5 Lakhs under Corporate Environmental Responsibility. The activities identified 	4-24



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

		under CER will be implemented in a phased manner in the nearby Government schools. In consultation with the locals based on the need & priority it will be implemented. Its details are provided in Para 4.7, Chapter-IV	
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.	<ul style="list-style-type: none"> Detailed Environmental Management plan and its implementation, etc., are furnished in Chapter X. 	10-1
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.	<ul style="list-style-type: none"> This draft EIA/EMP report will be exposed to public consultation as per mandatory procedures through the District Collector and State Pollution Control Board officials after giving 30 days advance notice in two local newspapers about the scheduled date and time for conduct of the public hearing procedures. The opinions, concerns and objections of stakeholders will be recorded during the public hearing. All the public queries and the replies to the query by the project proponent and officials concerned will be recorded and incorporated in the EIA/EMP report for approval by SEIAA, Tamil Nadu. 	7-1
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.	<ul style="list-style-type: none"> There is no litigation pending against the project. 	--
41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly	<ul style="list-style-type: none"> The cost of the project is Rs. 1,88,19,924. Towards EMP measures, Rs. Rs.24.92 	4-24 10-10



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM AT SURVEY NO. 919/1, & 2A(P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR, DISTRICT, TAMIL NADU.

	spelt out.	Lakhs is allocated under capital cost. Besides, Rs.25.50 lakhs per annum will be spent under recurring cost. All the recurring cost of maintenance of pollution control measures, environmental monitoring etc., will be met from revenue.	
42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	<ul style="list-style-type: none"> •The disaster management plan has been provided under section 7.3.1, Chapter-VII. 	7-3
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.	<ul style="list-style-type: none"> • The proposed Rough Stone Quarry will benefit this region in the fields of employment opportunities, improved per capita income for local people, improved social welfare facilities in respect of education, health, infrastructural etc. • Direct employment to 15 people and indirect employment to scores of people. • By means of carrying out the socio economic development activities, local community development is expected. Towards the same, the proponent has planned to allocate Rs. 5 Lakhs for various activities under CER. From the CER activities allocated for various social welfare activities, the villages near the lease area will be benefited. 	8-1



CHAPTER - I

INTRODUCTION

CHAPTER 1 INTRODUCTION

1.1 PURPOSE OF THE REPORT:

Thiru. J. Saipreetham proposes to operate a **Rough Stone and Gravel Quarry** at Survey No. 919/1 & 919/2A (P) over an area of 3.33.50 hectares In Nathikudi Village, Vembakottai Taluk, Virudhunagar District, Tamil Nadu.

It is proposed to mine the revised quantity of 3,53,641.5 m³ of Rough Stone, 62,157 m³ Weathered rock gravel and 46,476 m³ of top soil earth upto depth of 35 m for the period of Five years after complying with ToR condition as against the mining plan approved quantity of 5,08,494 m³ of Rough Stone, 71,127 m³ Weathered rock gravel and 47,418m³ of top soil earth upto depth of 35 m for the period of Five years and has initiated action towards obtaining environmental clearance.

Although the individual lease area of this project is less than 5 Ha, the other existing and proposed quarries within the 500m radius cluster along with this subject project works out to >5 Ha. Hence, this proposal is considered under Category – B1 and as per MoEF & CC notification necessitates preparation of EIA/EMP report and public hearing. The details of the quarries located within the 500m radius of the project is given vide Annexure-3. A cumulative impact study has been carried out and furnished in Para 7.3, Chapter-VII.

ToR for this project has been received from SEIAA, Tamil Nadu vide their letter No. **SEIAA-TN/F.No.9851/ToR-1443/2023 dated 09.05.2023**. The EIA/EMP report is prepared based on standard and specific Terms of Reference issued by SEIAA, Tamil Nadu and is in conformance of the generic structure prescribed by MOEF&CC in their notification of September 2006.

This draft EIA/EMP report will be exposed to public hearing as per rules and procedures in this respect, as per the EIA notification 2006. The opinions, concerns and objections, if any, of the surrounding public and other stake holders connected, will be taken into consideration and compliance report thereon will be submitted to SEIAA, Tamilnadu in the final EIA/EMP report.



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

1.2 IDENTIFICATION OF PROJECT & PROJECT PROPONENT:

Table 1.1 Identification of project

1	Project Name	Rough Stone and Gravel Quarry of Thiru. J. Saipreetham.
2	Extent	3.33.50 Ha
3	Production	3,53,641.5 m ³ of Rough Stone, 62,157 m ³ Weathered Rock gravel and 46,476 m ³ of top soil earth.
4	Ultimate Depth	35m
5	Land Classification	Patta land owned by the applicant
6	Location	Survey Number: 919/1 & 919/2A (P)
		Village: Nathikudi
		Taluk: Vembakottai
		District: Virudhunagar
		State: Tamil Nadu

Table 1.2: Identification of Project Proponent

1	Proponent Name	Thiru. J. Saipreetham
2	Address	S/o. Sri. P. Jeyaraman 81, Srivilliputhur Town & Taluk, Virudhunagar District..
3	Contact Number	9441019225
4	Email-ID	jeyaraman.mani@gmail.com

The Proponent can meet the technical and financial requirement of this project and will ensure that the mining activities are carried out as per statutory requirements.

Table 1.3: Statutory Approvals

S.No	Statutory Approval	Authority	Letter Number and Date	Reference
1.	Precise Area Communication Letter	Assistant Director, Dep. of Geology & Mining, Virudhanagar	KV1/33/2022-Kanimum, dated 19.10.2022	Annexure-1
2.	Mining Plan Approval	Assistant Director, Dep. of Geology & Mining, Virudhanagar	KV1/33/2022-Kanimum, dated 06.12.2022	Annexure-2
3.	Details of other quarries within 500m radius	Deputy Director, Dep. of Geology & Mining, Virudhanagar	KV1/33/2022-Kanimum, dated 06.12.2022	Annexure-3



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

1.3 BRIEF DESCRIPTION OF NATURE, SIZE, LOCATION & PROJECT IMPORTANCE

Table 1.4: Brief Description of Nature of project

1.	Sector	1(a), Non-Coal Mining
2.	Type	Fresh Project
3.	Category	B1 (Cluster Situation)
4.	Mineral Mined	Rough stone, Weathered rock gravel and Top soil earth
5.	Major/Minor Mineral	Minor
6	Mining method	Opencast mechanized Mining
7	End use	Top soil earth will be used for formation of protective bund around the mine periphery and afforestation purposes. Balance if any and Weathered rock gravel will be marketed to the nearby areas for any individual or Govt. contract projects for making filling and levelling works after paying necessary seigniorage fees. The mined Boulders will be marketed to the nearby crusher depending upon the market requirements

Table 1.5: Location of the project

S.No	Particulars	Details
1.	Location	Nathikudi Village, Vembakottai Taluk, Virudhunagar District, Tamil Nadu
2.	Corner Coordinates	Latitude : 9° 26' 13.6"N to 9° 26' 21.9"N Longitude: 77° 41' 35.8"E to 77° 41' 40.4"E
3.	Toposheet Number	58 G/11

Location details are elaborated in Para 2.3, Chapter-II.

1.3.1 IMPORTANCE TO THE COUNTRY AND REGION:

Rough stone and weathered rock gravel from this quarry will meet the domestic demand. There is good demand for the material which is the main requisite for the construction/ infrastructure sector. weathered rock gravel quarried from this lease will be directly transported to the nearby end users. The boulders will be marketed to the nearby crushers for producing crusher aggregates.

This project in the area will provide both direct and indirect employment opportunities through allied opportunities in logistics, trading, repairing works etc., improved per capita income for local people, improved social welfare facilities like infrastructural build-up, improvement in facilities due to the proposed CER activities of the proponent etc.



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

1.4 SCOPE OF THE STUDY:

Particulars	Details
Proposal no	SIA/TN/MIN/418218/2023 Dated:15.02.2023
File no	9851/2023
SEAC meeting for issue of TOR	368 th Meeting held on 19.04.2023
SEIAA meeting for issue of TOR	615 th Meeting held on 08.05.2023 & 09.05.2023
Terms of Reference	Received from SEIAA, Tamil Nadu vide their Lr No. SEIAA-TN/F.No.9851/ToR-1443/2023 dated 09.05.2023
Baseline Data Collection	Carried out by Creative Engineers & Consultants , Chennai for Winter Season (Dec 2022– Feb 2023)

Based on the terms of reference, data collection, the Environmental Impact Assessment was carried out for the project area (core zone and the buffer zone (10km radius from the core zone) and the following studies were covered:

- Collection of primary and secondary data relevant to the project.
- One-Season baseline monitoring for environmental parameters such as air, water, noise, soil, flora & fauna, etc. Analysis of parameters in in-house laboratory.
- Documentation of EIA/EMP report with inclusion of relevant studies conducted by other bodies into the EIA/EMP report.
- Identification of significant environmental parameters that are prone to get affected due to pollution. Namely, Air, Water, Noise, Soil, Biological and Land Environment.
- Evaluation and determination of suitable mitigation measures to reduce and control the said pollution.
- Prediction of post project concentration (baseline + incremental) with respect to air environment for core zone and buffer zone.
- Formulation of an Environmental Management plan including administrative aspects for proposed implementation of mitigative measures in time.



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

This draft EIA/EMP report will be submitted for public consultation, as per rules and procedures in this respect, as per the EIA notification 2006. The opinions, concerns and objections, if any, of the surrounding public and other stake holders connected, will be taken into consideration and compliance report thereon will be submitted to SEIAA, Tamil Nadu in the final EIA/EMP report.

* * * * *



CHAPTER - II



**PROJECT
DESCRIPTION**

CHAPTER 2

PROJECT DESCRIPTION

2.1 TYPE OF PROJECT:

Rough Stone and Gravel Quarry of Thiru. J. Saipreetham involves the production capacity of 3,53,641.5 m³ of Rough Stone, 62,157 m³ Weathered rock gravel and 46,476 m³ of top soil earth upto depth of 35 m for the period of Five years after complying with ToR condition as against the mining plan approved quantity of 5,08,494 m³ of Rough Stone, 71,127 m³ Weathered rock gravel and 47,418m³ of top soil earth upto depth of 35 m for the period of Five years in Nathikudi Village, Vembakottai Taluk, Virudhunagar District, Tamilnadu.

2.2 NEED & JUSTIFICATION FOR THE PROJECT:

There is a huge demand for construction material and the entire material produced from this quarry will be used in the local construction / infrastructure sector. Considering the following favorable factors it is practically possible to achieve the proposal within the planned period and this proposal is fully justified.

- Availability of good quality proved reserves
- Techno economic viability of the scheme
- Better approachability to the project, availability of logistic facility in proximity to the site
- Economic and Socio Economic Benefits to the region

2.3 LOCATION:

A brief description of the mining area, along with the location, coordinates, accessibility, etc. has been details below in **Table No.2.1**.

Table 2.1: Mine site description

Location	Nathikudi Village, Vembakottai Taluk, Virudhunagar District, Tamil Nadu.
Survey No.	919/1 & 919/2A (P)
Coordinates	Latitude: 9° 26' 13.6"N to 9° 26' 21.9"N Longitude: 77° 41' 35.8"E to 77° 41' 40.4"E



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

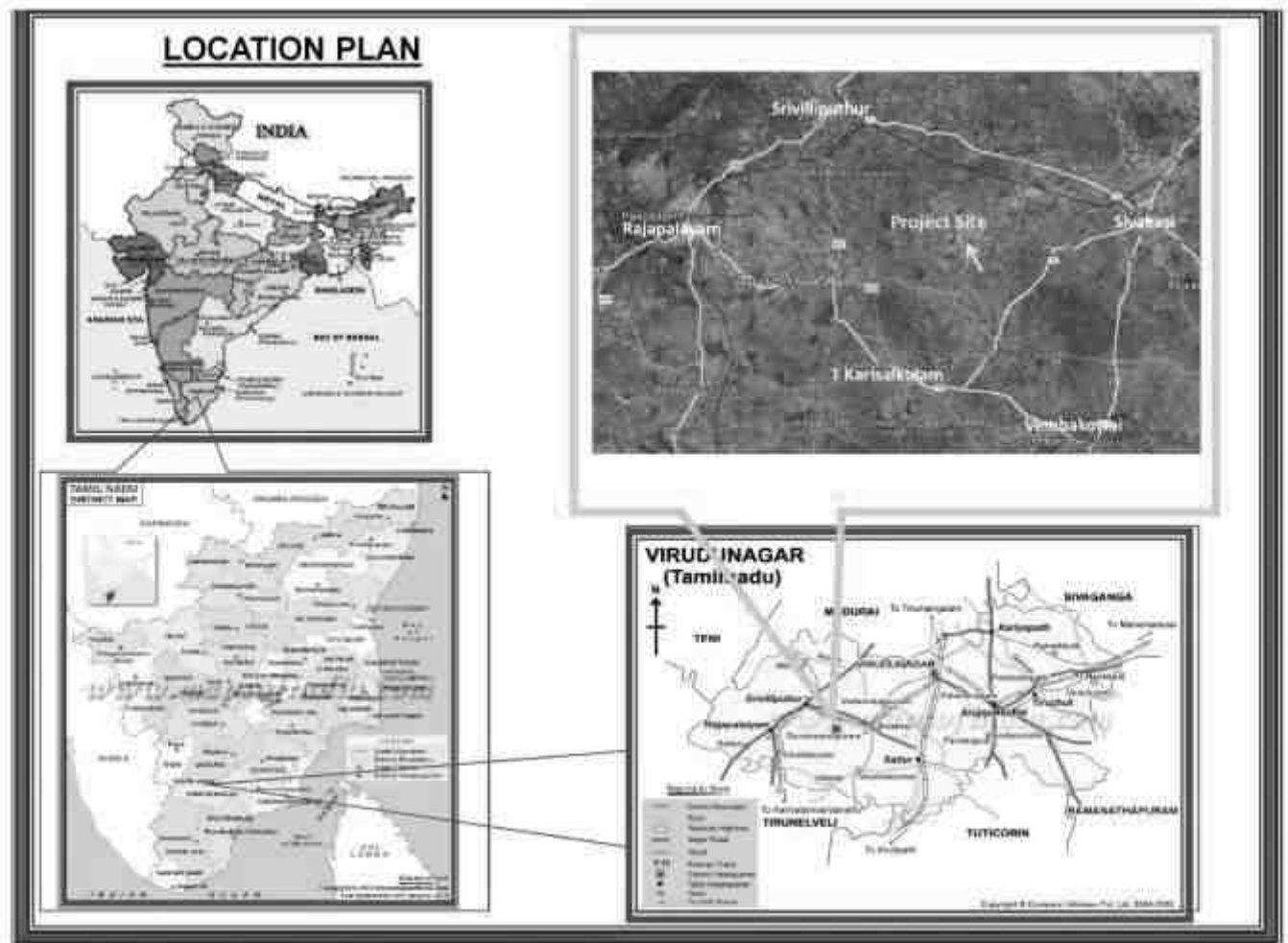
Nearest Village	Nathikudi – 1.5Km
Nearest Town	Sivakasi – 10Km
Nearest Railway Station	Sivakasi Railway Station is located at a distance of 10Km on the north eastern side of the lease area.
Nearest Airport	Madurai Airport is located at a distance of 62Km on the north eastern side of the lease area.
Topography	The area applied for mining lease is a gentle plain terrain. Small part of the lease area contains mined out pit and the remaining part is dry lands without any vegetation.
Drainage	There is no major water body in the core zone. There is a seasonal odai at a distance of 150m-E, Besides Drainage channel-230m-W, Sevalkulam-480m-S, Kayalkudi River -1.6km (SW), Marugal odai - 8.6km-(SW).

Location map is provided in **Figure No.2.1**. The approachability map is provided in **Figure No.2.2**. Corner co-ordinates of the lease area and satellite imagery are shown in **Figure No. 2.3 & 2.4** respectively. Village map for 500m radius from the lease is shown in **Figure No. 2.5**.



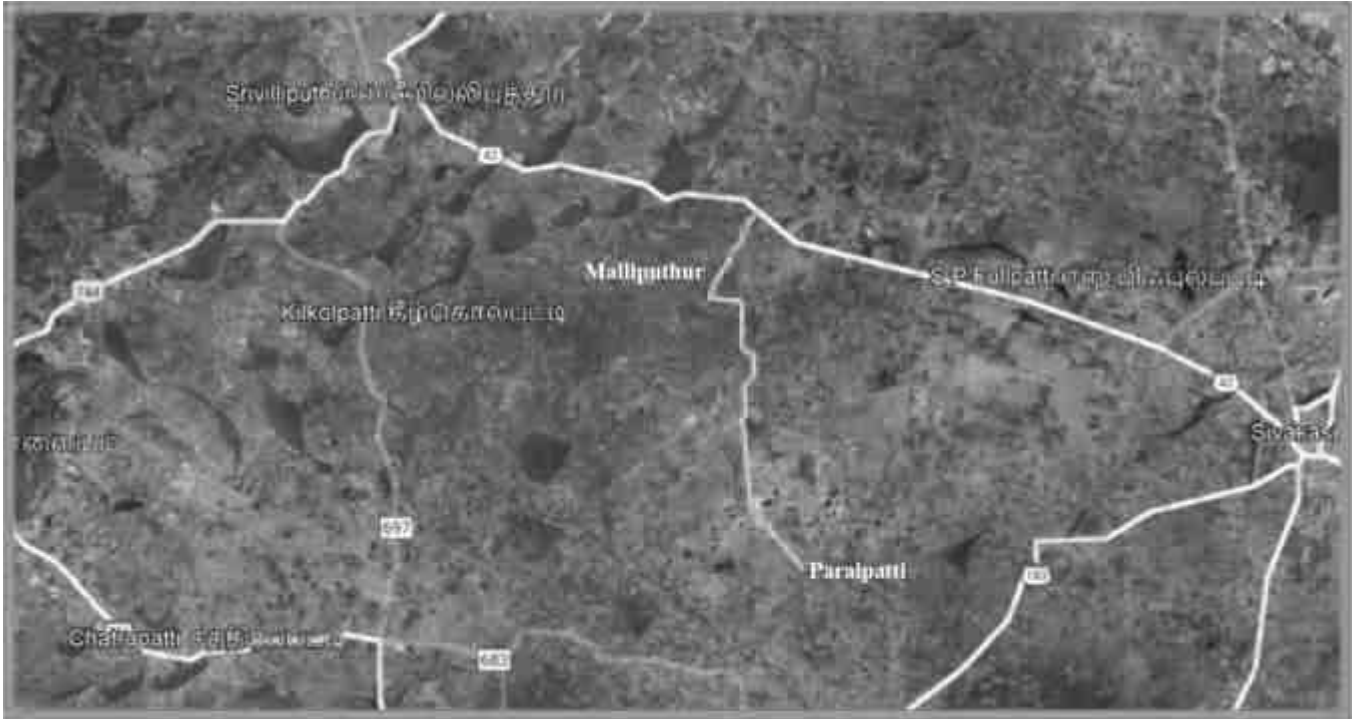
DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Figure 2.1: Location Map



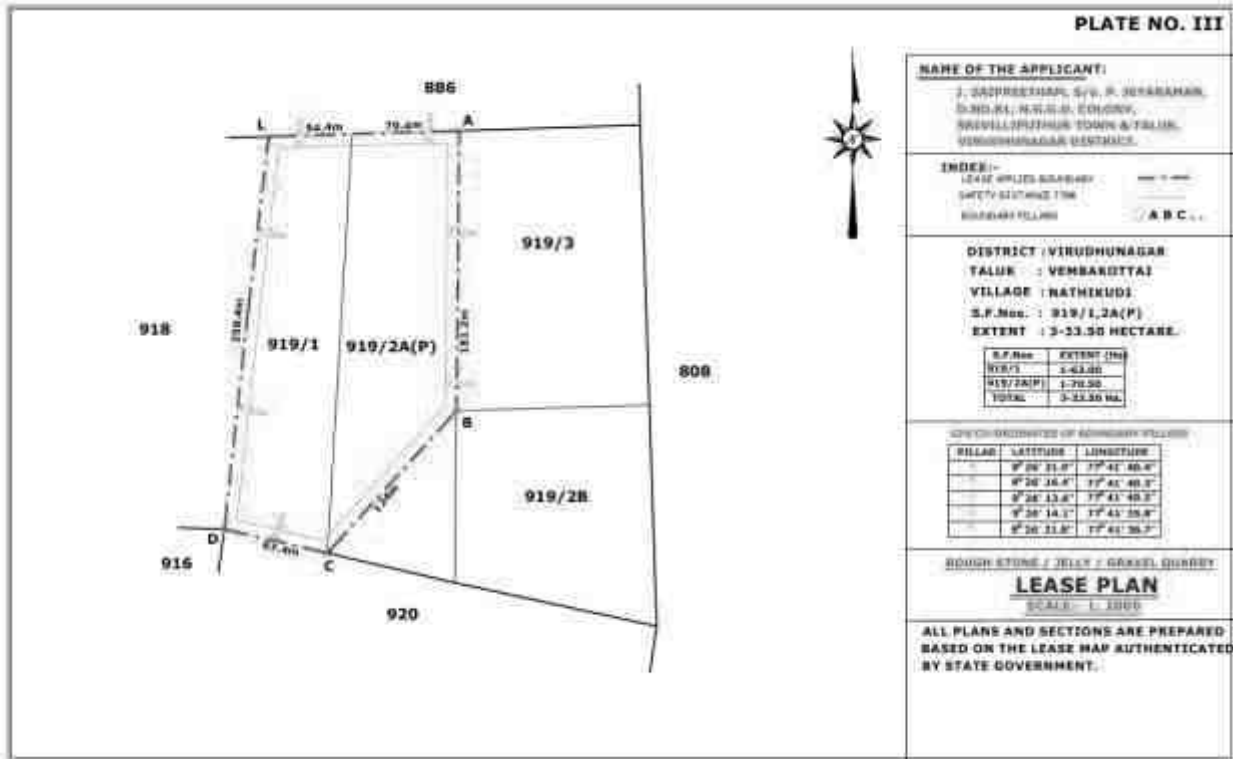
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Figure 2.2: Approachability Map



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Figure 2.3: Lease Plan



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Figure 2.4 : Satellite Imagery Showing Corner Co-ordinates of the Project Area



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SITE PHOTOGRAPH



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Figure 2.5: Village Map

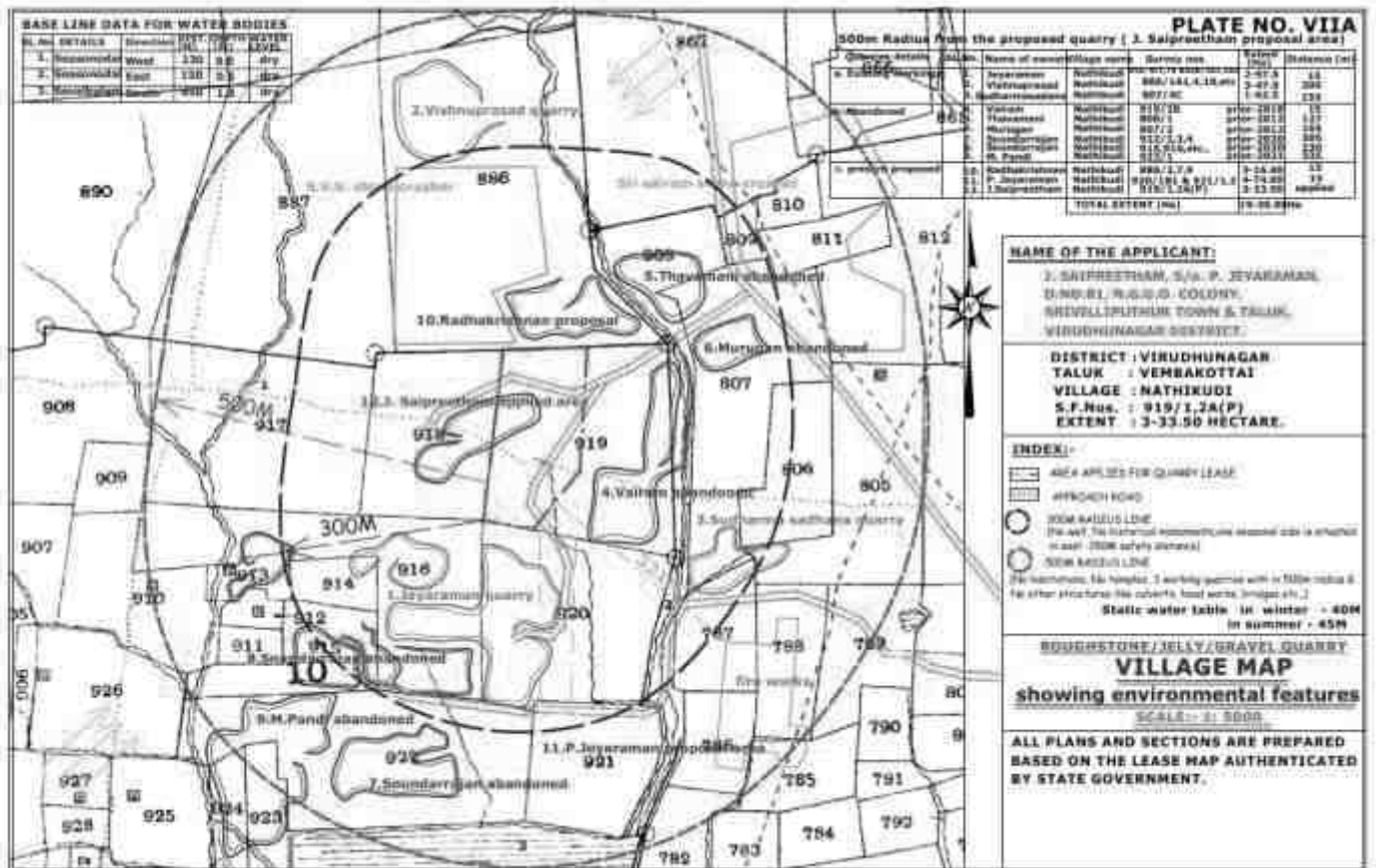


Figure 2.6: Details of features within 500m radius



As per the conditions of the Terms of Reference, the details of structures located within the 50m, 100m, 200m and 300m radius are provided below.

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Table 2.2: Features within 500m radius

S.NO	LATITUDE	LONGITUDE	FEATURES STATUS	DISTANCE (Meter)
1	9° 26.503'N	77° 41.596'E	Office Shed	247-N
2	9° 26.438'N	77° 41.586'E	Own Crusher	120-N
3	9° 26.519'N	77° 41.619'E	Office Shed	272-N
4	9° 26.447'N	77° 41.643'E	Old Shed	126-N
5	9° 26.372'N	77° 41.729'E	Old Office Shed	97 -E
6	9° 26.473'N	77° 41.796'E	Office Shed	291-NE
7	9° 26.433'N	77° 41.801'E	Office Shed	257-E
8	9° 26.425'N	77° 41.805'E	Water Tank	260-E
9	9° 26.453'N	77° 41.803'E	Office	276-NE
10	9° 26.441'N	77° 41.802'E	Office Shed	268-NE



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

2.4 LAND CLASSIFICATION:

This lease area in S.F.Nos. **919/1 & 919/2A(P)** over an extent of 3.33.50 Ha is in the name of applicant. The survey no. wise area breakup has been provided below:

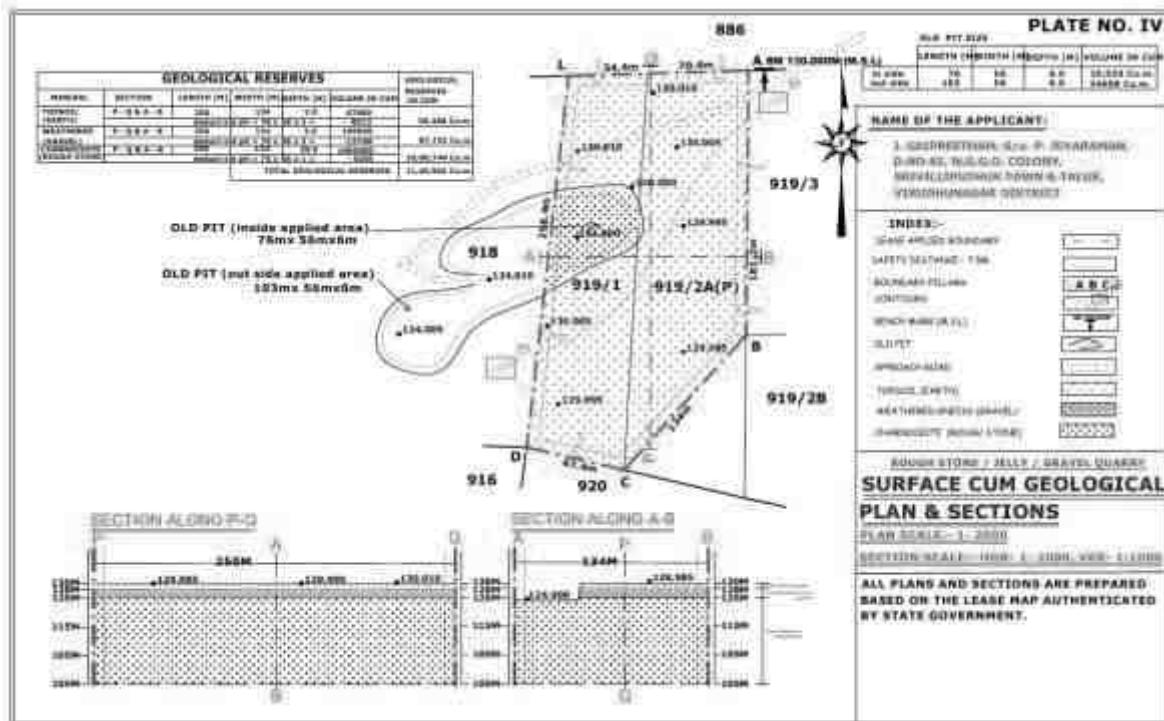
Table 2.3: Survey Number wise Area Breakup

S.F.No	Area(Ha)
919/1	1.70.50
919/2A (P)	1.63.00
Total	3.33.50

2.5 GEOLOGY:

The rocks in this area belonging to ARCHEAN group of rocks. Below the weathered rock formation a hard (Rough stone) Charnockite are noted. The rocks are Phaneric to medium grained nature. And in these rocks there are mineral constituents of BLUE QUARTZS, MICRO CLINE FELDSPAR, HYPERSTHENE and flacks of BIOTITE MICA. The rocks are striking towards North – South direction dipping 80° Vertical towards East direction. The strike length of the deposit is 250m with an average width of 134meter.

Figure 2.7: Geological Plan and Cross Section



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

2.6 SIZE AND MAGNITUDE OF THE OPERATION:

As already mentioned, the project pertains to production of TOR approved production capacity of 3,53,641.5 m³ of Rough Stone, 62,157 m³ Weathered rock gravel and 46,476 m³ of top soil earth upto depth of 35 m for the period of Five years after complying with ToR condition as against the mining plan the approved quantity of 5,08,494 m³ of Rough Stone, 71,127 m³ Weathered rock gravel and 47,418m³ of top soil earth upto depth of 35 m for the period of Five years. The details covered under this section can be summarized as follows:

- The mining will be done by open cast mechanized mining method.
- Life of mine will be 5 years.
- There is no waste generation anticipated in this quarry operation since the entire excavated material will be used. The excavated topsoil will be used for plantation and bund formation purposes.

2.6.1 RESERVES:

The geological and recoverable reserves are estimated by cross sectional method. The details of the same has been provided below:

Table 2.4: Geological and Mineable Reserves

S. No	Type of reserves	Top soil Earth Cub.m	Weathered rock gravel Cub.m	Rough stone Cub.m	Depth
1	Geological reserves	58,488	87,732	10,00,744	-
2	Mineable reserves As per AMP	47,418	71,127	5,08,494	35
3	Revised Mineable Reserve as per TOR	46,476	62,157	3,53,641.5	35

The mineable reserves is arrived after considering the safety distance of 7.5m peripheral safety distance.

2.6.2 MINING METHOD:

Opencast mechanized mining using jackhammer drilling, blasting, excavation through excavator & mineral transport through tippers will be carried out. The top earth & gravel is soft and can be



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directly excavated. The rough stone below will be blasted and then excavated. Bench height of 5.0m is considered.

Table 2.5: Details of Equipment

SI. NO	NAME OF THE EQUIPMENT	CAPACITY	REQUIRED
1	Excavator	TATA Hitachi EX200	1
2	Tipper	10 Tonnes	6
3	Tractor compressor for drilling	175 CFM	2
4	Dewatering pump	5 Hp Diesel pump	1

2.7 PROPOSED SCHEDULE FOR APPROVAL AND IMPLEMENTATION:

The proponent propose to implement the production immediately after obtaining all the statutory approvals such as CTE, CTO, etc. The proponent will comply with the environmental clearance conditions during mining operations. The schedule of project implementation envisaged for this project is provided below. This is a tentative schedule subject to various factor, hence unforeseen variations may occur.

Table 2.6 : Proposed Schedule of Implementation

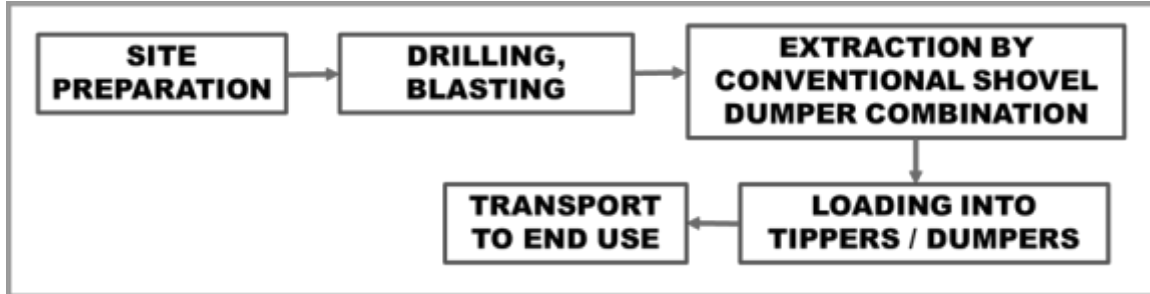
Activities	Months					
	Zero Date	1	2	3	4	5
Obtaining Environmental Clearance						
Obtaining Consent from State Pollution Control Board						
Lease Execution						
Equipment mobilization and Commencement of Mining activity after following all the Statutory Requirements						

2.8 TECHNOLOGY AND PROCESS DESCRIPTION:

The quarry operations involve shallow jack hammer drilling, blasting, excavation, loading and transportation of Roughstone to needy buyers. The production of Roughstone in this quarry involves jackhammer drilling and blasting. The primary boulders are removed from the pits by excavators and further made to smaller sizes by rock breakers attached in excavators. It is a conventional opencast semi mechanized method of mining. The process flow diagram of this project is provided below.



Figure 2.8: Process Flow Diagram



2.9 PROJECT DESCRIPTION:

2.9.1 PAST PRODUCTION:

There is an old pit partly within and mostly outside the lease area. Its details are given below

Table 2.7: Existing Pit Dimensions

Old Pit	Length in(m)	Width in (m)	Depth (Max) in (m)
Inside Applied Lease Area	76	56	6
outside Applied Lease Area	103	56	6

Mining in this pit was carried out before year 2008 much before the land acquisition by the PP

2.9.2 PRODUCTION & WASTE DISPOSAL:

During the plan period, it is proposed to quarry out the revised production capacity 3,53,641.5m³ of Rough Stone, 62,157m³ Weathered Rock and 46,476m³ of top soil upto depth of 35 m for the period of Five years. The year wise production details are provided below.

Table 2.8: Revised Production Schedule

YEAR	Top Soil earth in CU. M	Weathered Rock Gravel IN CU.M	ROUGH STONE IN CU.M.
I	18644	22612.5	51,702.5
II	10360	14232	69,944
III	17464	25312.5	69,562.5
IV	-	-	1,05,305
V	----	----	57,127.5
Total (1 to 5 years)	46,476	62,157	3,53,641.5

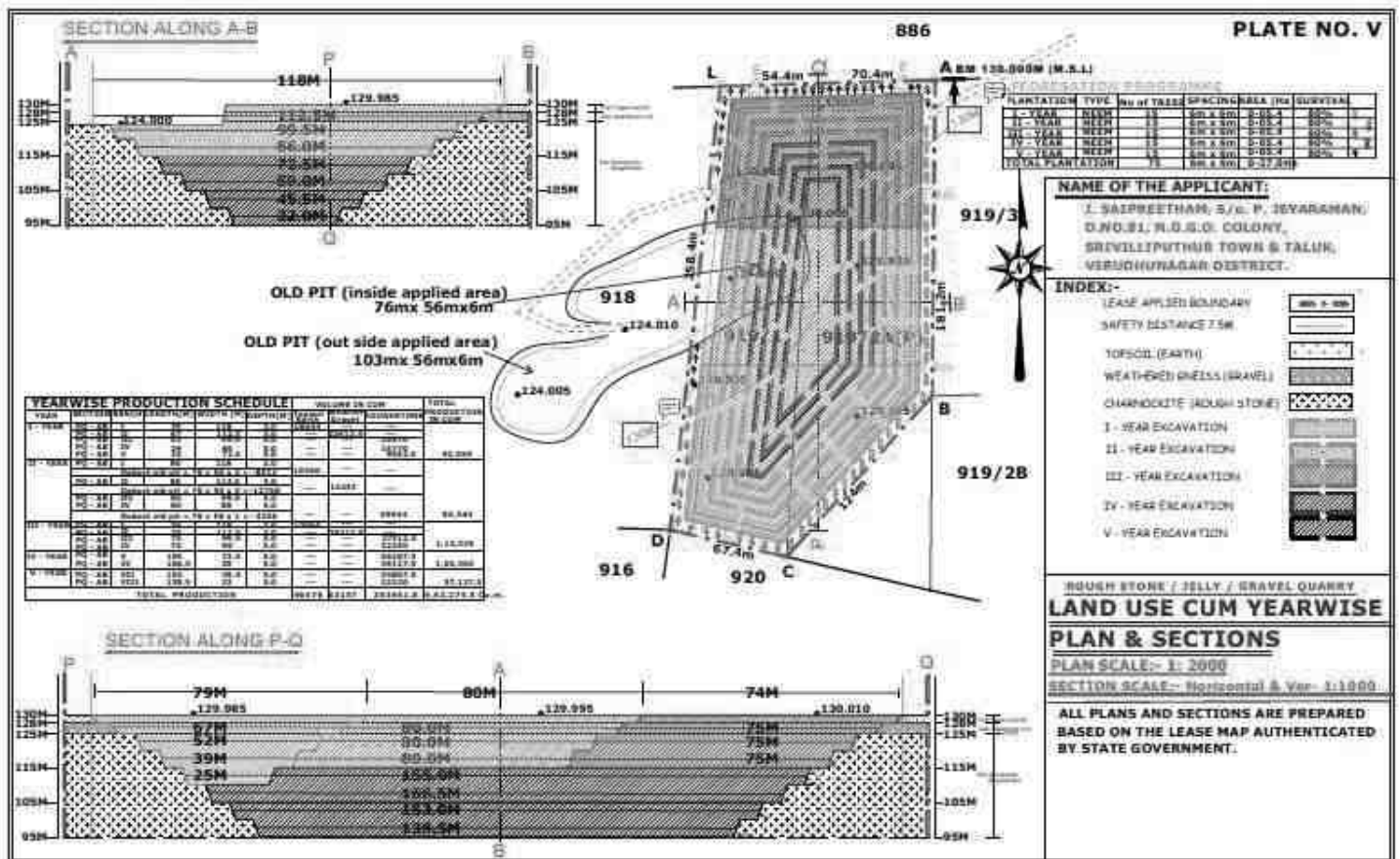


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Waste Disposal: There is no waste generation anticipated in this quarry operation since the entire excavated material will be utilized. The top earth & weathered rock Gravel will be loaded into tipper and marketed to needy customers on payment of necessary Fees to Government. Topsoil will be used for bund formation and plantation purpose. The excavated rough stone will be excavated and loaded into tipper to the needy buyers for producing crusher aggregates, M Sand.

Map showing revised production plan and Cross section, Conceptual plan & Cross section is given vide figure 2.8 & 2.9.

Figure 2.9: Production Plan and Cross Section



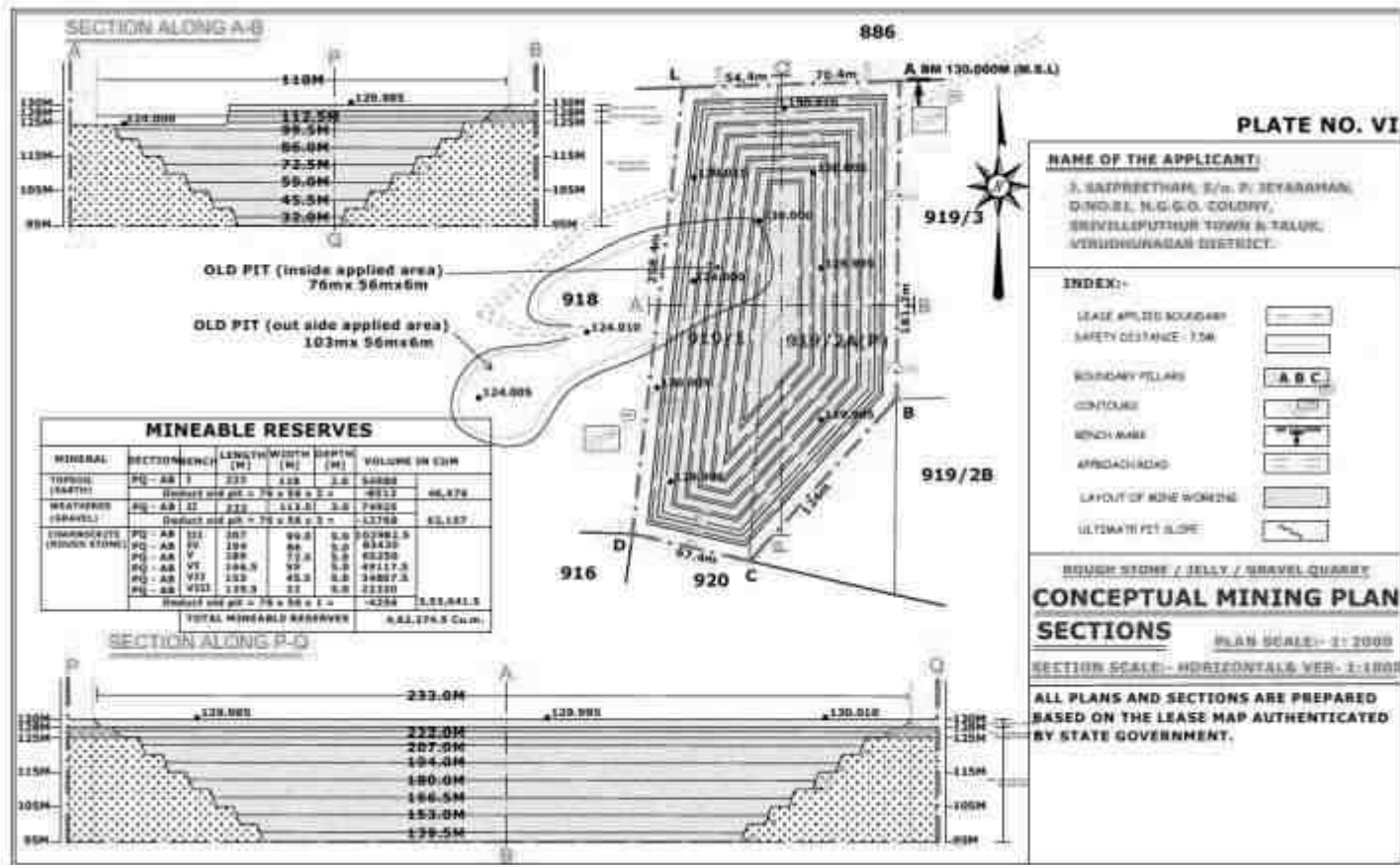
DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.3350 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Table 2.9: Ultimate Pit Dimensions

LENGTH(M)	WIDTH(M)	DEPTH(M)
235	119	35

The ground water table on the surface in this area is ranging from 45 to 50m BGL Hence, ground water intersection in not envisaged. The Conceptual Plan & Cross section are shown in **Figure No. 2.10.**

Figure 2.10: Conceptual Plan and Cross Section



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

2.9.3 LAND DEGRADATION/UTILIZATION:

Major part of the lease area is mined out pit. The land use pattern at the end of the quarrying period has been provided below.

Table 2.10: Land Use Table

S.No	Land Use	Present Area (Ha)	Area in use during the quarrying period (Ha)
1.	Quarrying Pit		2.89.5
2.	Infrastructure & Roads		0.08.0
3.	Green Belt		0.27.0
4.	Undisturbed area		-
5.	Fencing / others		0.09.0
	Total	3.33.50	3.33.50

In the post mining stage, entire 2.89.5 Ha will be left as water body, 0.08.0 Ha will be the mine roads & infrastructure, 0.27.0 Ha will be covered with vegetation and 0.09.0 will be fencing.

2.9.4 PROJECT REQUIREMENTS:

3 Table 2.11: Project Requirements

Manpower	15 People directly and more than 50 people indirectly										
Water Requirement and Source	Water Requirement: 10 KLD										
	<table border="1"> <thead> <tr> <th>Details</th> <th>Quantity (KLD)</th> </tr> </thead> <tbody> <tr> <td>Drinking water and Domestic Use</td> <td>1.0</td> </tr> <tr> <td>Dust Suppression</td> <td>8.0</td> </tr> <tr> <td>Green belt</td> <td>1.0</td> </tr> <tr> <td>Total</td> <td>10.0</td> </tr> </tbody> </table>	Details	Quantity (KLD)	Drinking water and Domestic Use	1.0	Dust Suppression	8.0	Green belt	1.0	Total	10.0
	Details	Quantity (KLD)									
	Drinking water and Domestic Use	1.0									
	Dust Suppression	8.0									
Green belt	1.0										
Total	10.0										
Source: The required water will be procured initially from outside agencies. Later Rain water harvested in the mine sump can also be used.											
Power Requirement	No electricity needed for mining operation. The minimum power requirement for office, etc will be met from state grid.										
Site Services	This is a proposed project. Site services like mine office, first aid room, rest shelters, toilets etc. will be provided as semi-permanent structures.										
Project Cost	Rs. 1,88,19,924										
Funds allocated for socio-economic development	Rs.5.0 Lakhs is allocated under CER budget.										



2.10 DESCRIPTION OF MITIGATION MEASURES:

Scientific and systematic development of mines will be carried out by the project authorities for preserving as well as improving the environmental conditions in and around the mining lease area. Elaborate analysis on impacts and mitigation measures to be adopted on implementation of this project and the same has been dealt in Chapter- IV.

2.11 ASSESSMENT OF NEW & UNTESTED TECHNOLOGY:

There is no new technology that is being implemented. Opencast method of mining which is the proposed method of mining is a proven technology which is technologically and economically viable. No major technological failures are anticipated. A disaster management plan shall be put into place to take care of any unforeseen situation.

2.12 CONCLUSION:

As good environmental preservation is one of the prime motive of the project proponent. It is expected that the project activity will not have any major impact on environmental equilibrium in the study area.

* * * * *



CHAPTER - III

DESCRIPTION OF ENVIRONMENT

CHAPTER 3

DESCRIPTION OF ENVIRONMENT

3.1 GENERAL:

The existing environmental baseline data for the various environmental components were collected in the study area for the purpose of assessing the impact on present environment due to the project activities.

Monitoring was carried out systematically and meticulously as per relevant IS codes, CPCB, MoEF&CC guidelines during **Winter Season (December 2022 to February 2023)** The details of the study are given in this chapter.

For the purposes of this study, the area has been divided into two zones, namely, core and buffer zones. The entire lease area of Roughstone and Gravel Quarry of Thiru. J.Saipreetham is considered to be the core zone while the buffer zone encompasses a 10km radius from the periphery of the core zone. The details of villages falling in the study area and other features are given in Index Plan in **Figure No - 3.1**

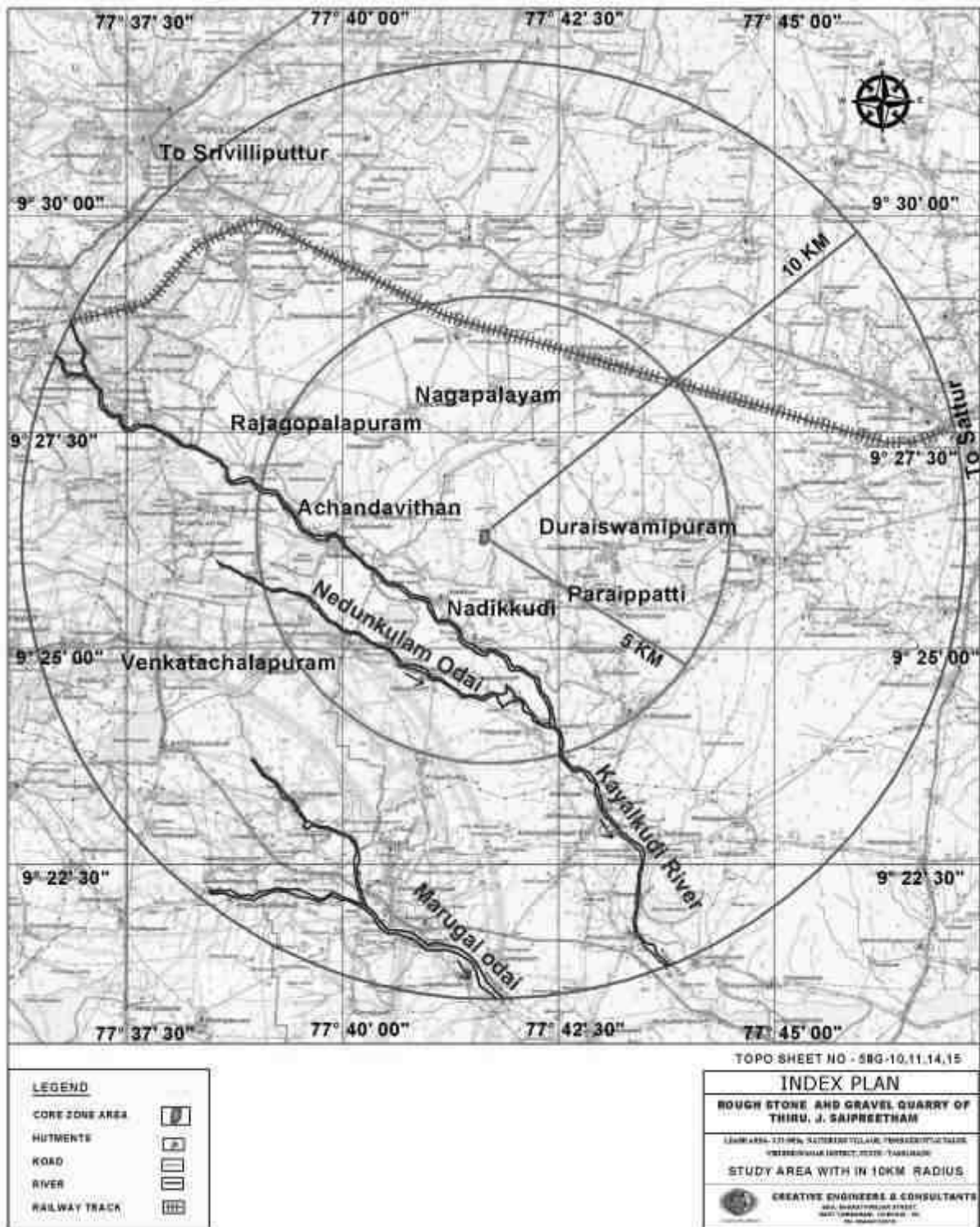
The primary data collection was done by means of field monitoring and the secondary data collection was obtained from published sources and Government documents. The details of the baseline data collection which has been elaborated through the course of this chapter has been concised below:

Table 3.1: Type of Baseline Data

S.No	Studies	Parameters / Study	Location
1	Socio Economy	Demographic Data from Census 2011	Core and Buffer Zone
		Sample Survey	Buffer Zone
2	Micro Meteorology	Rainfall Data from IMD, Viruthunagar	Virudhunagar
		Temperature, Humidity, Wind Speed, Wind Direction	1 Representative Location
3	Ambient Air Quality	PM10, PM2.5, SO2, NOx, CO	1 Core Zone, 5 Buffer Zone
4	Water Quality	Physical and Chemical Parameters	1 Core Zone, 5 Buffer Zone
5	Noise Levels	Ambient Noise	1 Core Zone, 5 Buffer Zone
6	Soil Quality	Physical and Chemical Parameters	1 Core Zone, 3 Buffer Zone
7	Land Use and Land Cover	Land use pattern within 10km study area using RS Satellite	Buffer Zone
		Land use based on Census 2011	Core and Buffer Zone
8	Biological Environment	Flora and Fauna	Core Zone and Buffer Zone
9	Hydrology & Hydro Geology	Hydrogeological profile of the area	Core Zone and Buffer Zone

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Figure 3.1: Study Area Map



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Table 3.2: Environmental Setting of the Study Area

S.No	PARTICULARS	DETAILS
1	Nearest highway	Sivakasi – Alangulam (SH-183)– 5.6Km (SE)
2	Nearest Railway station	Sivakasi RS – 11Km - NE
3	Nearest Airport	Madurai – 62 Km – NE
4	Nearest major water bodies	<ul style="list-style-type: none"> ➤ Seasonal Odai- 150m - E, ➤ Drainage channel-230m-W, ➤ Sevalkulam-480m-S, ➤ Kayalkudi River -1.6km (SW) ➤ Marugal odai - 6.8km-(SW)
5	Nearest villages	<ul style="list-style-type: none"> ➤ Naraiyankulam– 2.4km (W) ➤ Duraiswamipuram – 2.5km (SE) ➤ Nagapalayam– 2.9Km (NW) ➤ Nathikudi – 1.4Km (SW)
6	Hills / valleys	Nil within 10m radius
7	Notified Archaeologically important places, Monuments	Nil within 10m radius
8	Local Places of Historical and Tourism Interest	Nil within 10m radius
9	Environmental sensitive areas, Protected areas as per Wildlife Protection Act, 1972 (Tiger reserve, Elephant reserve, Biospheres, National parks, Wildlife sanctuaries, community reserves and conservation reserves)	Nil within 10m radius
10	Reserved / Protected Forests	Nil within 10 km radius
11	Defence Installations	Nil within 10 km radius
12	Seismic Zone	Zone – II (Least Active)
13	Other Industries in the study area	Other than crushers, Roughstone quarries, match box, fire works factories no other major industries are located in the study area.



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3.2 SOCIO-ECONOMIC CONFIGURATIONS OF THE AREA:

3.2.1 GENERAL:

The Socio-Economic details of the study area are collected through:

- Identification of villages falling from the study area map with combined Taluk map.
- Collection of primary data through sample survey, village meetings and focused group discussion.
- Collection of the demographic pattern of villages falling in the area through NIC 2011 census data.
- Occupational structure of villages falling in the study area through NIC 2011 census data.
- Details of the amenities available in villages falling in the study area through NIC 2011 census data. The findings of the study are illustrated below:

3.2.2 SECONDARY DATA DESCRIPTION:

The proposed Rough stone and gravel quarry is located in in Nathikudi Village, Vembakottai Taluk, Virudhunagar District. Based on 2011 census data, in the 10km radius there are 28 Rural villages and 7 urban areas from Three Taluks namely Rajapalayam, Sivakasi, Srivilliputhur. The demographic profile of the study area is given below:

Table 3.3: Social, Economic and Demographic Profile of the Study Area

Details	Population	Percentage
A. Gender-wise distribution		
Male Population	134570	49.67
Female Population	136384	50.33
Total	270954	100
B. Caste-wise population distribution		
Scheduled Caste	48390	17.86
Scheduled Tribes	292	0.11
Other	222272	82.03
Total	270954	100
C. Literate and Illiterate population		
Literate Males	107012	39.49



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Details	Population	Percentage
Literate Females	91000	33.59
Total Literate Population	198012	73.08
Others Males	27558	10.17
Others Females	45384	16.75
Others Population	72942	26.92
Total	270954	100
D. Occupational structure		
Main workers	119491	44.10
Marginal workers	10992	4.06
Total Workers	130,483	48.16
Total Non-workers	140471	51.84
Total	270954	100

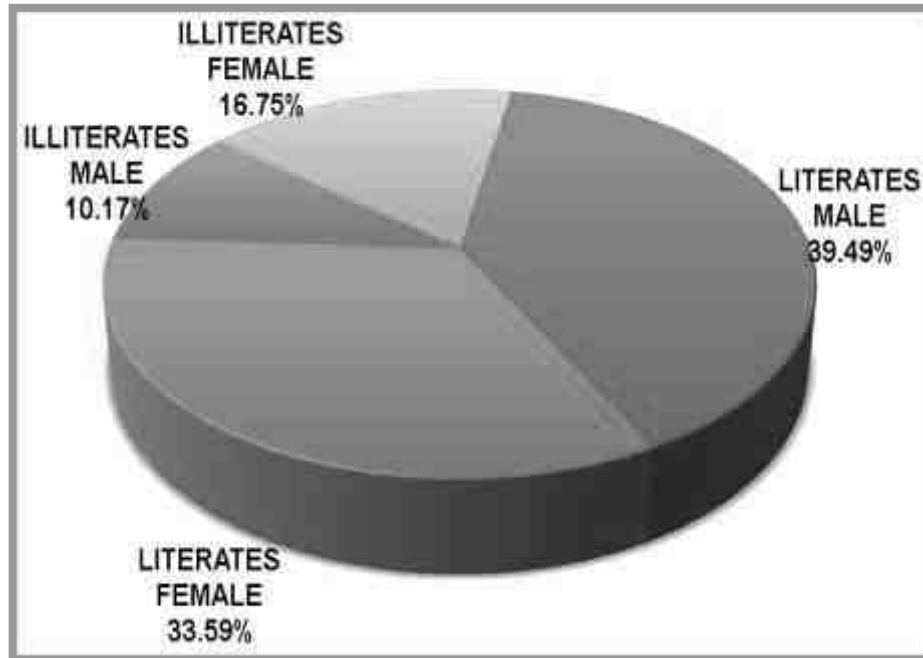
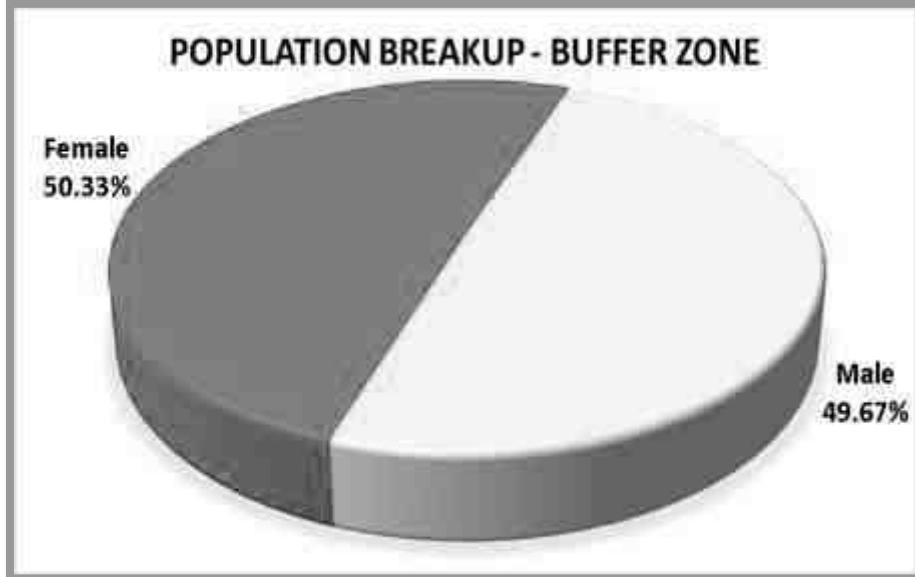
The total population of these 28 rural villages and 7 urban areas is 270954 in which the male population is 134570 (49.67%) and the female population is 136384 (50.33%). This shows that the male and female population ratio is almost equal. Among the total population 0.11% belong to Scheduled Tribes, 17.86 % are Scheduled Caste and the balance 82.03 % people belong to other castes. Among the total population, 73.08% of the people are literate.

Among the total population, 39.49% are literate males and 33.59% are literate females. This shows that the male literates are slightly more than the female literates. Totally, the illiterate constitute 26.92% of which the female cover 16.75% and the male 10.17%. Illiteracy in women is more than in the male population.

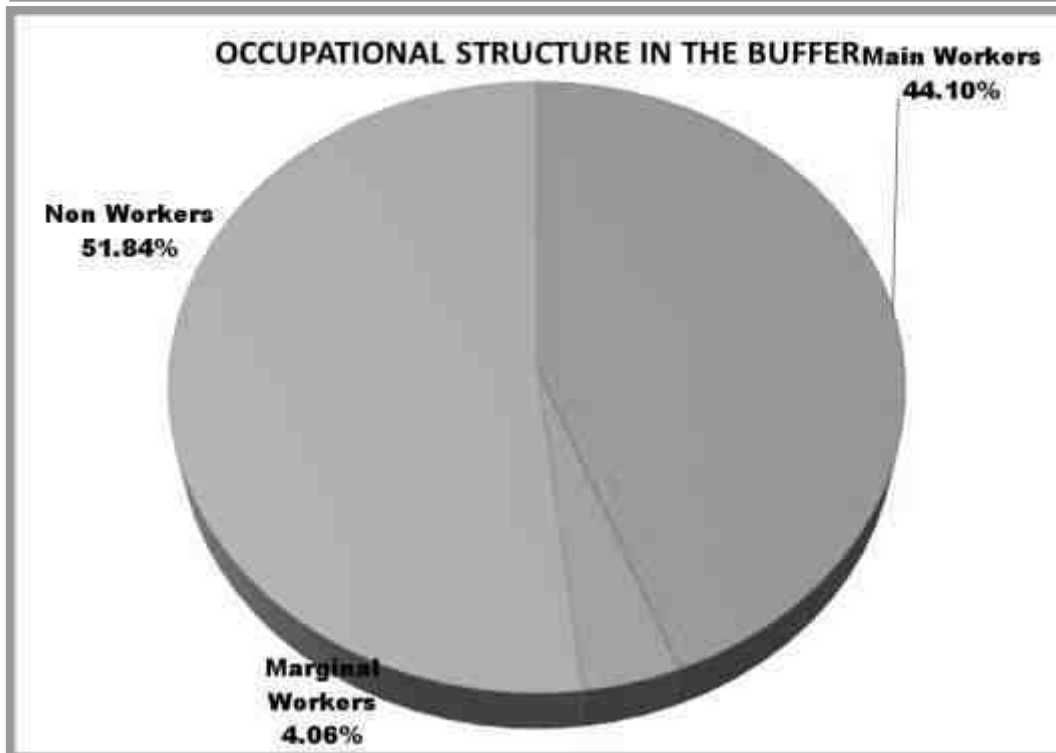
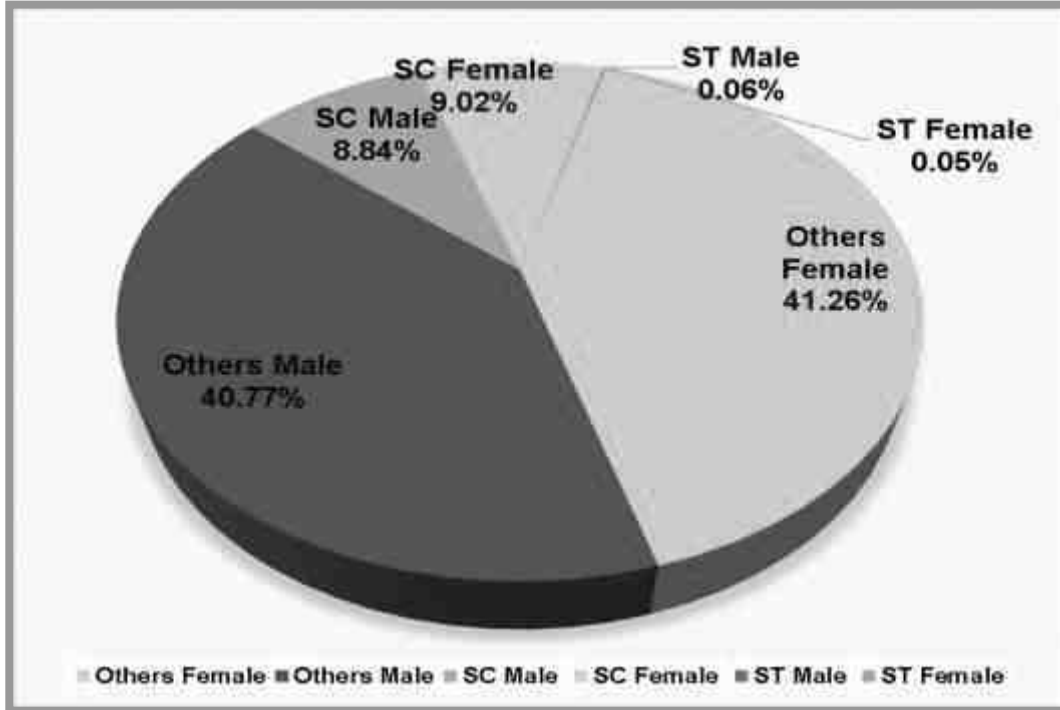
The village wise population, literacy levels and occupational structure details are given in **Annexures 4 and 5**. The demographic structure within the buffer zone is shown diagrammatically in **Figure No – 3.2**.



Figure 3.2: Demographic Structure in Buffer Zone



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3.2.3 DETAILS OF AMENITIES:

Based on 2011 census data, regarding the educational facilities, 25 rural villages out of 28 rural villages have educational facilities. There are totally 92 Primary Schools functioning in these 25 rural villages. Among them 5 villages have one primary school, 3 villages have 2 primary schools, 7 villages have 3 primary schools, 1 villages have 4 primary schools, 2 villages has 5 primary schools ,4 villages have 6 primary schools, 2 villages have 7 primary schools and 1 village has 8 primary schools. With regards to educational facilities, from Primary School level to Senior Secondary School level, there is availability of some schools in the area. However, beyond this, college level education is not available in the buffer zone. Out of 28 villages, 18 villages have primary health sub centers. Better medical facilities are available in the nearby larger towns.

Table 3.4: Primary Schools in the Buffer Zone Rural Villages

S.No	No of Rural Villages	Number of primary schools	Totals
1	3	0	0
2	5	1	5
3	3	2	6
4	7	3	21
5	1	4	4
6	2	5	10
7	4	6	24
8	2	7	14
9	1	8	8
Total	28		92

Table 3.5: Education Facility Availability

PARTICULARS	Available in village
Govt Primary School	25
Govt Middle School	17
Govt Secondary School	9
Govt Senior Secondary School	4
Govt Arts and Science Degree College	0
Govt Engineering College	0
Govt Medicine College	0
Govt Management Institute	0
Govt Polytechnic	0
Govt Vocational Training School/ITI	0



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Table 3.6: Healthcare Amenities Availability

PARTICULARS	Available in village
Community Health Centre	2
Primary Health Centre	6
Primary Health Sub Centre	18
Maternity And Child Welfare Centre	10
TB Clinic	6
Hospital Allopathic	0
Hospital Alternative Medicine	0
Dispensary	6
Veterinary Hospital	7
Mobile Health Clinic	0
Family Welfare Centre	6

Table 3.7: Infrastructure Facilities

Particulars	Available in village
Tap Water-Treated	28
Covered Well	10
Hand Pump	19
Tube Wells/Borehole	25
Post office	3
Bus services	18
Railway station	2
Commercial Bank	6
Cooperative bank	12

The details of the educational, medical and infrastructural facilities available in the buffer zone is provided in **Annexures- 6-8**.

3.2.4 SAMPLE SURVEY:

3.2.4.1 OBJECTIVE:

The objective of the study is to understand the present socio-economic condition, availability of existing infrastructure facilities in the area & to know the needs of the people in the project peripheral villages, to provide an implementable future CER proposal pertaining to specific needs addressing local requirements.



3.2.4.2 APPROACH:

Nearby villages were visited for conducting study to know about socio-economic conditions, including aspirations and requirements of the people for a better living and collected relevant data. Informal discussions were conducted in the villages to capture the overall scenario of the village including their socio economic problems and the aspirations, desires of the community in overall terms.

Salient details of the study are given below:

- Predominantly the study area is dry, barren land. Mining is the major occupation within 3 km from the lease area
- Patches of plantation and agriculture are observed during the monsoon season.
- Majority of the people are small farmers and others are working in the nearby crushers, mining , allied industries and crackers , match box factories.
- Since agriculture is predominantly rainfed and the water is available only for few months, during the rest of the time they have less employment opportunities. Other occupations include construction workers, vendors, etc.
- Bore well is the main source for agriculture activities during non monsoon season. There are OHT's, Ground level tanks, public taps are available .
- Education facilities from primary upto higher secondary school are available locally.
- Basic medical facilities are available locally.

3.2.4.3 IDENTIFIED CER ACTIVITIES:

The following activities are identified based on the survey, which will be modified and implemented based on the needs and requirements of the local people:

- Provision of RO water facility
- Smart class facilities for nearby schools.
- Improvements in sanitation facilities
- Good road facility

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3.3 EXISTING ENVIRONMENTAL QUALITY

3.3.1 MICRO-METEOROLOGY

3.3.1.1 General:

The meteorological conditions in an area regulate the dispersion of air pollutants being released into the atmosphere. The principal variables are horizontal convective transport i.e. wind speed and direction and vertical convective transport, i.e. mixing height, stability class and topography of the area.

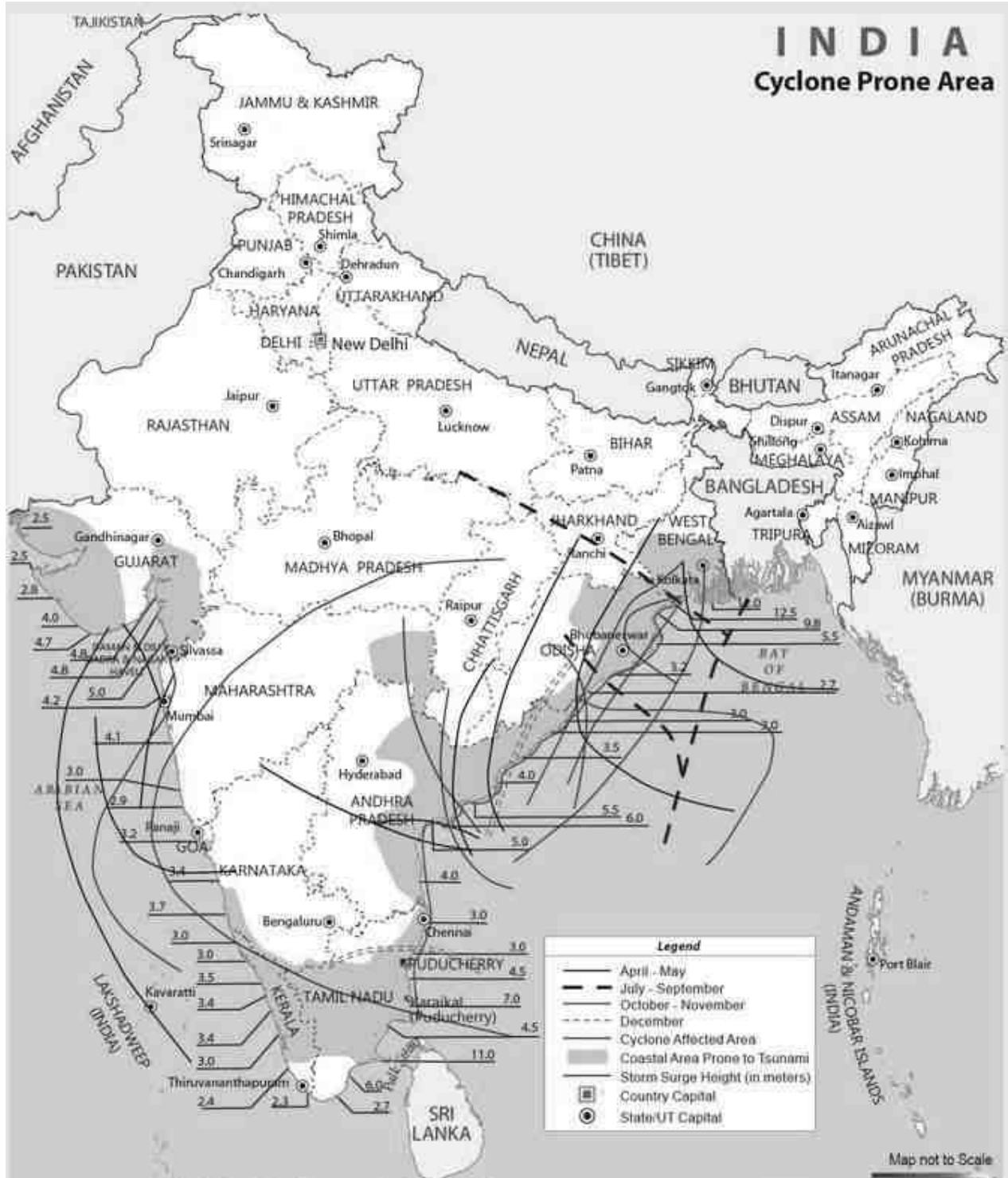
3.3.1.2 Historical Meteorological Data:

A. Cyclones And Depressions

Cyclonic storms and depressions in Bay of Bengal affect the East Coast of India. Isolated ones, forming in January to March in the South Bay of Bengal move West-North-westwards and hit Tamil Nadu coast. In April and May, cyclonic storms and depressions form in the South and adjoining Central Bay and move initially to the Northwest, then North and then recurve to the Northeast striking the Arakan coasts in April and Andhra Pradesh (AP)-Orissa-West Bengal (WB) – Bangladesh coasts in May. Most of the monsoon (June – September) storms develop in the central and in the north bay and move west – north - westwards affecting AP – Orissa – WB coasts. Post monsoon (October – December) storms form mostly in the south and central Bay, recurve between 150 and 180 N affecting Tamil Nadu – AP – Orissa – WB – Bangladesh coasts. **Figure No - 3.3** depicts the history of cyclonic storms, which have struck the Indian coast during the months of October, November and December during the last 75 years. **(Source: Vulnerability Atlas of India series, above figure accessed from www.maps of india.com).** East coast is prone to cyclonic storms round the year but mostly these occur prior to SW i.e., in May and after SW monsoon i.e., in October and November.

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.3350 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Figure 3.3: Cyclone Prone Areas

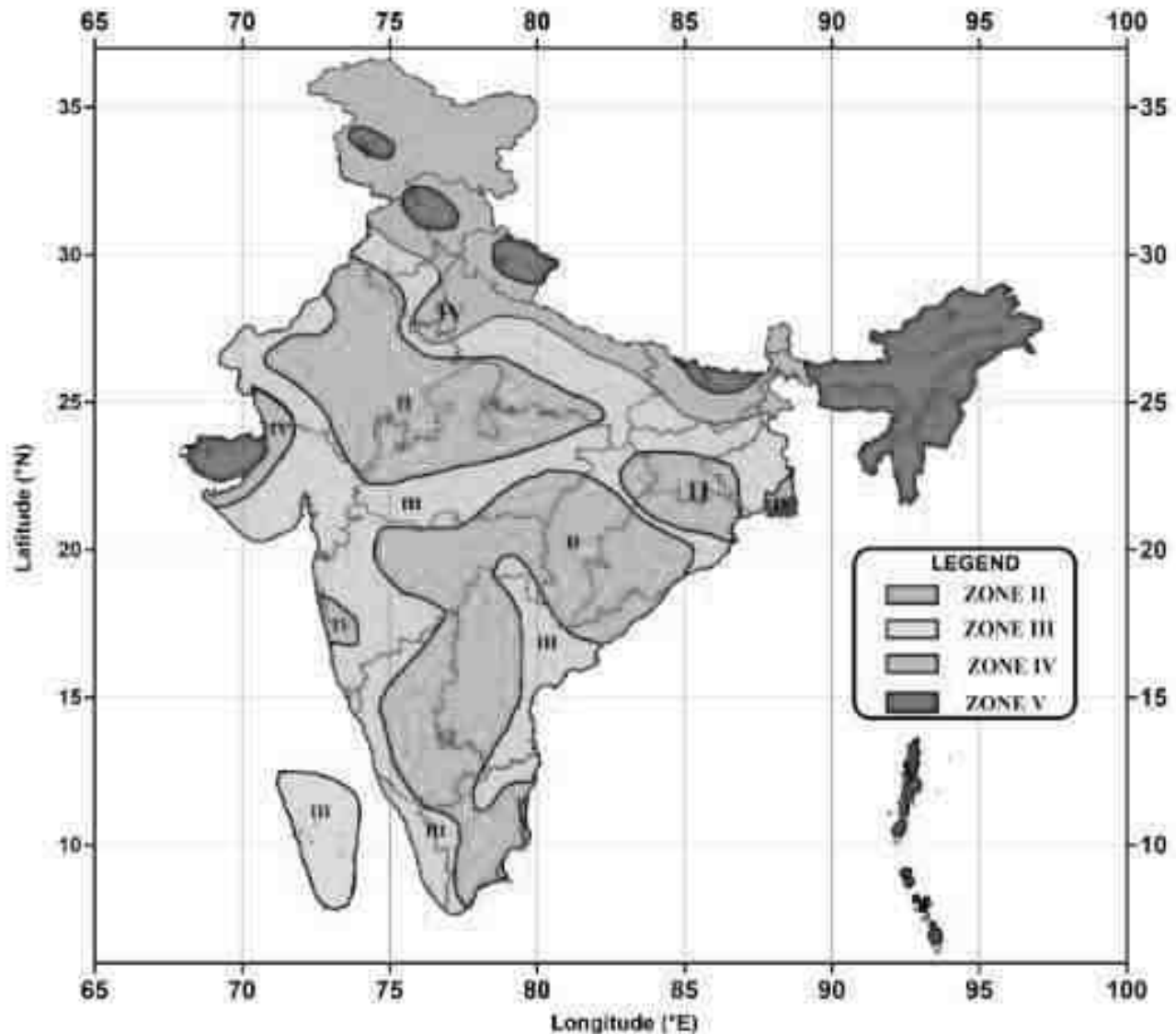


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B. SEISMIC DATA

From the seismic zone map of India as depicted in the **Figure No - 3.4**, it can be seen that the project site and study area falls in the Zone – II and is described as least active zone.

Figure 3.4: Seismic Zone Map of India



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

C. Climate and Rainfall Data:

Temperature: From the middle of February, temperature increases steadily. The weather is quite hot in May and June and the maximum temperature sometimes reaches 40°Celsius. With the onset of the southwest monsoon by the end of May or beginning of June, there is some drop in temperature.

Cloudiness: During the months of April and May, the skies become heavily clouded and threatening in the afternoons on many days when thunderstorms follow. In the southwest and northeast monsoon seasons, the sky is heavily clouded or overcast.

Winds: Generally light to moderate in strength and NW-SW and vice-versa. Between May and September winds are mainly north westerly or westerly. From October to February winds are mainly north easterly or northerly.

Rainfall: Main rainy season is from October to the middle of January. November is generally the rainiest month. The average annual rainfall data from 2011 – 2020 is given in Table No. 3.8.

Rainfall data collected by Virudhu Nagar , IMD station for the period of 2011 to 2020 is given in **Table No.3.8** Rainfall histograms are presented in **Figure No - 3.5 and 3.6**.

Table 3.8: Average Annual Rainfall Data (2011-2020)

YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Rainfall
2011	85.49	162.8	109.57	201.3	119.75	392.46	313.13	227.99	199.02	146.11	190.62	197.52	2345.76
2012	16.29	18.37	76.82	297.85	81.31	192.98	223.09	287.28	155.75	234.49	127.34	14.38	1725.95
2013	10.22	43.85	46.9	14.44	27.26	15.48	2.4	115.17	43.3	118.37	68.61	84.27	590.27
2014	11.2	2.25	7.42	14.03	187.33	9.68	9	78.69	65.2	217.23	146.17	55.08	803.28
2015	4.45	3.43	31.39	95.62	114.89	17.83	28.19	53.96	84.73	103.78	279.24	140.03	957.54
2016	0.24	0.03	1.71	5.88	85.2	16.88	69.79	39.75	47.21	66.65	49.6	60.33	443.27
2017	20.72	2.81	15.1	3.18	32.84	7.88	27.54	42.11	62.59	40.74	42.35	17	314.86
2018	0.74	1.28	11.62	21.13	66.02	14.49	33.67	41.94	47.92	134.91	68.92	7.28	449.92
2019	5.08	2.26	3.23	2.33	4.5	17.83	18.5	71.16	163.58	251.1	109.63	88.91	738.11
2020	3.87	0.48	0.11	24.2	69.81	32.41	40.51	45.93	94.14	138.83	241.45	139.88	831.62
NORMAL	18.5	23.5	37.6	76.8	60.2	18.3	31.1	51.6	80.8	191	175.5	64.7	829.6

Source – Virudhunagar District, IMD



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Figure 3.5: Total Rainfall

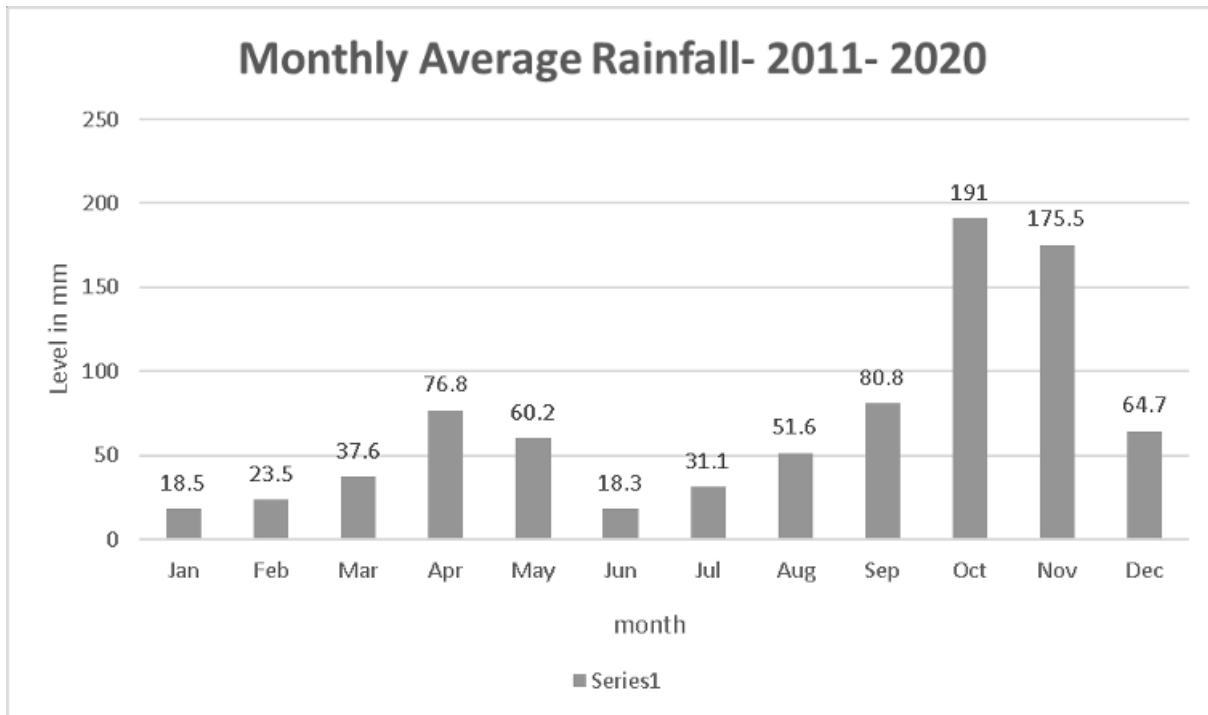
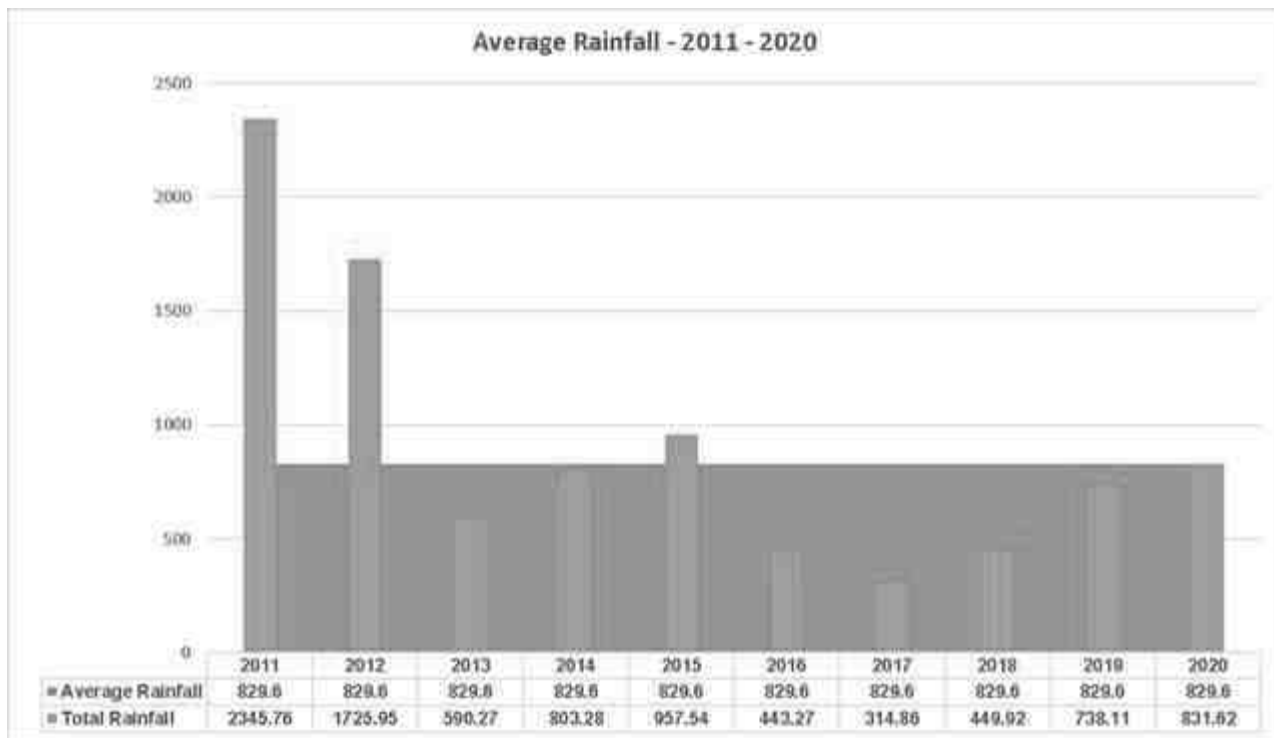


Figure 3.6: Average Annual Rainfall



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3.3.1.3 SITE SPECIFIC METEOROLOGICAL DATA:

Micrometeorology and microclimatic parameters were recorded by installing a weather monitoring station near mine lease area. Data of wind velocity, wind direction, ambient temperature, relative humidity, were recorded throughout the monitoring period.

DATA ANALYSIS:

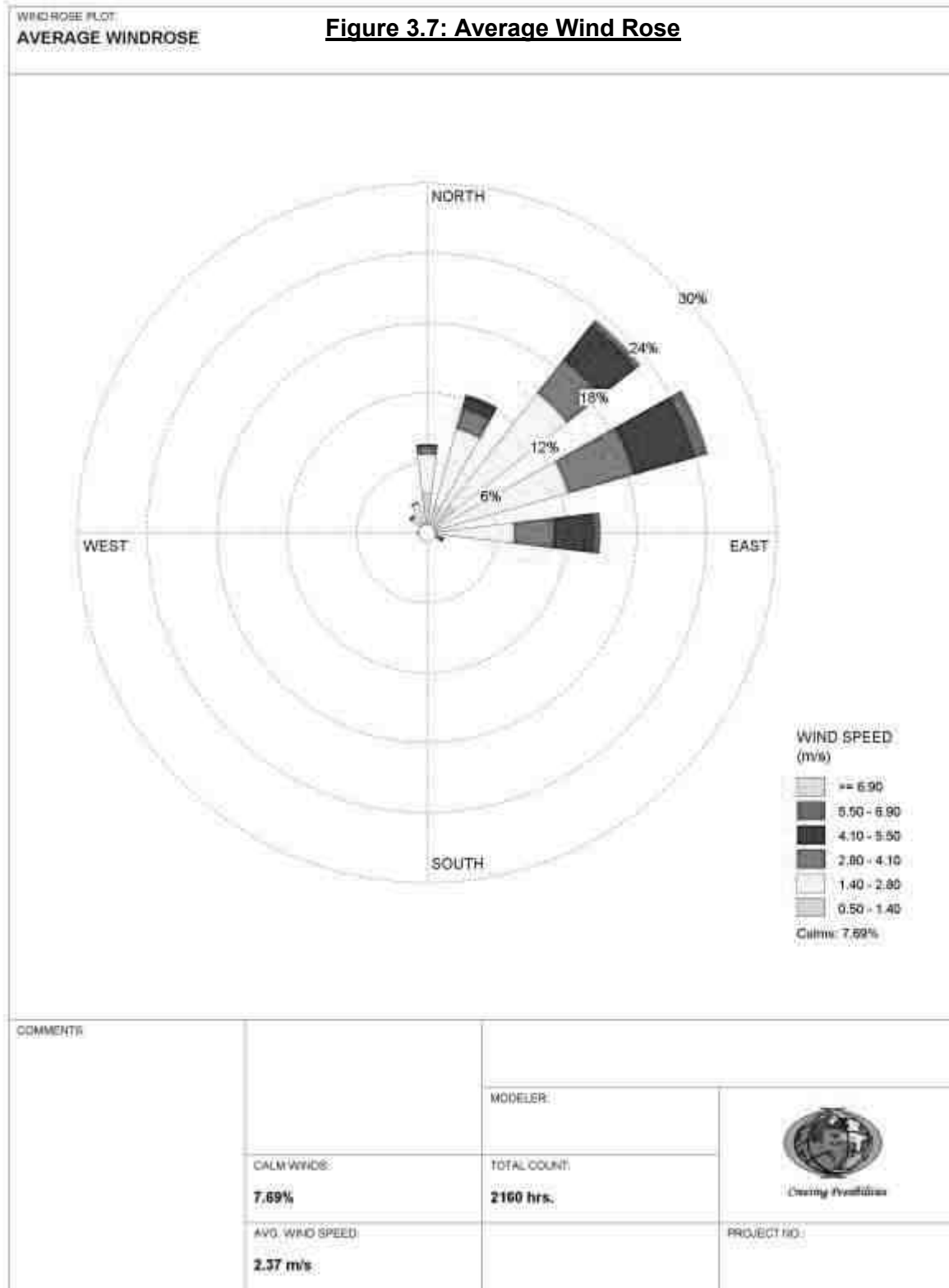
The temperature in the area during the study period ranged from 18.0°C to 36.0°C while the relative humidity varied between 17.0 – 99.0%. The wind speed during the study period ranged from <1.8 to 27.7 Km/hr. The predominant wind direction is from NE. The meteorological data are presented in **Table no – 3.9**. The average wind rose is depicted in **Figure No - 3.7**.

Table 3.9: Meteorological Data

Season: Winter Season, December 2022 to February 2023)			
S.NO	PARAMETERS	MIN	MAX
1	Temperature In °c	18.0	36.0
2	Humidity in %	17.0	99.0
3	Wind speed in km/hr	<1.8	27.7
4	Predominant wind direction from	NE	



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3.3.2 AMBIENT AIR QUALITY (AAQ):

Ambient Air quality has been assessed through a network of 6 ambient air quality stations. The following methodology has been considered for design of ambient air quality monitoring network in the area. Based on these criteria, 6 numbers of air sampling stations were selected in the area as shown below in Table No.3.10.

- ❖ Topography / terrain of study area.
- ❖ Populated areas within study area.
- ❖ Residential /sensitive areas within study area.
- ❖ Magnitude of surrounding industries.
- ❖ Representation of regional background levels.
- ❖ Representation of cross sectional distribution in down wind direction.
- ❖ Predominant wind direction and wind pattern.

Table 3.10: Air Quality Monitoring

1.	Monitoring Period	Winter Season (Dec 2022 – Feb 2023)
2.	Monitoring Location	The location map showing Ambient Air Quality study stations are shown in Figure No- 3.8.
3.	Methodology	
	Parameter	Protocol
	a. Particulate Matter (PM10)	Gravimetric (IS 5182: Part 23:2017)
	b. Particulate Matter PM2.5	Gravimetric (IS 5182: Part 24:2019)
	c. Sulphur Dioxide	Colorimetric (West & Gaeke Method) (IS 5182: Part 02: 2017)
	d. Nitrogen Dioxide	Colorimetric(Modified Jacob & Hocheiser Method) (IS 5182: Part 06:2017)
	e. Carbon Monoxide	CO Monitor
f. Silica	Colorimetric (Molybdate Method) NIOSH 7601 -2003	
4.	Monitoring Frequency	2 days in a week, 4 weeks in a month for 3 months in a season.

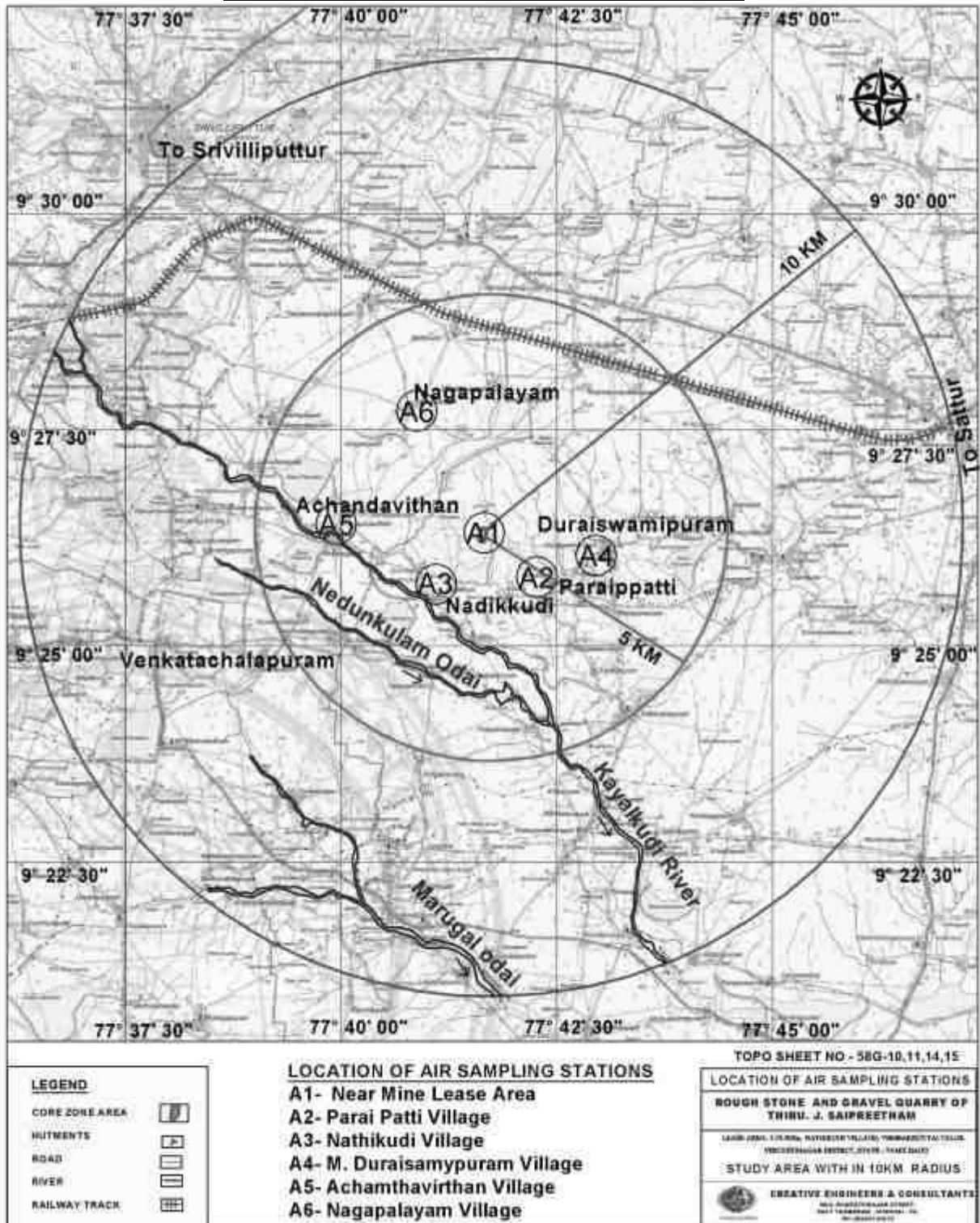
Table 3.11: Air Quality Monitoring Locations

S.NO	LOCATION CODE	LOCATION	DISTANCE FROM CORE ZONE (KM)	DIRECTION
1	A1	Near Mine Lease Area	-	-
2	A2	Parai Patti Village	1.6km	SE
3	A3	Nathikudi Village	1.4km	SW
4	A4	M.Duraisampuram Village	2.5km	SE
5	A5	Achamthavirthan Village	2.9km	W
6	A6	Nagapalayam Village	2.9km	NW



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.3350 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Figure 3.8: Ambient Air Quality Study Stations



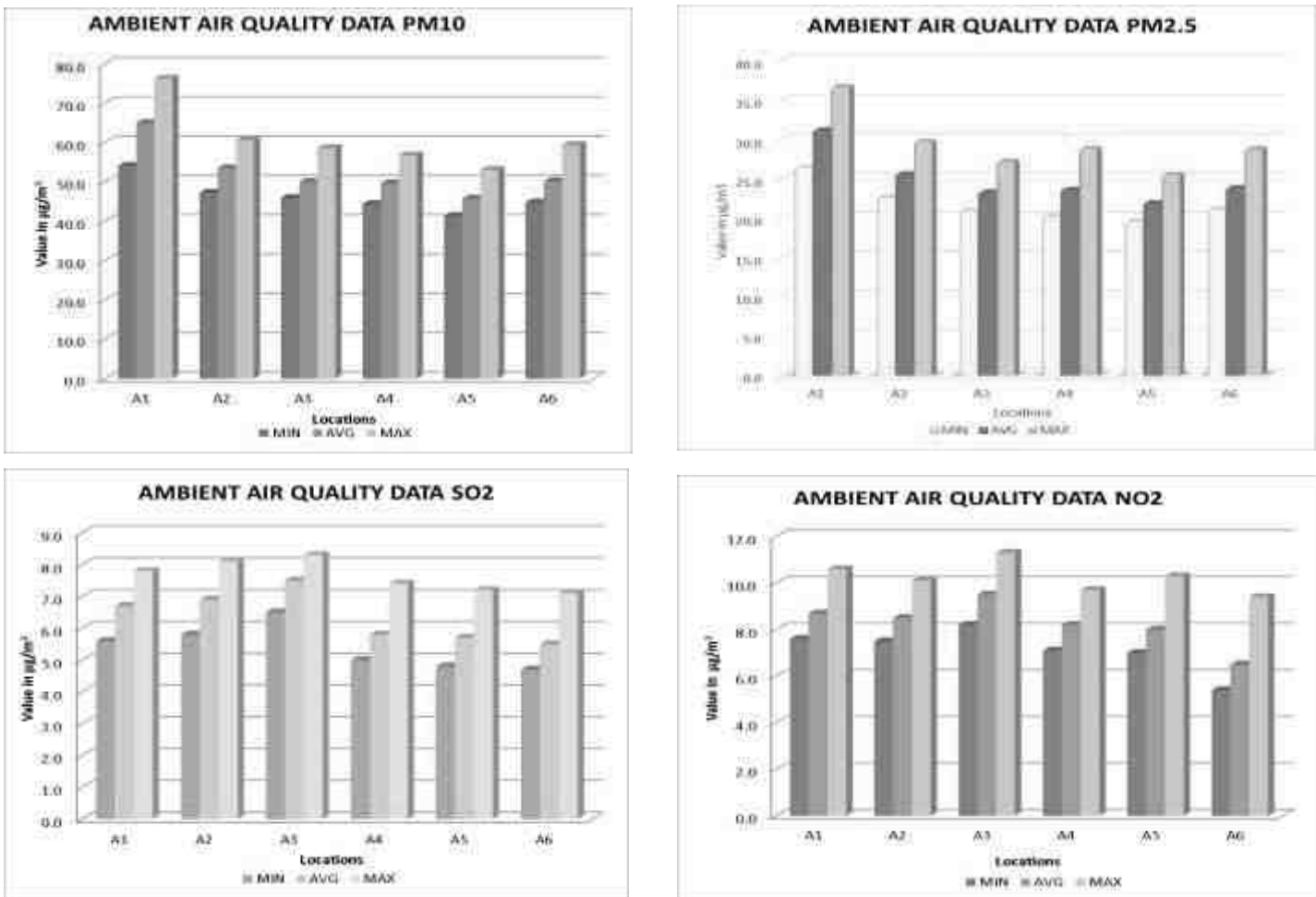
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Table 3.12: Ambient Air Quality Data

PARAMETERS LOCATIONS	Cat.*	All Value in $\mu\text{g}/\text{m}^3$											
		PM ₁₀			PM _{2.5}			SO ₂			NO ₂		
		MIN	AVG	MAX	MIN	AVG	MAX	MIN	AVG	MAX	MIN	AVG	MAX
A1-Near Mine Lease Area	I	54.1	65.0	76.3	26.5	31.3	36.8	5.6	6.7	7.8	7.6	8.7	10.6
A2-Parai Patti Village	R	47.3	53.5	60.6	22.7	25.7	29.8	5.8	6.9	8.1	7.5	8.5	10.1
A3-Nathikudi Village	R	46.0	50.0	58.6	21.0	23.4	27.3	6.5	7.5	8.3	8.2	9.5	11.3
A4-M.Duraisampuram Village	R	44.4	49.7	56.8	20.3	23.7	28.9	5.0	5.8	7.4	7.1	8.2	9.7
A5-Achamthavirthan Village	R	41.4	45.8	53.1	19.6	22.0	25.6	4.8	5.7	7.2	7.0	8.0	10.3
A6- Nagapalayam Village	R	44.8	50.2	59.4	21.2	23.9	28.9	4.7	5.5	7.1	5.4	6.5	9.4
NAAQ Limits		PM₁₀			PM_{2.5}			SO₂			NO₂		
	*	100			60			80			80		
	**	100			60			80			80		

***Note:** Category: * - Industrial, Residential, Rural and other area, ** – Ecologically Sensitive Area (notified by Central Government)

Figure 3.9: Ambient Air Quality Data



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

3.3.2.1 Results and Discussion:

The AAQ monitored data for all locations for above parameters are shown in **Table No - 3.12** and in **Figure No - 3.10**. Ambient Air Quality data during the study period is given in **Annexure-9**. From the table it is seen that, in the ambient air, the PM₁₀ values were in the range of 41.4-76.3 µg/m³. PM_{2.5} values were in the range of 19.6-36.8 µg/m³. SO₂ levels were ranging from 4.7– 8.3 µg/m³. NO₂ levels were ranging from 5.4-11.3 µg/m³.

The existing Ambient Air Quality levels for PM₁₀, PM_{2.5}, SO₂ and NO₂, are within the NAAQ standards prescribed CPCB limits of 100 µg/m³, 60 µg/m³, 80 µg/m³ & 80 µg/m³. The CO values in all the locations were found to be below detectable limit. Silica values in the study area are found to be below detectable limit. (Detection limit – 0.05 mg/m³)

3.3.3 WATER ENVIRONMENT:

Assessment of baseline data on water environment includes Identification of water resources, Collection of water samples and Analyzing water samples collected for physico-chemical parameters as per standards. The water sampling was carried out for 6 locations. Details of the same has been provided below:

Table 3.13: Water Quality Monitoring

1.	Monitoring Period	Winter Season (Dec 2022 – Feb 2023)			
2.	Monitoring Location	The location map showing water sampling locations are given in Figure No.3.11 .			
	Code	Location	Sample Type	Distance	Direction
	W1	Near Mine Lease Area	Bore well	-	-
	W2	Parai Patti Village	Bore well	1.6km	SE
	W3	Nathikudi Village	Bore well	1.4km	SW
	W4	M.Duraisampuram Village	Bore well	2.5km	SE
	W5	Achamthavirthan Village	Bore well	2.9km	W
	W6	Nagapalayam Village	Bore well	2.9km	NW
3.	Methodology	Sampling - IS 3025 Part - I			
		Analysis – IS 3025 relevant parts / APHA 23rd Edition			



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Figure 3.10: Location of Water Sampling Stations

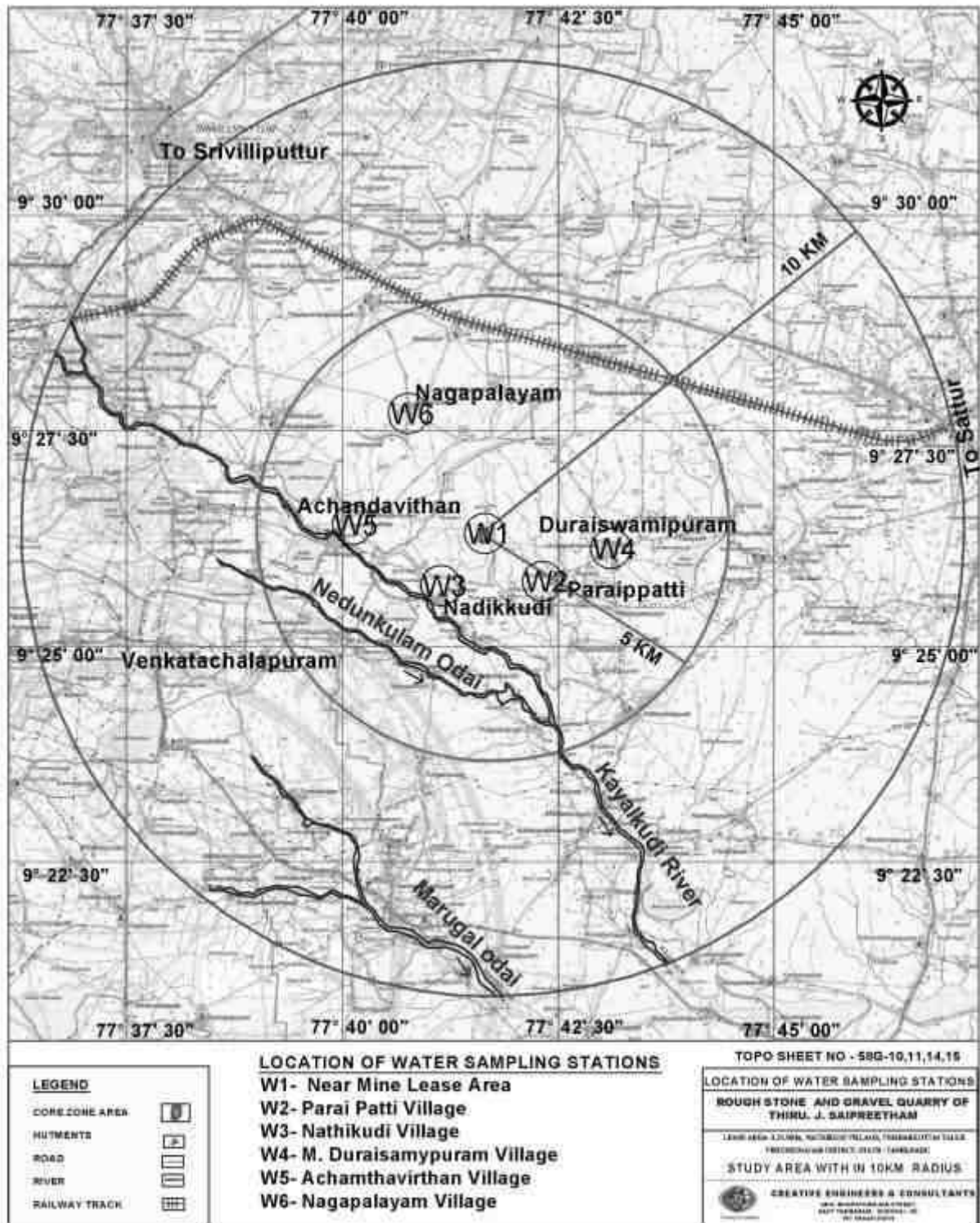


Table 3.14: Summary of Water Quality Data

Season	December 2022 to February 2023	
Monitoring Locations	6 locations	
Parameters	Range of values	Limits*
pH at 25 °C	7.32 – 8.02	6.5-8.5
Total Dissolved Solids, mg/L	265 – 982	2000
Chloride as Cl-, mg/L	35.6 – 346	1000
Total Hardness (as CaCO ₃), mg/L	182 – 434	600
Total Alkalinity (as CaCO ₃), mg/L	149– 331	600
Sulphates as SO ₄ ²⁻ , mg/L	15.8 – 214	400
Iron as Fe, mg/L	0.05 – 0.12	0.3
Nitrate as NO ₃ , mg/L	1.95 – 4.26	45
Fluoride as F, mg/L	0.12 – 0.48	1.5

3.3.3.1 Results and Discussion:

The results of the water sample analysis are shown in **Table No - 3.14**. The pH values of bore well water were ranging in between 7.32 – 8.02, TDS values were in the range of 265 – 982mg/L. Chloride values were ranging from 35.6 – 346mg/L. Iron content was found to be in the range 0.05 – 0.12mg/L. The water quality of ground water is found to be within the prescribed Permissible limits of IS: 10500 Norms in the absence of an alternative source as per Drinking Water Specifications. The water quality data is provided in **Annexure-10**.

3.3.4 NOISE ENVIRONMENT:

Operational phase of this project may lead to increase noise levels from the existing levels at least in and around the project area. As noise level beyond permissible limits will cause adverse impacts on the environment, it has become imperative to assess the noise levels in and around the mine area. Noise level measurements were taken at the 6 locations during the monitoring period. Details of the same are provided below:

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

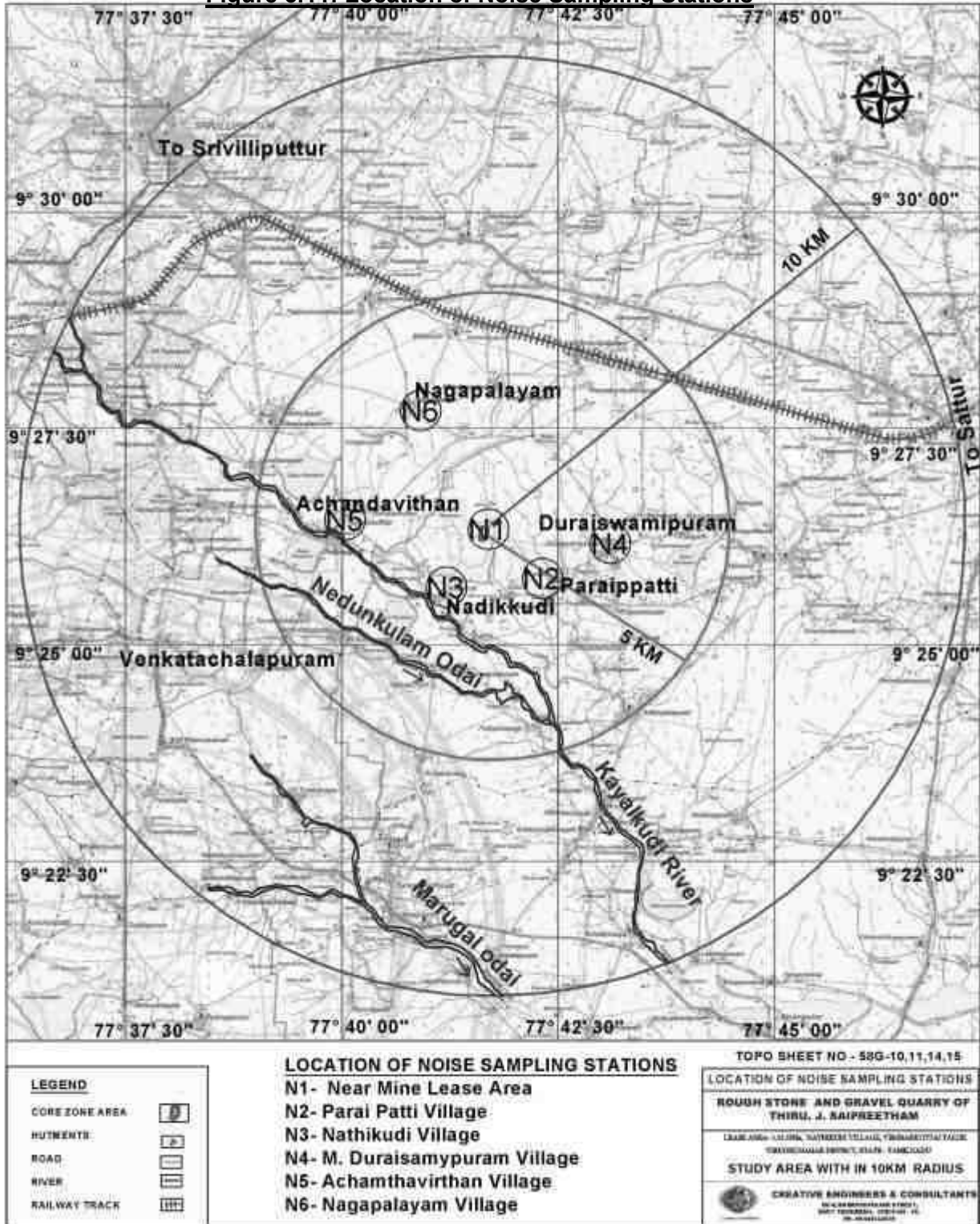
Table 3.15: Noise Level Monitoring

1.	Monitoring Period	Winter Season (Dec 2022 – Feb 2023)		
2.	Monitoring Location	The location map showing noise monitoring locations are given in Figure No.3.11.		
	Code	Location	Distance	Direction
	N1	Near Mine Lease Area	-	-
	N2	Parai Patti Village	1.6km	SE
	N3	Nathikudi Village	1.4km	SW
	N4	M.Duraisampuram Village	2.5km	SE
	N5	Achamthavirthan Village	2.9km	W
	N6	Nagapalayam Village	2.9km	NW
3.	Methodology	Noise levels were measured using sound level meter manufactured by (Model No - SL- 4001, Make - Lutron). Sound Pressure Level (SPL) measurements were measured at all locations where ambient air quality monitored; one reading for every hour was taken for 24 hours.		
4.	Monitoring Frequency	Once during monitoring period		



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Figure 3.11: Location of Noise Sampling Stations

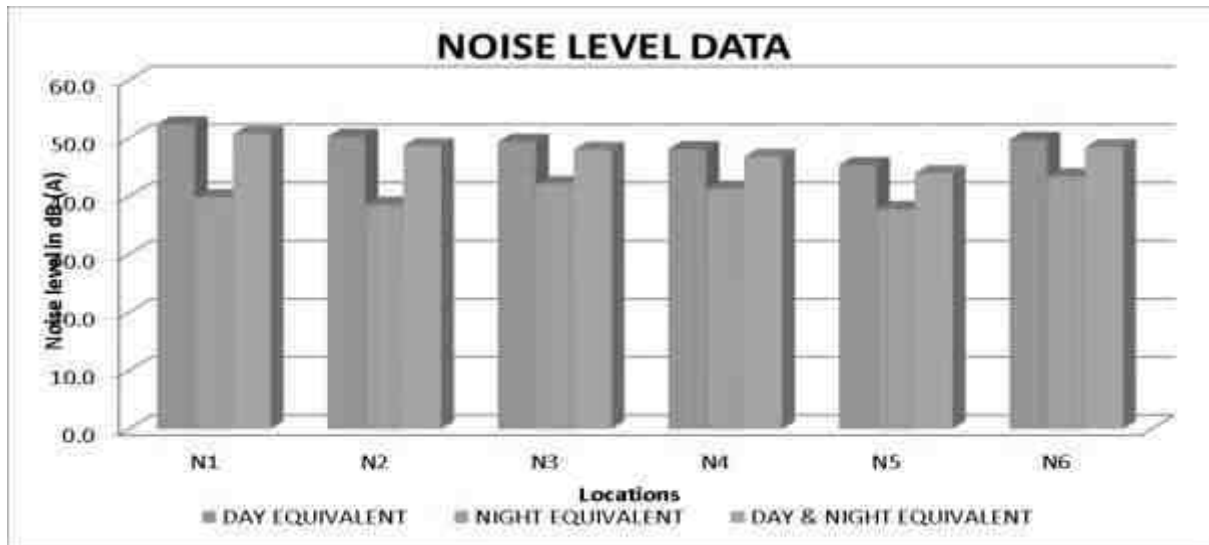


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Table 3.16: Ambient Noise Level in dB (A)

Date and time of monitoring	N1	N2	N3	N4	N5	N6
Day Equivalent	52.4	50.3	49.4	48.2	45.4	49.8
Night Equivalent	39.9	38.6	42.2	41.4	37.9	43.5
Day & Night Equivalent	50.8	48.7	48.0	46.8	44.0	48.5
Limits: As per CPCB: Work zone Exposure in 8 hr - 90 dB(A)						
As per MoEF&CC: Residential: Day equivalent - 55 dB(A); Night equivalent - 45 dB(A)						

Figure 3.12: Noise Level Data



3.3.4.1 Results and Discussion:

The results of noise levels for all locations are given in **Table No-3.16**. The noise values for all above locations are shown in a comparative chart given in **Figure No - 3.12**. In the buffer zone, day Equivalent Noise (Leq-d) noise levels were ranging from 48.2 dB(A) to 52.4 dB(A) and night Equivalent Noise (Leq-d) levels ranged between 37.9 dB(A) to 43.5 dB(A). While comparing with the MOEF&CC Norm of 55 dB(A) for day time and 45 dB(A) for night time, the monitored ambient noise levels were within the limit values for Residential areas.

3.3.5 SOIL CHARACTERISTICS:

Soil samples were collected in 4 locations in the core and buffer zone to analyse the physiochemical characteristics of the soil in the area. Elaborate details of the same has been provided below.



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

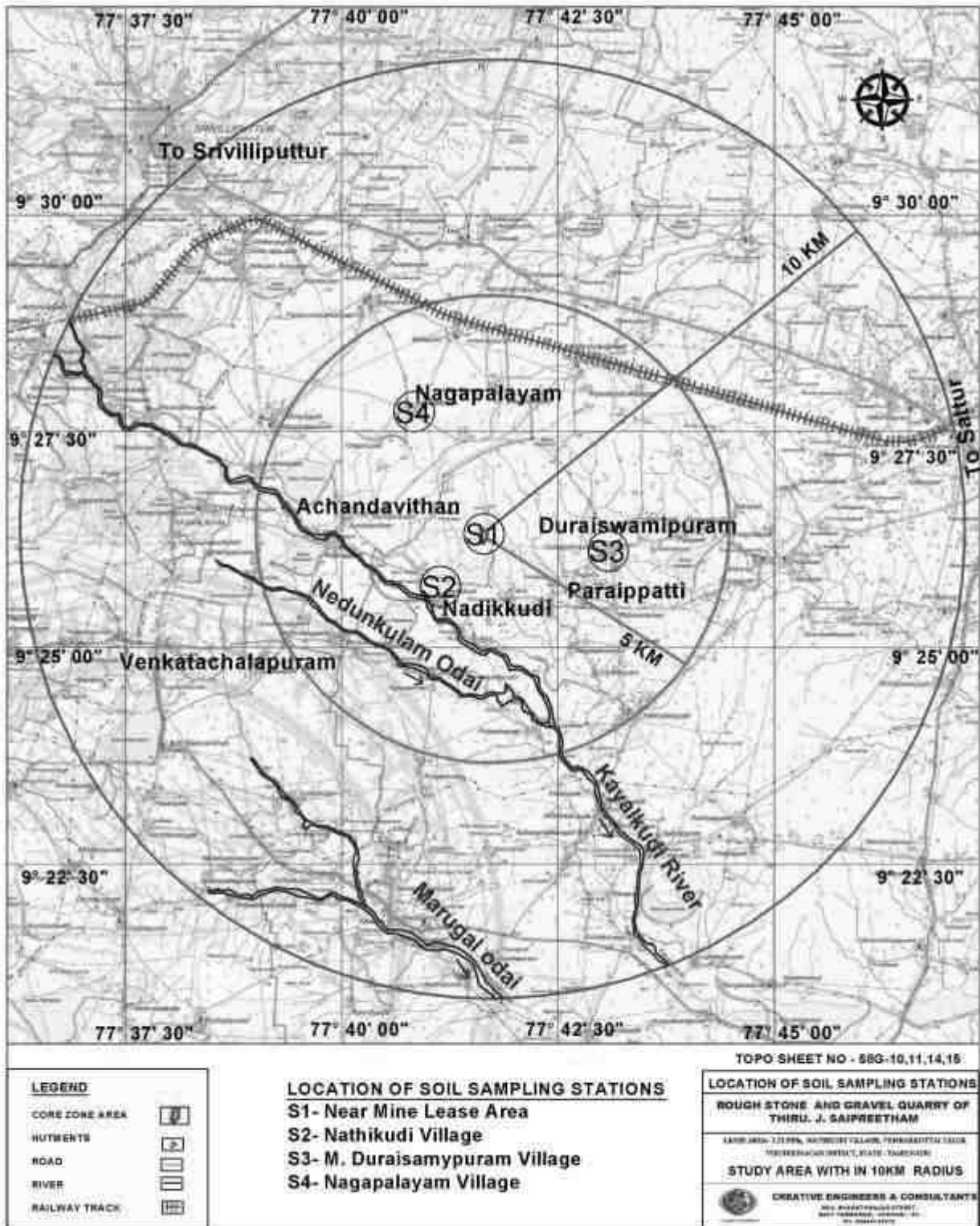
Table 3.17: Soil Quality Monitoring

1.	Monitoring Period	Winter Season (Dec 2022 – Feb 2023)		
2.	Monitoring Location	The location map showing soil sampling locations are given in Figure No.3.13.		
	Code	Location	Distance	Direction
	S1	Near Mine Lease Area	-	-
	S2	Nathikudi Village	1.4km	SW
	S3	M.Duraisampuram Village	2.5km	SE
	S4	Nagapalayam Village	2.9km	NW
3.	Methodology	Composite soil samples using sampling augers and field capacity apparatus.		
4.	Monitoring Frequency	Once during monitoring period		



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Figure 3.13: Location of Soil Sampling Stations



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Table 3.18: Soil Quality Data

S.No	Parameters	Unit	S1	S2	S3	S4
1	pH at 25°C	-	7.42	7.26	6.94	7.99
2	Electrical Conductivity	(µmhos/cm)	172.4	156.4	103.2	116.5
3	Dry matter content	%	98.92	97.54	98.22	97.36
4	Water Content	%	1.08	2.46	1.78	2.64
5	Organic Matter	%	1.58	1.25	1.63	1.22
6	Soil texture	-	SILT LOAM	SILT LOAM	SILT LOAM	CLAY LOAM
7	Grain Size Distribution i. Sand	%	40.65	37.57	34.55	41.69
8	ii. Silt	%	52.14	52.33	50.28	28.95
9	iii. Clay	%	7.21	10.10	15.17	29.36
10	Phosphorous	µg/g	1.36	1.62	1.48	1.05
11	Sodium	mg/kg	210	232	245	398
12	Potassium	mg/kg	760	645	582	614
13	Total Nitrogen	mg/kg	742	580	625	278
14	Total Sulphur	%	BDL(D.L - 0.02)	BDL(D.L - 0.02)	BDL(D.L.0.02)	BDL(D.L.0.02)
15	Water Holding Capacity	%	3.4	3.6	3.9	3.1
16	Porosity	%	16.6	18.4	16.8	17.3

3.3.5.1 Results and Discussion:

Results of the soil samples show that the pH values were ranging between 6.94 to 7.99 and Electrical Conductivity values were ranging between 103.2 – 172.4 µmhos/cm. Soils are generally silt loam type. Organic matter values were ranging between 1.22 – 1.63 %. Total Nitrogen values were ranging between 278 - 742 mg/kg. Phosphorus values were ranging between 1.05 – 1.62 µg/g. Potassium values were ranging between 582 -760 mg/kg. Sodium values were ranging between 210- 398 mg/kg. Total Sulphur values were observed to be BDL. The soil quality data for the 4 samples collected and analyzed are provided in **Table No – 3.18.**

3.4 LAND ENVIRONMENT - LANDUSE & LAND COVER

For preparing an impact statement, aspects of the land conditions are covered under land use. An industrial project / mine can cause changes in land use, soil process in different intensities depending upon the size of the project and distance involved between the industries and the area. Here, land use status for a radius of 10 km has been studied.



3.4.1 DATA USED AND METHODOLOGY

For the present study on land use pattern of buffer area around the proposed stone and gravel quarry, an archived historical data of Landsat 8 data shas been used as base data (Figure No.3.15) has been used to generate the require landuse map showing their spatial pattern within the buffer area. The table showing data used for generation of information on landuse and subsequent GIS analysis is given below

Table 3.19: RS satellite image used for the present study

S.No	Type of Data	Date	Generated Map
1.	Landsat 8	February	Landuse (LU) Map showing 10 Km buffer zone

Interpretation of satellite image requires understanding of relationship between image elements and their respective terrain elements. Since, in the present study, the landuse information is obtained using visual interpretation, an interpretation key is generated. The image elements such as color, tone, texture, size, shape and associated elements have been used to delineate various landuse categories. The landuse categorization and nomenclature used in the present study is based on the national level landuse classification system, which is adopted for the entire country as recommended by National Remote Sensing Centre (NRSC), Department of Space, Government of India.

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Figure 3.14 : Landsat 8 Satellite Data of the Study Area

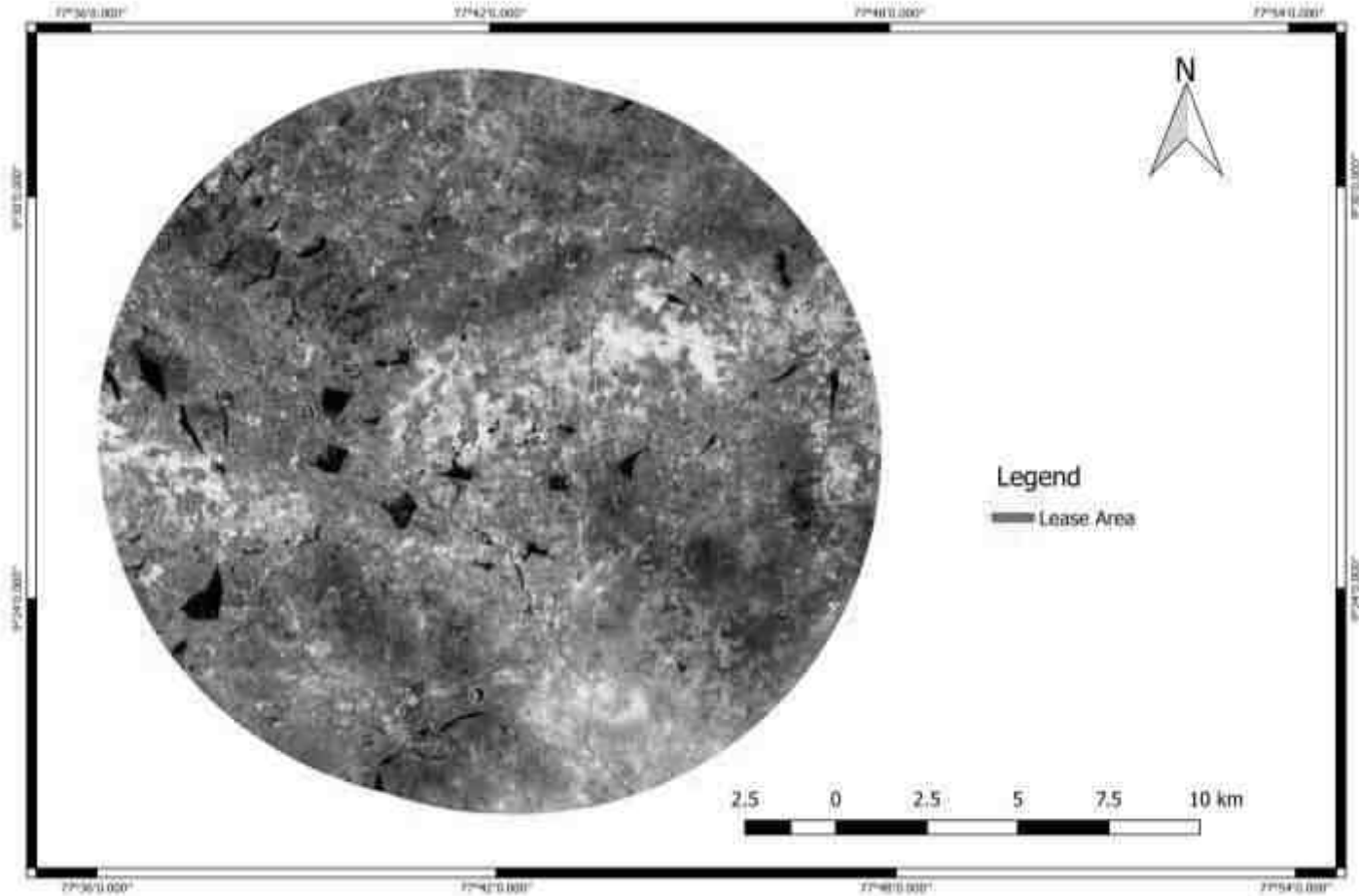


Table 3.20: Major Landuse Units of the Study Area

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

Such LandUse and Land cover (LULC) categories have been verified using field check and identified sample sites within the buffer area, verified on field and transferred into gis geo-coordinates using observation coordinates received from hand held GPS (global positioning system) instrument. Thus, an interpreted final landuse map has been generated (Figure No. 3.16) using above such elaborate procedure and transformed into GIS environment for its

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

spatial distribution and area estimation. Spatial nature and extent of various landuse categories within the buffer area is discussed is given below:

Figure 3.15: Map Showing Land Use Categories around 10km Buffer

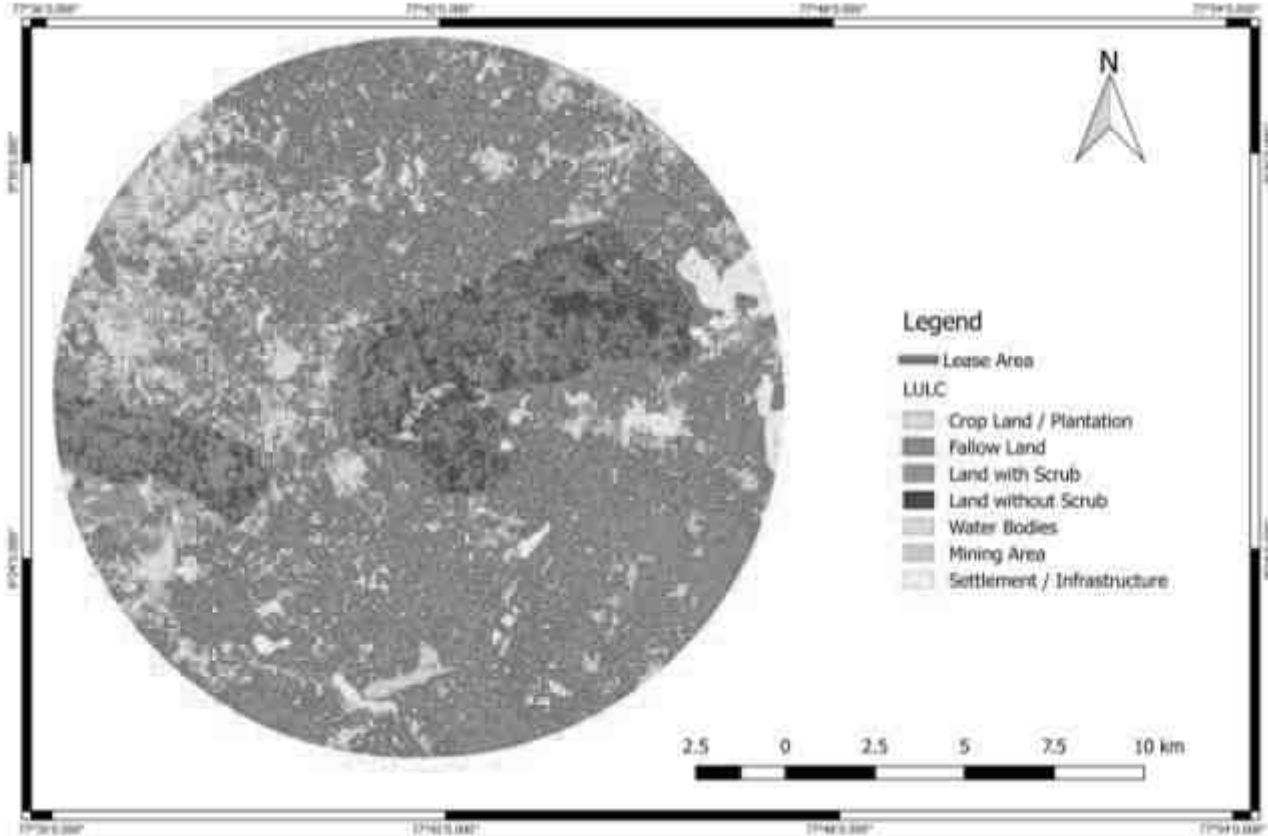


Table 3.21: Area Estimation of Landuse Categories in Buffer Zone

S.No	Landuse Feature	Area (Sq.Km)	Percentage
1	Agriculture/ Plantation	87.07	26.91
2	Fallow Land	144.71	44.72
3	Land With Scrub	38.87	12.01
4	Land Without Scrub	22.97	7.10
5	Water bodies	5.27	1.63
6	Mining	9.28	2.87
7	Settlement	15.40	4.76
	Total	323.57	100

From the above table it is seen that 26.91% of the buffer area is classified under the Agriculture/ Plantation followed by 44.72 % of fallow land, 12.01 % constitutes land with scrub, 7.10 % constitutes land without scrub and the balance falls under other land use categories.

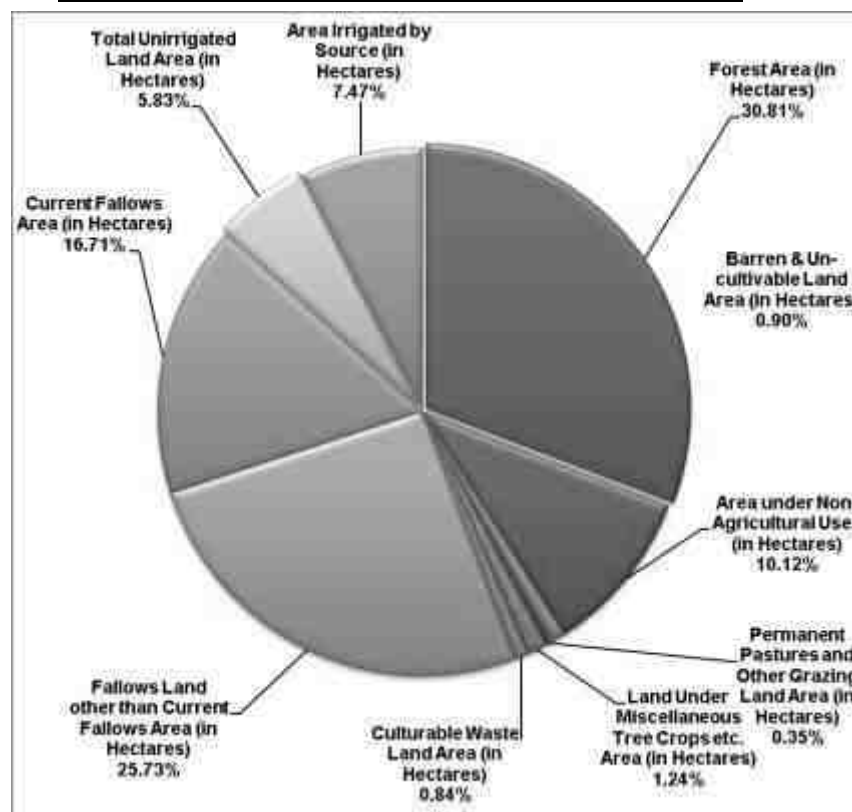
3.4.2 LAND USED BASED ON REVENUE RECORDS:

The lease area falls in Nathikudi Villae, Vembakottai Taluk, Virudhunagar District, Tamil Nadu state and the study area for the land use pattern (10 km radius) has been divided into four zones viz. Zone-I (0-2 km), Zone-II (2-5 km), Zone-III (5-10 km) and Zone-IV (0-10 km) respectively. The land use pattern of the study area falling within 10 km radius around the proposed project area is presented in Table no - 3.22. Village wise land use pattern is provided in **Annexure-11**.

Table 3.22: Land Use Pattern of the Study Area Falling Within 10 Km Area in (Ha)

VILLAGE NAME	Total Geographical Area	Forest Area	Area under Non-Agricultural Uses	Barren & Un-cultivable Land Area	Permanent Pastures and Other Grazing Land Area	Land Under Miscellaneous Tree Crops etc. Area	Culturable Waste Land Area	Fallows Land other than Current Fallows Area	Current Fallows Area	Total Un irrigated Land Area	Area Irrigated by Source
0- 2 KM	2384.77	0	353.28	0	4.1	114.9	4.93	1071.64	273.41	373.85	188.66
2 - 5 KM	4555.12	0	329.49	85.17	19.72	149.1	130.87	502.98	1967.41	879.38	491
5-10 KM	39703.17	14369	4037.85	335.53	141.38	316.66	257.79	10425.18	5551.58	1463.91	2804.29
0-10 KM	46643.06	14369	4720.62	420.7	165.2	580.66	393.59	11999.8	7792.4	2717.14	3483.95

Figure 3.16: Landuse within the Buffer Zone Area



3.5 BIOLOGICAL ENVIRONMENT:

Study of the biological environment of any area comprises of well-planned ecological survey for the floristic and faunal composition of the areas through various scientifically planned techniques.

3.5.1 FLORA:

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

- ❖ Generate existing data from field observations of various terrestrial floristic occurrences.
- ❖ Collect secondary data from Government records as well as through discussion with Forest officials, knowledgeable public etc.,
- ❖ Compare the data with authentic past records to identify changes, if any.
- ❖ Identify the impact of project operations on the biological aspects.

To accomplish the above objectives, a general ecological survey covering an area of 10 km radius was conducted. The locations were identified for phyto-sociological aspects to assess the current status.

3.5.1.1 Sampling Methodology:

In order to provide representative ecological status for the study area, the 10-km radius buffer area has been divided into four quartiles for biodiversity sampling, i.e., NE (Q-1), NW (Q-2) SW (Q-3) and SE (Q-4). Each of the quartiles have been examined for representative flora on randomly sampled quadrats for trees (10x10 m), shrubs (5x5 m) and herbs (1x1 m) depending upon prevailing geographical conditions and bio-diversity aspects of study area.

Phyto-sociological Survey: Phyto-sociological parameters, viz., Abundance (i.e., density), average and minimum stems were measured to determine the distribution and ecological aspects of the species. Abundance is a measure of the density of distribution of an individual species within a given area. It is calculated by summed individuals of a species. Average species number is calculated for all quadrates; similarly, minimum number of individuals

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

represented is recorded at quadrats level. A total of 5 quadrats were laid down in core area and a total of 20 quadrats were laid out in four quartiles (5 each) of buffer area.

Quadrats method for flora : A total of 100 x 100 m Grid was laid for buffer zone of 300m from Core Zone. In that grid 10 × 10m sub-quadrat were laid down randomly within core, PIZ and 10kms buffer area; each quadrat was laid to assess the trees (>5 cm GBH) and 5 × 5 m sub-quadrat nested within the quadrat for shrubs and two plot 1 × 1 m for herbs. The quadrats were laid apart to maximize the sampling efforts and minimize the species homogeneity, such as small stream area, Mining area, Working pit, Old quarries, agricultural areas, tank bunds, farm forestry plantations, natural forest area, avenue plantations, house backyards, etc. In each sample quadrat, individuals belonging to tree, shrub and herb species were recorded separately, and have been identified on the field. The prevailing land use and habitat quality has been noted down for each location on the field.

Vegetation Analysis using index: Species diversity will be calculated by using Shannon and Wiener (1963) formula as follows:

$$H' = - \sum_{i=1}^R p_i \ln p_i$$

Whereas,

H' is Shannon index of general diversity,

p_i is often the proportion of individuals belonging to the i th species in the dataset of interest.

Evenness index was calculated as: $E = H'/H_{max}$,

Whereas $H_{max} = \log_2$ (number of species in the plot)

A.CORE ZONE:

The lease area is a non forest, private land. Part of the lease area is already mined, exposed with rock. The lease area is dominated with *Prosopis juliflora*. There are 2 trees species from 1 families followed by 3 shrubs from 3 families and 2 herbs from 2 family were recorded in the core zone. The detailed list of plants found in the core zone are given in Table no – 3.23.



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Table 3.23: List of Floristic Species in the Core Zone

Sl.No	Species Name	Common Name	Family
Trees			
1	<i>Prosopis juliflora</i>	Cimaikkaruvel	Fabaceae
2	<i>Acacia nilotica</i>	Karuvelan	Fabaceae
Shrubs			
1	<i>Calotropis gigantea</i>	Yerukku	Apocynaceae
2	<i>Lantana camara</i>	Unni chedi	Verbenaceae
3.	<i>Sida cordifolia</i>	<i>Sida plant</i>	Malvaceae
Herbs			
1	<i>Acalypha indica</i>	<i>Kupaimeni keeri</i>	Amaranthaceae
2	<i>Anisomeles indica</i>	marutti	Lamiaceae

B. PROJECT IMPACT ZONE (PIZ-300m BUFFER FROM CORE ZONE):

The PIZ is a dry area comprising crusher with thorny bushes of *Prosopis juliflora*. Some patches of casuarina are also observed in the eastern side of the lease area, A total of 19 tree species from 10 families followed by 10 shrubs from 9 families and 12 herbs from 8 families were recorded in the PIZ. Data analysis shows that Shannon value index was 2.615 for tree species followed by 2.099 for shrubs and 2.263 for herbs. This shows the diversity of trees and herbs was better compared to shrubs. But overall diversity indexes was less due to dry area. Fisher alpha index also shows the less dominance of individual in the study area. From the above result it is clearly shows the PIZ is disturbed and has less diversity. Hence it is important to improve the plantation of the study area. The list of plants found in the PIZ are given in Table no – 3.24. The detailed list of plants found in the PIZ is given below.

Table 3.24: Phyto-Sociological Survey Of Trees In PIZ

Species	Family	Density	Frequency	BA	Rd	Rdo	Rf	IVI
<i>Acacia auriculiformis</i>	Fabaceae	6	3	0.53742	5.41	9.2045	6.666667	21.28
<i>Acacia leucophloea</i>	Fabaceae	3	3	0.113455	2.70	1.9432	6.666667	11.31
<i>Acacia nilotica</i>	Fabaceae	25	9	1.355494	22.52	23.2158	20.00000	65.74
<i>Albizia amara</i>	Fabaceae	2	2	0.288615	1.80	4.9432	4.444444	11.19
<i>Albizia lebeck</i>	Fabaceae	2	1	0.169188	1.80	2.8977	2.222222	6.92
<i>Azadirachta indica</i>	Meliaceae	7	5	0.520223	6.31	8.9099	11.11111	26.33
<i>Borassus flabelliformis</i>	Arecaceae	4	2	0.457803	3.60	7.8409	4.444444	15.89
<i>Cassia fistula</i>	Fabaceae	2	1	0.258758	1.80	4.4318	2.222222	8.46
<i>Casuarina equisetifolia</i>	Casuarinaceae	11	3	0.947452	9.91	16.2272	6.666667	32.80
<i>Morinda pubescens</i>	Rubiaceae	5	4	0.362261	4.50	6.2045	8.888889	19.60
<i>Pongamia pinnata</i>	Rubiaceae	1	1	0.127389	0.90	2.1818	2.222222	5.30
<i>Prosopis juliflora</i>	Fabaceae	40	10	0.378168	36.04	6.4769	22.22222	64.74
<i>Samanea saman</i>	Fabaceae	3	1	0.322452	2.70	5.5227	2.222222	10.45



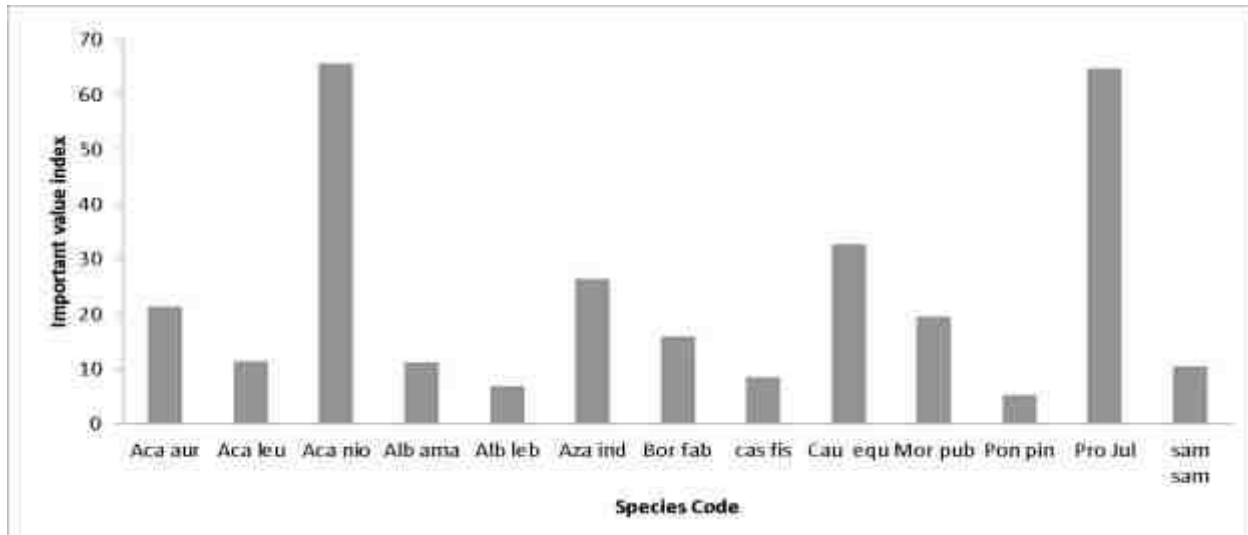
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Rd- Relative Density, Rdo- Relative dominance, Rf – Relative Frequency, IVI – Importance Value Index

Table 3.25: Species Diversity index of trees in PIZ

		Lower	Upper
Species	13	13	13
Individuals	111	111	111
Dominance	0.2031	0.1585	0.2549
Simpson	0.7969	0.7451	0.8415
Shannon	1.979	1.795	2.14
Evenness	0.5564	0.4633	0.6539
Fisher alpha	3.82	3.82	3.82
Berger-Parker	0.3604	0.2703	0.4414

Figure 3.17: Species Important Value Index For Trees in PIZ



C.BUFFER ZONE:

The Dominated species in the buffer zone are Albizia lebbeck, Acacia auriculiformis, Syzygium cumuni, Borassus flabellifer, Azadirachta indica, Prosopis juliflora, etc. Patches of coconut and casurina farms are also observed. The detailed list of plants found in the Bufferzone is given in Table no – 3.26.



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Table 3.26: List of Floristic Species in the Buffer Zone

SI.No	Species Name	Family	Local Name
Trees			
1	<i>Murraya koenigii</i>	Rutaceae	Curry leaf
2	<i>Acacia auriculiformis</i>	Fabaceae	Pencile tree
3	<i>Morinda tinctoria</i>	Rubiaceae	Nuna
4	<i>Terminalia catappa</i>	Combretaceae	Badam Tree
5	<i>Casuarina equisetifolia</i>	Casuarinaceae	Savukku
6	<i>Ficus religiosa</i>	Moraceae	Poarasamaram
7	<i>Ficus hispida</i>	Moraceae	Aarasu
8	<i>Cocus nucifera</i>	Arecaceae	Tennai
9	<i>Prosopis juliflora</i>	Fabaceae	Seemai karuvel
10	<i>Phyllanthus emblica</i>	Euphorbiaceae	Nelli
11	<i>Pithecellobium dulce</i>	Fabaceae	Kodukkapuli
12	<i>Polyalthia longifolia</i>	Annonaceae	Nietilingam
13	<i>Terminalia arjuna</i>	Combretaceae	Marudha Maram
14	<i>Ficus benghalensis</i>	Moraceae	Aalamaram
15	<i>Cassia fistula</i>	Fabaceae	Konrai
16	<i>Carica papaya</i>	Caricaceae	Pappali
17	<i>Caesalpinia pulcherrima</i>	Fabaceae	Mayilkondrai
18	<i>Manilkara zapota</i>	Sapotaceae	Sappota
19	<i>Mangifera indica</i>	Anacardiaceae	Maamaram
20	<i>Albizia amara</i>	Fabaceae	Vagai
21	<i>Delonix elata</i>	Fabaceae	Perungondrai
22	<i>Musa paradisiaca</i>	Musaceae	Valzhlai
23	<i>Pongamia pinnata</i>	Fabaceae	Pungai
24	<i>Samanea saman</i>	Fabaceae	Amaivagai
25	<i>Citrus limon</i>	Rutaceae	Lemon
26	<i>Annona squamosa</i>	Annonaceae	Siththa
27	<i>Aegle marmelos</i>	Rutaceae	Vilvamaran
28	<i>Anacardium occidentale</i>	Anacardiaceae	Munthiri
29	<i>Thespesia populnea</i>	Malvaceae	Puvarasu
30	<i>Acacia leucophloea</i>	Fabaceae	Valvelam
31	<i>Madhuca longifolia</i>	Sapotaceae	Iluppai
32	<i>Peltophorum pterocarpum</i>	Fabaceae	Kilukiluppai
33	<i>Tamarindus indica</i>	Fabaceae	Puli
34	<i>Sygygium cumuni</i>	Myrtaceae	Naval
35	<i>Psidium guava</i>	Myrtaceae	Koyya
36	<i>Tectona grandis</i>	Verbenaceae	Tekku
37	<i>Azadirachta indica</i>	Meliaceae	Vembu
38	<i>Mimusops elengi</i>	Sapotaceae	Magizhamboo
39	<i>Leucaena leucocephala</i>	Fabaceae	Subabul
40	<i>Moringa oleifera</i>	Moringaceae	Murungai

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SI.No	Species Name	Family	Local Name
41	<i>Acacia nilotica</i>	Fabaceae	Karuvelan
42	<i>Borassus flabelliformis</i>	Arecaceae	Panna-maram
43	<i>Delonix regia</i>	Fabaceae	Gulmohar
Shrubs			
1	<i>Jatropha glandulifera</i>	Euphorbiaceae	Vellaikattukottai
2	<i>Tecoma stans</i>	Bignoniaceae	Yellow trumpetbush
3	<i>Cassia auriculata</i>	Fabaceae	Aavarampoo
4	<i>Ricinus communis</i>	Euphorbiaceae	Amanakku
5	<i>Sida cordifolia</i>	Malvaceae	Sida plant
6	<i>Justicia adhatoda</i>	Acanthaceae	Adathoda
7	<i>Ziziphus jujuba</i>	Rhamnaceae	Elanthai
8	<i>Datura metel</i>	Solanaceae	Umatai
9	<i>Lawsonia inermis</i>	Lythraceae	Maruthani
10	<i>Calotropis gigantea</i>	Apocynaceae	Earukku
11	<i>Ixora casei</i>	Rubiaceae	Idlipoo
12	<i>Aloe vera</i>	Asphodelaceae	Chotthu kathalai
13	<i>Lantana camara</i>	Verbenaceae	nuni
14	<i>Vitex negundo</i>	Verbinaceae	Vanili
15	<i>Nerium indicum</i>	Apocynaceae	Arali
16	<i>Boerhaavia diffusa</i>	Nyctaginaceae	Kagithapoo
17	<i>Hibiscus rosa-sinensis</i>	Malvaceae	Semparuthi
Herbs			
1	<i>Boerhavia erecta</i>	Nyctaginaceae	Erect spiderling
2	<i>Anisomeles indica</i>	Lamiaceae	marutti
3	<i>Tragia involucrata</i>	Euphorbiaceae	Kanchori
4	<i>Sida rhombifolia</i>	Malvaceae	Kurundotti
5	<i>Argemone mexicana</i>	Papaveraceae	Mexican poppy
6	<i>Amaranthus viridis</i>	Amaranthaceae	Green amaranth
7	<i>Andrographis paniculata</i>	Acanthaceae	Kirayt
8	<i>Anisomeles malabarica</i>	Lamiaceae	Peyimarutti
9	<i>Vinca rosea</i>	Apocynaceae	Nithiyakalyani
10	<i>Cleome viscosa</i>	Cleomaceae	Naai velai
11	<i>Acalypha indica</i>	Amaranthaceae	Kupaimeni keeri
12	<i>Solanum incanum</i>	Solanaceae	Karimulli
13	<i>Phyllanthus niruri</i>	Phyllanthaceae	Keelzhaneeli
14	<i>Ocimum tenuiflorum</i>	Lamiaceae	Thulasi
15	<i>Sida acuta</i>	Malvaceae	Palambasi
16	<i>Parthenium hysterophorus</i>	Asteraceae	Parthenium
17	<i>Leucas aspera</i>	Lamiaceae	Thumbai
18	<i>Tridax procumbens</i>	Asteraceae	Vettukai poondu
19	<i>Achyranthes aspera</i>	Amaranthaceae	Nayuruvi
20	<i>Solanum nigrum</i>	Solanaceae	Manatthakalli
21	<i>Croton sparsiflorus</i>	Euphorbiaceae	Poodu sedi

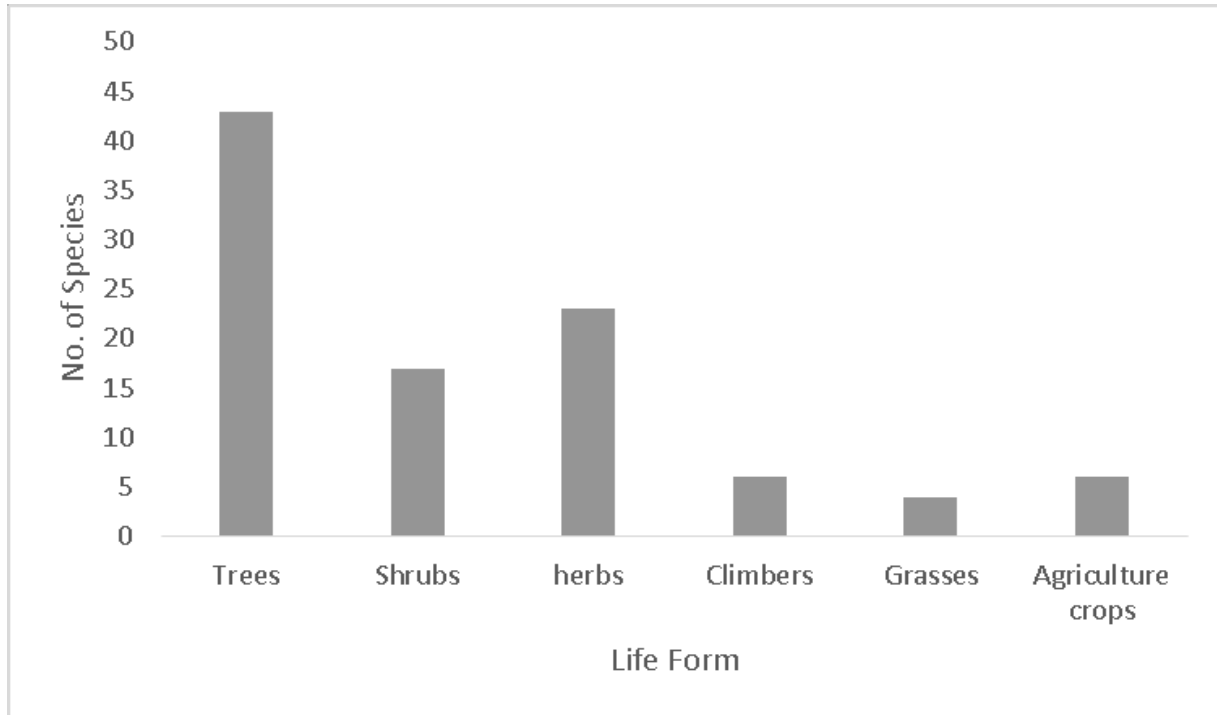


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SI.No	Species Name	Family	Local Name
22	<i>Solanum xanthocarpum</i>	Solanaceae	Kandangkattari
23	<i>Tephrosia purpurea</i>	Fabaceae	Vayal poondu
Climbers			
1	<i>Jasminum angustifolium</i>	Oleaceae	Uccimalligai
2	<i>Asparagus racemosus</i>	Asparagaceae	Tannir-vittan
3	<i>Coccinia indica</i>	Cucubitaceae	Kovai
4	<i>Abrus precatorius</i>	Fabaceae	Kundumani
5	<i>Cissus quadrangularis</i>	Vitaceae	Pirandai
6	<i>Capparis rotundifolia</i>	Capparaceae	Thoratti
Crops			
1			
2	<i>Sorghum vulgare</i>	Poaceae	Solam
3	<i>Gossypium hirsutum</i>	Malvaceae	Paruththi
4	<i>Sesbania grandiflora</i>	Fabaceae	Agati
5	<i>Musa paradisiaca</i>	Musaceae	Valzhai
6	<i>Capsicum annum</i>	Solanaceae	Red chilli
Grasses			
1	<i>Chloris barbata</i>	Poaceae	Kodai pullu
2	<i>Cyperus rotundus</i>	Cyperaceae	korai pullu
3	<i>Cynodon dactylon</i>	Poaceae	Arugampillu
4	<i>Kyllinga nemoralis</i>	Cyperaceae	Velutta nirbasi



Figure 3.18: Flora species in the Buffer Zone



3.5.2 FAUNA:

Methodology: Both direct and indirect observation methods were used to survey the fauna. Point Survey Method was used to study the Bird diversity. Besides, discussion with local villagers Collection secondary data from Government records, published reports as well as through discussion with Forest officials, knowledgeable public were used for the study.

Observation: There is no Wild Life Sanctuary or National Park within the study area of 10 km. Domesticated animals like Cows, Buffalos, Dogs, Cats etc., are commonly found. The lease and 10 Km buffer zone does not fall in the Western Ghats ESA boundary. No wild mammalian species was directly sighted during the field survey. There is no Schedule I animals in the buffer zone area. The list of fauna within the study area is given in Table No – 3.27.

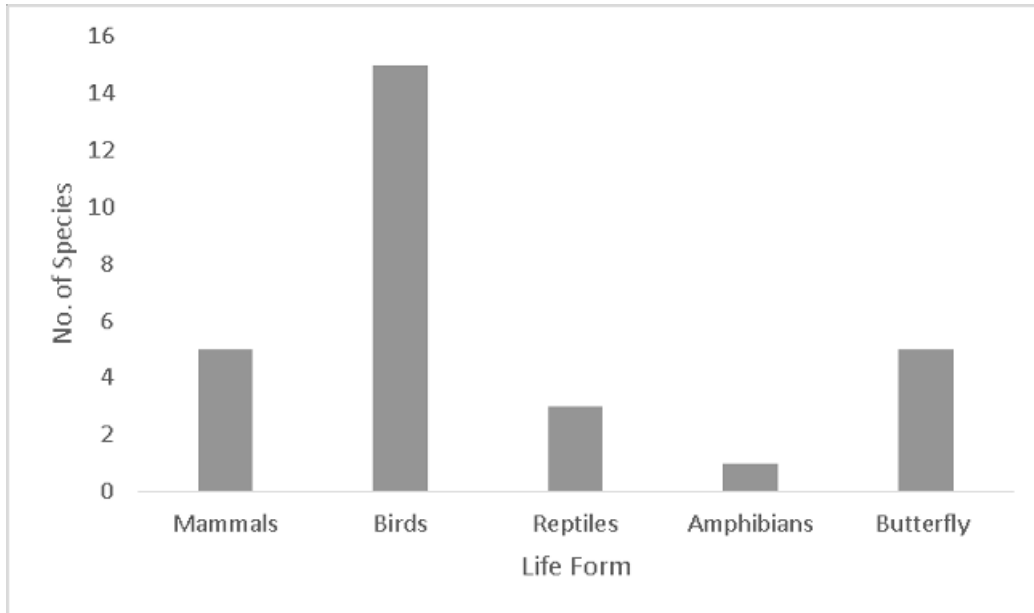
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Table 3.27: List of Fauna in the Buffer Zone

S.No	Common Name	Scientific name	IWPA, Schedule
Mammals			
1	Common Indian Hare	Lepus ruficaudatus	IV
2	Bonnet macaque	Macaca radiata	II
3	Indian Palm squirrel	Funambulus palmarum	IV
4	Common Indian Hare	Lepus ruficaudatus	IV
5	Indian Grey Mongoose	Herpestes edwardsii	II
Birds			
1	Indian Cuckoo	Cuculus micropterus	IV
2	Common Kingfisher	Alcedo atthis	IV
3	Cattle Egret	Bubulcus ibis	IV
4	Little Egret	Egretta garzetta	IV
5	Spotted Dove	Streptopelia chinensis	IV
6	Red-vented Bulbul	Pycnonotus cafer	IV
7	Common Crow	Corvus splendens	V
8	House Sparrow	Passer domesticus	IV
9	Rose-ringed Parakeet	Psittacula krameri	IV
10	Common Myna	Acridotheres tristis	IV
11	Common Quail	Coturnix coturnix	IV
12	Black Drongo	Dicrurus macrocercus	IV
13	Purple-rumped Sunbird	Nectarinia zeylonica	IV
14	Common Babbler	Turdoides caudatus	IV
15	Little Cormorant	Phalacrocorax niger	IV
Reptiles			
1	Garden Lizard	Calotes versicolor	IV
2	Rat Snake	Ptyas mucosa	II
3	Common Indian krait	Bungarus caeruleus	II
Amphibians			
1	Common Indian toad	Bufo melanostictus	IV
Butterfly			
1	Stripped or common tiger	Danaus genutia	IV
2	Small grass yellow	Eurema brigitta	IV
3	Common crow	Euploea core	IV
4	Lemon pansy	Junonia lemonias	IV
5	Lime butterfly	Papilio demoleus	IV



Figure 3.19: Fauna Diversity in the Buffer Zone



3.6 HYDROGEOLOGICAL STUDY:

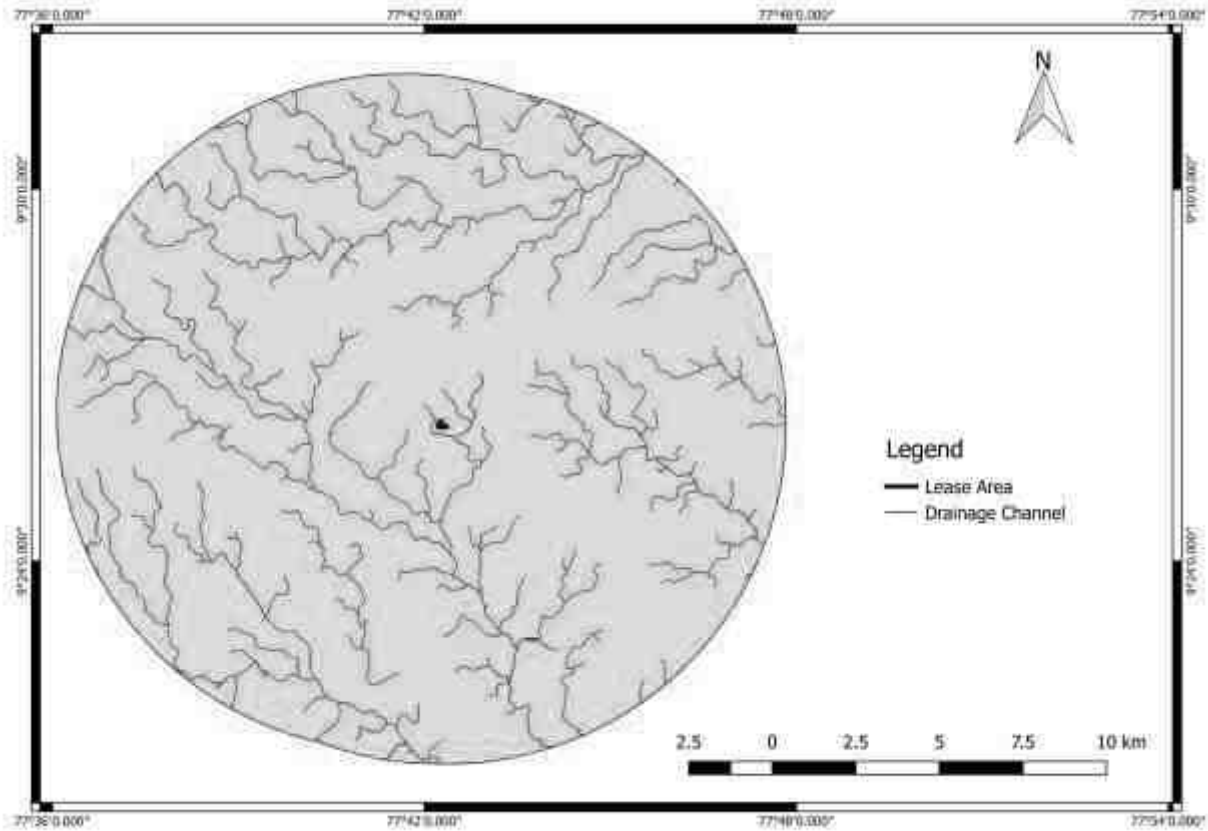
This section delves into the study of the hydrogeological scenario of the study area to evaluate the impact of mining activities on the nearby areas. The study area is considered to understand the nature of the general hydrogeological conditions of the area.

3.6.1 PHYSIOGRAPHY AND DRAINAGE:

Physiography: The area applied for mining lease is a gentle plain terrain. Part of the lease area has already been mined out.

Drainage: There is no major water body in the core zone. Further elaborate details of the same has been provided under section 4.3.3C, Chapter-IV. The drainage map prepared from the survey of India topographic maps shows the presence of few streams running in a dendritic pattern

Figure 3.20: Drainage Map

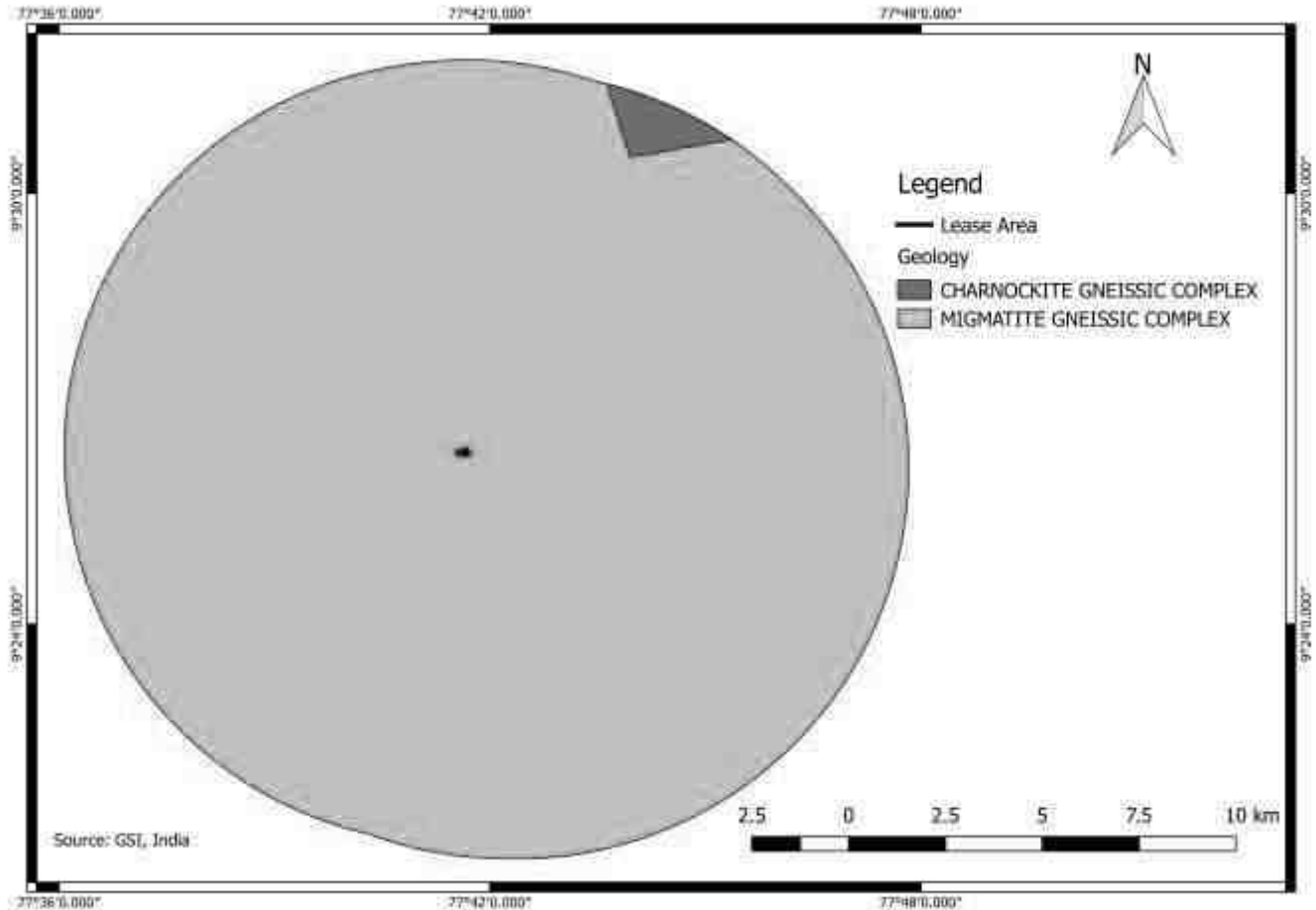


3.6.2 GEOLOGY AND GEOMORPHOLOGY

Geology: The type of rock formation in the study area is composed of Migmatite Gneissic complex and Charnockite Gneissic complex. The lease area falls under Migmatite Gneissic complex category. The geological map is provided below in Figure No.3.21.

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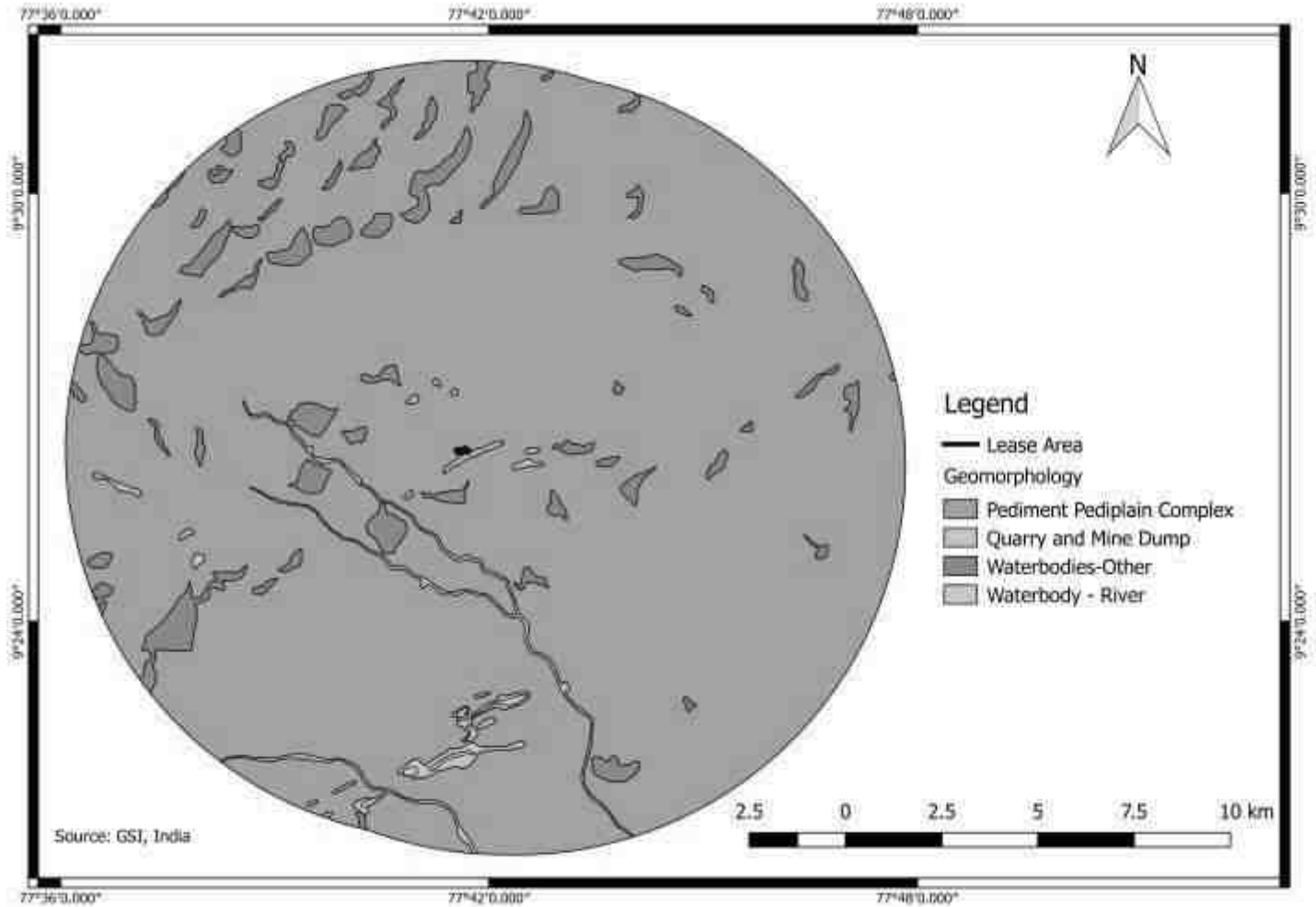
Figure 3.21: Geology Map



Geomorphology: The geomorphology map of the study derived from the satellite imagery using remote sensing and GIS technique. Predominantly the buffer zone is dominated by Pediment Plain complex, and it is the same category that the lease area also falls under.

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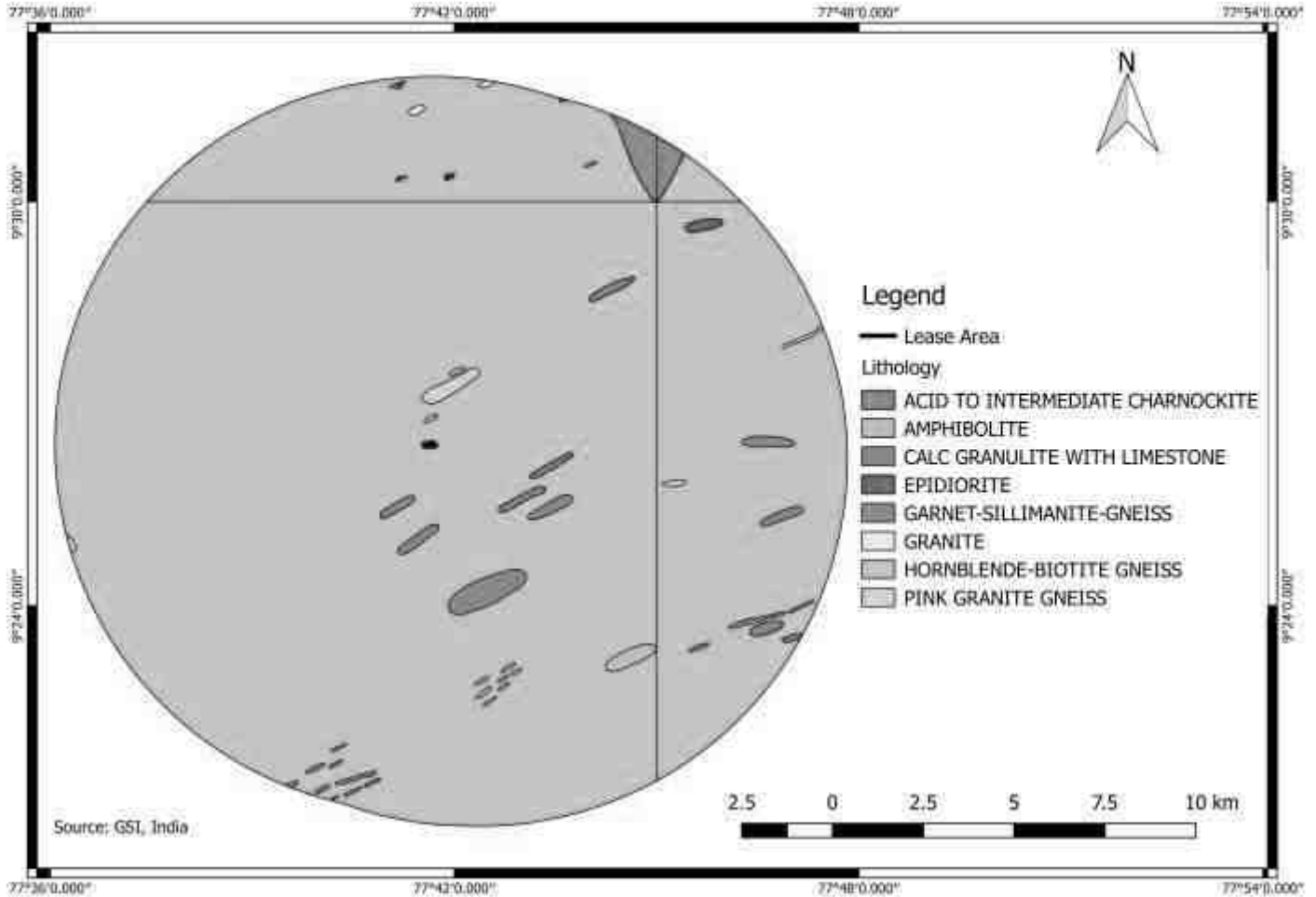
Figure 3.22: Geomorphology Map



Lithology: The lithological map of the buffer zone has been provided in Figure No.3.23. From this, it is seen that the study area is mainly dominated by Hornblende Biotite Gneiss. The lease area falls under by Hornblende Biotite Gneiss with regards to lithology.

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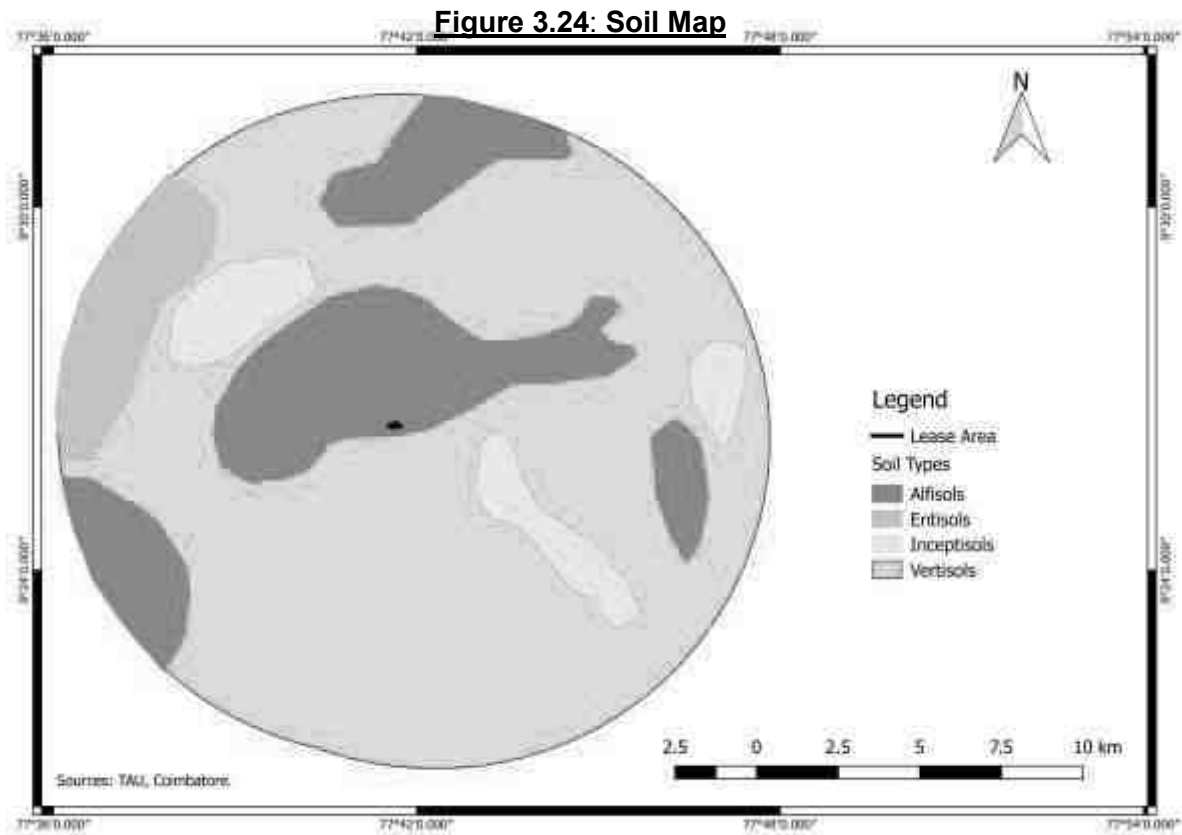
Figure 3.23: Lithology Map



Soil: The study area is characterized by Vertisols, Alfisols, Entisols and Inceptisol. The lease are falls under the category of Alfisols. The soil map is provided in Figure No.3.24.



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3.6.3 WATER TABLE OF THE AREA:

Based on the depth to water level data obtained from the India-WRIS, Department of Water Resources, Ministry of Jal Shakti for Rajapalayam Block, Viruthunagar District, Tamil Nadu the following is observed.

Table 3.28: General Trend of Depth to Water Level for Vembakottai Block

Year	Depth to Water Level (m bgl)		Wells Monitored	
	Pre-Monsoon	Post-Monsoon	Pre-Monsoon	Post-Monsoon
2015	2.225	4.89	2	2
2016	5.49	8.03	3	3
2017	-	7.09	-	2
2018	7.19	4.7	3	2

The premonsoon and post monsoon water levels are depicted in Figure No.3.26, and 3.27 and they indicate that the depth to water level in project area ranges between 5.0 to 20.0 m bgl



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during the pre-monsoon season(April) and 2.0 to 10.0 m bgl during the post monsoon season (November).

Figure 3.25: Pre-Monsoon Water Level

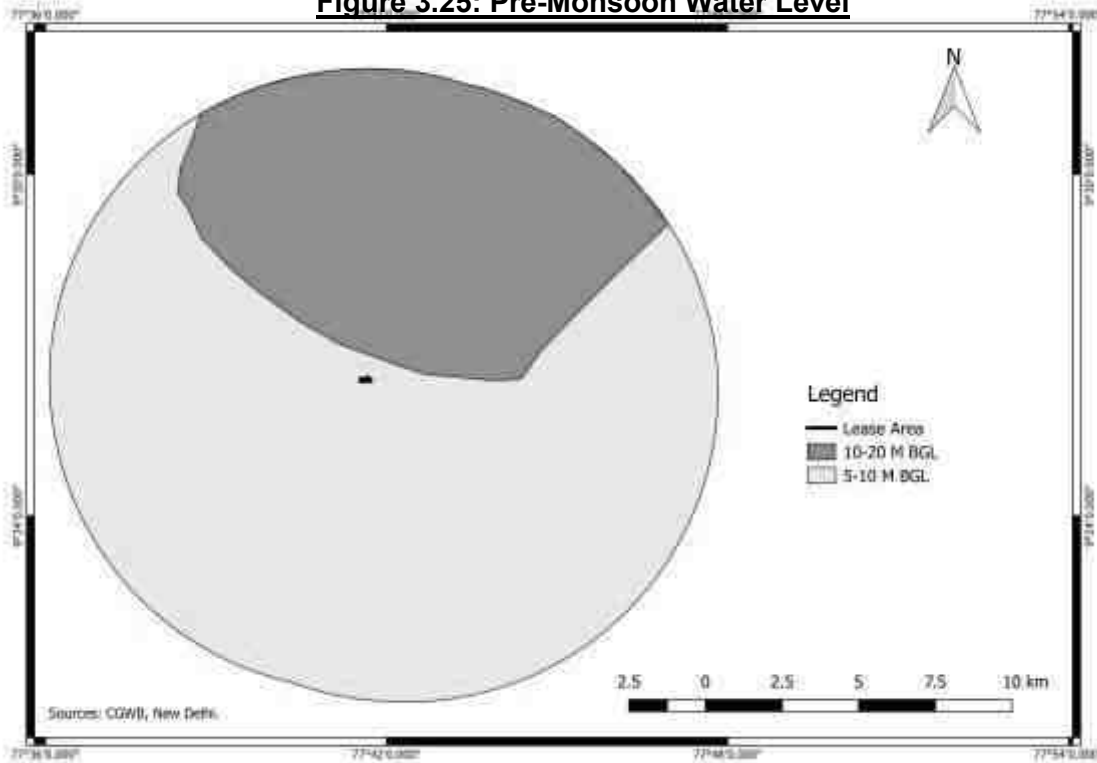
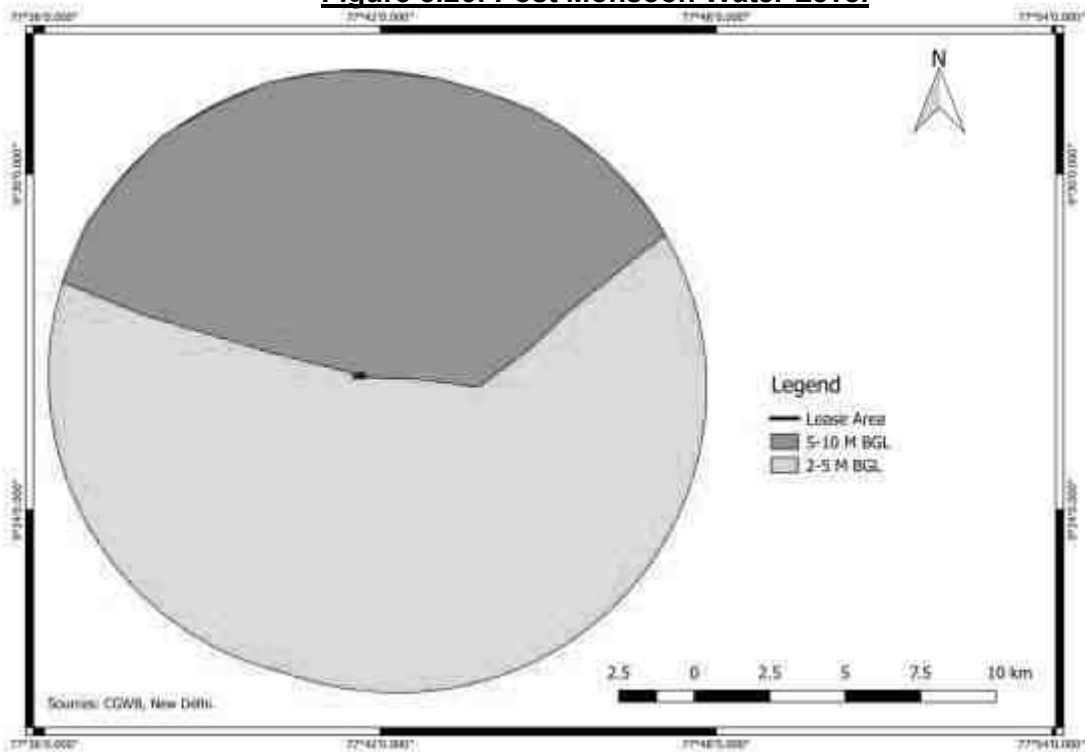


Figure 3.26: Post Monsoon Water Level



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Well Inventory Data:

In the study area, wells and borewells were studied which indicate that shallow aquifer is developed through dug wells and deeper aquifer through tube wells. The groundwater has revealed that potential fractures are encountered at deeper levels. Rain water collected in the tanks in the region acts as a good source of water during post monsoon. The water in the wells are available mainly after post monsoon and it reduces during summer. Bore wells are as deep as 500 ft also and it reflects that the yield is only better at deeper water levels

The occurrence of groundwater mainly in the porous soil are weathered layers, very negligible amount of groundwater percolated through the poorly fractured layer, after that there is no existence of groundwater. Besides, the mining area consists of hard compact rock, no major water seepage within the mine is expected. From the nearby working mines, no such seepage is also observed.

* * * * *



CHAPTER - IV

ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

CHAPTER 4

ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 GENERAL

In this project Semi – Mechanized Open Cast mining will be carried out to quarry out Rough Stone and Gravel. The identified impacts due to this mine during mining and associated activities have been studied in relation to various environmental components like Air, water, noise, vibration, land, transport etc., and the details of the same are elaborated in this chapter.

4.2 AIR ENVIRONMENT:

4.2.1 IMPACTS DUE TO PROJECT OPERATION:

The existing ambient air quality in the area has been described in Chapter-III. The proposed mining and allied operations may cause deterioration of air quality due to pollution arising from the project operation if prompt care is not taken. The principal sources of air pollution in general due to mining and allied activities will be:

- ❖ Excavation of material.
- ❖ Movement of HEMM such as Excavators, tippers etc.
- ❖ Loading and unloading operation
- ❖ Transportation

Besides, Gas emission will occur as a result of operation of diesel driven mining equipment, compressors, transporting vehicles, etc.

Particulate matter smaller than 10 microns, referred to as PM₁₀, can settle in the bronchi and lungs and cause health problems like Bronchitis, Emphysema, Bronchial Asthma, Irritation of mucus membranes of eyes, etc. Particles smaller than 2.5 micrometers (PM_{2.5}), tend to penetrate into the lungs and very small particles (<100 nanometers) may pass through the lungs to affect other organs.

Besides the above mentioned fugitive dust emissions, atmospheric pollution can occur as a result of emission of SO₂, NO_x, CO etc., from diesel driven mining equipment, generator sets, etc. Larger suspended particles are generally filtered in the nose and throat and do not cause problems. Higher concentration of SO₂, NO_x, CO may cause some health effect on the human



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beings exposed to it. In case of this mine, the following measures will be adopted to control impact on the air quality due to mining operations in the lease area:

Table 0.1: Impact and Mitigation Measures – Air Environment

S.No	Activity	Consequence	Mitigation Measures
1	Drilling	Dust Emanation	Usage of Drill bits in good condition
			Covering of drill holes with wet cloth
			Usage of sharp drill bits for drilling of holes.
			Provision of dust filters / mask to workers working at highly dust prone and affected areas.
2	Blasting	Instantaneous dust emanation	Well-designed blasting parameter, effective stemming to achieve optimum breakage occurs without generating fines.
			Use of appropriate explosives for blasting and avoiding overcharging of blast holes.
			Avoiding blasting during high wind periods where the fine dust is carried out away easily affecting the ambient air quality.
			Use of controlled blasting techniques with Nonel to keep the dust generation, noise as well as vibration level within the prescribed limits.
3	Excavation and Loading	Dust emanation, Gaseous Emission	HEMM will be operated as per the manufacturer's guidelines
			Enclosures for operator cabin.
			Imparting sufficient training to operators on safety and environmental parameters.
			Proper maintenance of hauling equipments.
4	Transportation	Dust emanation, Gaseous Emission	Avoiding overloading of dumpers.
			Proper maintenance of haul road and other roads
			Setting up of tyre wash facility in the transport road.
			Avoiding overloading of tippers
			Covering of loaded tippers with tarpaulins during transportation
5	Others	Dust emanation, Gaseous Emission	Vehicular emissions will be controlled through regular and proper preventive maintenance schedules and emissions tests are done with diesel smoke meter equipment to ensure emission values.
			Development of greenbelt / barriers around mine in the safety zone and carrying out plantation within the lease area.

Due to adoption of all these measures, no major impact on air quality is envisaged due to this proposed opencast mining operation.

Considering that the quantum of production is less, only 1 excavator, 6 tippers will be engaged. These equipments will be properly and regularly maintained. Besides, as mentioned earlier, regular vehicular emission tests will be done for the transport vehicles to ensure minimal impact



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due to carbon emissions. To further mediate the carbon emissions, a good greenbelt and plantation plan has been planned wherein 1700 number of plants will be planted in and around the lease area.

The impact on air quality due to the proposed project is estimated using AERMOD View Gaussian Plume Air Dispersion Model developed by Lakes Environmental Software which is based on steady state Gaussian plume dispersion. Details of the modeling study / estimation including the modeling technique and post project air quality values are elaborated in the following paras.

4.2.2 AIR QUALITY IMPACT PREDICTION:

The model simulations are done for the air pollutant arising from the mining operations, namely, PM₁₀, PM_{2.5}. **Ground Level Concentration (GLC)** have been computed using hourly meteorological data.

Table 0.2: Emission Sources

ACTIVITY	SOURCE TYPE
A. Mining operations	Open pit
B. Transportation	Line

4.2.2.1 Emission Factors

Quantification of particulate emissions has been carried out by the emission factor technique. Emission factor is a statistical average of the rate at which a pollutant is released during an activity. This factor when multiplied by the level of that activity in a given situation will give the overall effect. Fugitive emissions have been predicted by using standard equations given and suggested by AP-42, USEPA(1998), Coal S&T Project and for mining & allied activities and other factors. The modeling is done for the peak production to know the worst scenario. The details of the emission factors used for the same is provided below:



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Table 0.3: Emission Factors

S.No	Activity	PM10	PM2.5	Unit
1	Ore Loading	1.5×10^{-3}	2.1×10^{-4}	Kg/T
2	OB Loading	1.4×10^{-4}	1.5×10^{-5}	Kg/T
3	Hauling inside lease area	0.19	0.019	g/VKT
4	Drilling	0.1	0.04	Kg/hole

4.2.2.2 Emission Rates:

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

Table 0.4: Emission Rate

ACTIVITIES/POLLUTANTS	PM ₁₀ (g/sec)	PM _{2.5} (g/sec)
Ore Loading	0.05	0.01
Drilling	0.20	0.08
Hauling inside lease area	0.20	0.03
Total	0.45	0.12

A. Emission Source Coordinates:The center of mine was assumed (0, 0) in the mathematical modeling.

B. Meteorological Conditions Used In Predictions: The hourly meteorological data has been generated for Winter Season (December 2022 to February 2023) and the same has been used in the predictions.

4.2.2.3 Results and Discussions

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



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Table 0.5: Peak Incremental Concentration

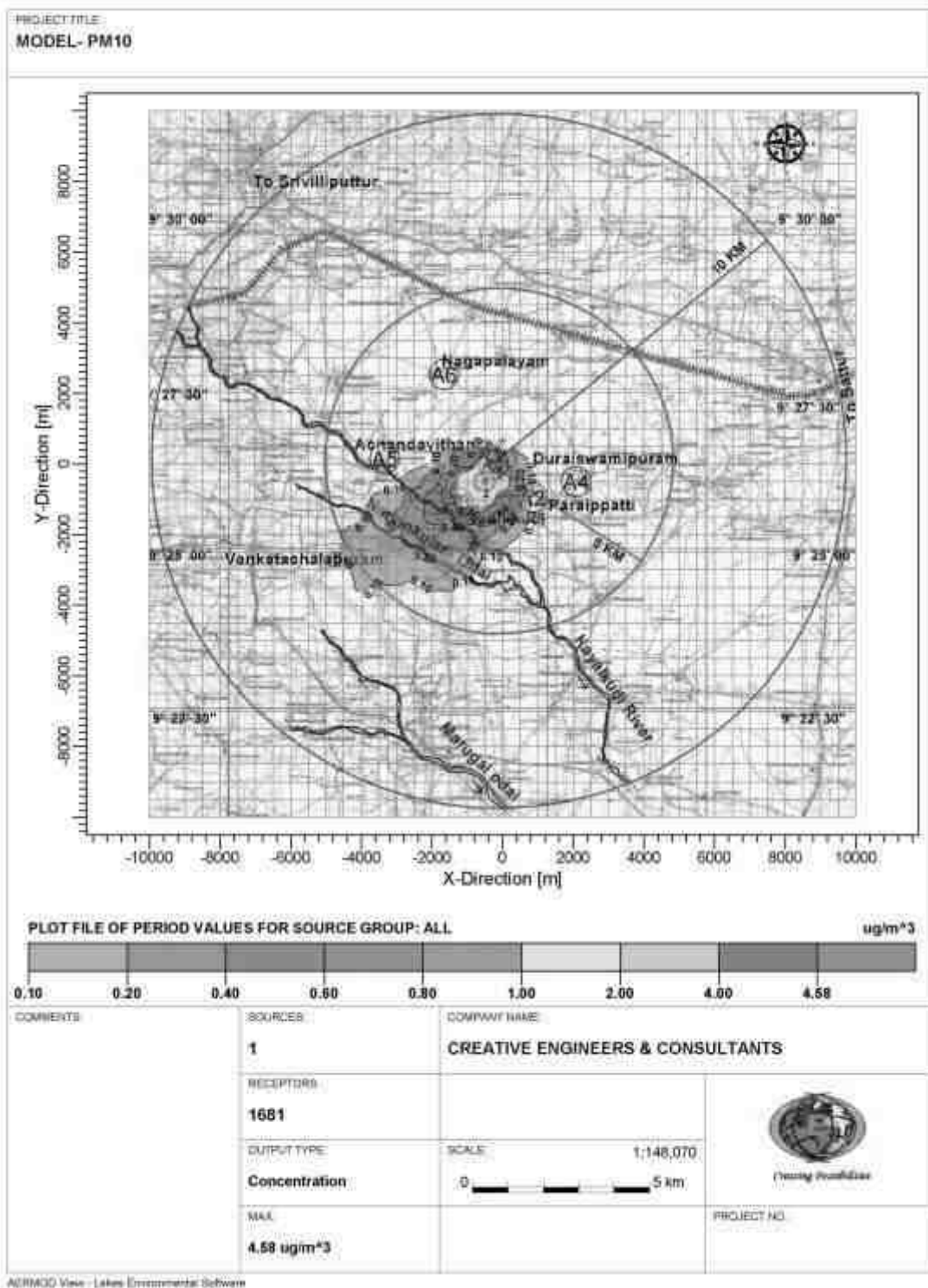
S.no	Parameters	Peak incremental concentration $\mu\text{g}/\text{m}^3$
1	PM ₁₀	4.58
2	PM _{2.5}	2.92

It is observed that the peak incremental concentration for PM₁₀, PM_{2.5} occurring very near the source. At away from the source the values are getting reduced due to dispersion effects. The Isopleths of PM₁₀, PM_{2.5} concentrations for with control measures scenario have also been drawn and these are given in **Figure No.4.1 and 4.2**. The incremental and predicted concentrations at the locations of ambient air quality have been discussed in the following section.



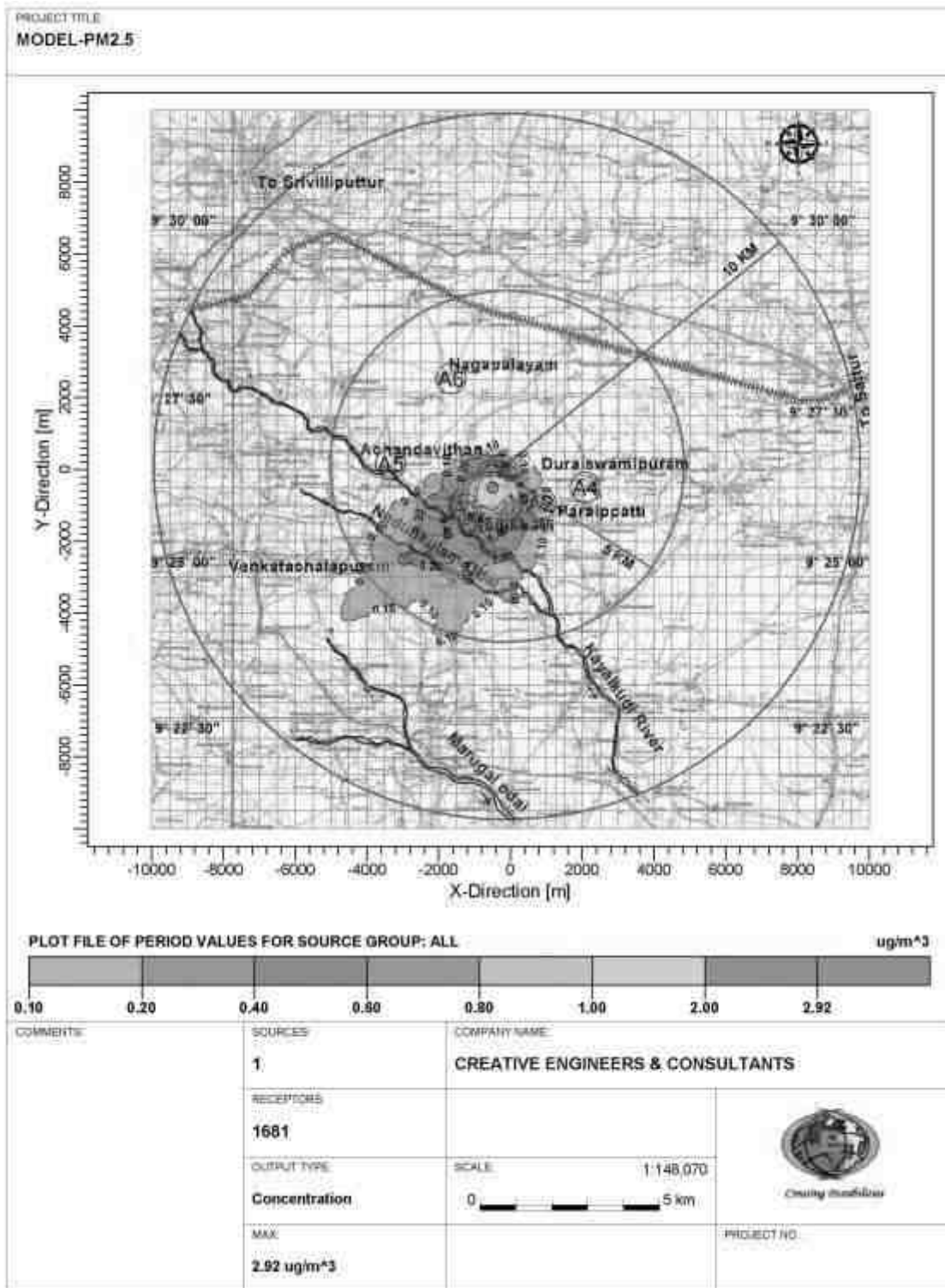
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Figure 0.1: Isoleth of GLC Prediction for PM₁₀



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Figure 0.2: Isopleth of GLC Prediction for PM_{2.5}



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4.2.2.4 Predicted Ambient Air Quality:

The post project Concentrations of PM₁₀, PM_{2.5} (GLC) (base line + incremental) after adopting necessary control measures is given in **Table No - 4.6 to 4.7.**

Table 0.6: Concentrations Of PM₁₀ after Project Implementation

Values in µg/m³

S. No	Location	Background Concentration	Predicted Incremental Concentration	Post Project Concentration	Statutory Limits
1	Near Mine Lease Area	76.3	4.5	80.8	100
2	Parai Patti Village	60.6	<1.0	61.6	
3	Nathikudi Village	58.6	1.0	59.6	
4	M.Duraisampuram Village	56.8	<1.0	57.8	
5	Achamthavirthan Village	53.1	<1.0	54.1	
6	Nagapalayam Village	59.4	<1.0	60.4	

Table 0.7: Concentrations Of PM_{2.5} after Project Implementation

Values in µg/m³

S. No	Location	Background Concentration	Predicted Incremental Concentration	Post Project Concentration	Statutory Limits
1	Near Mine Lease Area	36.8	2.9	39.7	60
2	Parai Patti Village	29.8	<1.0	30.8	
3	Nathikudi Village	27.3	<1.0	28.3	
4	M.Duraisampuram Village	28.9	<1.0	29.9	
5	Achamthavirthan Village	25.6	<1.0	26.6	
6	Nagapalayam Village	28.9	<1.0	29.9	

It can be seen that the resultant added concentrations with baseline figures even at worst scenario, show that the values of ambient air quality with respect to PM₁₀ are in the range of 54.1µg/m³ to 80.8µg/m³ and with respect to PM_{2.5} are in the range of 26.6µg/m³ to 39.7µg/m³ which are within the statutory limits in each case. For preservation of environment in this mine strict enforcement of management schemes and regular air quality monitoring will be undertaken for taking corrective actions, as needed. By adopting the effective implementation of all the mitigative measures, no adverse impact on Air quality due to the mining operation in this lease area is expected.

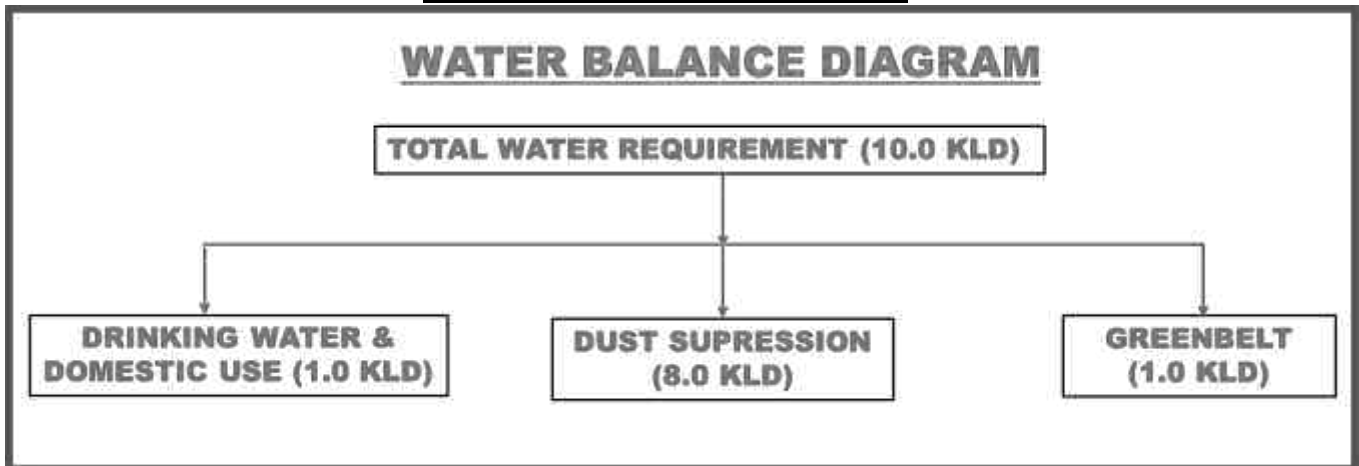


4.3 WATER ENVIRONMENT:

4.3.1 WATER REQUIREMENT:

The total water requirement for this project will be 10.0 KLD comprising 1.0 KLD for drinking water and domestic use, 8.0 KLD for dust suppression and 1.0 KLD for greenbelt. The water will be sourced initially from outside agencies. Later the rainwater collected in the mine pit sump will be used for this purpose. The water balance diagram for the same is shown in **Figure No 4.3.**

Figure 0.3: Water Balance Diagram



4.3.2 SOURCES OF WATER POLLUTION:

The existing water environment showing water quality at different sampling stations in the area has been described in Chapter-III.

Direct impact on human beings due to poor water quality consequent to mining operation can lead to various water borne diseases like diarrhea, jaundice, dysentery, typhoid, etc. Besides, the polluted water may not be useful for animal or human consumption, vegetation and may affect aquatic life, if effluents are not properly treated to remove the harmful pollutants.

The major sources of water pollution normally associated due to mining and allied operations are:

- a. Domestic effluent.
- b. Washouts from stockpile if any.
- c. Disturbance to drainage course in the project area
- d. Generation of mine pit water pumped out from deeper workings if any.

4.3.3 TREATMENT SCHEME:

A. Generation of domestic effluent:

The domestic sewage to be generated from the project will be collected in septic tank with soak pits.

B. Washouts from overburden, ore stockpile, etc.

Since the entire material from the quarry face will be directly dispatched to the consumers, there will not be any stockpiles. There are no waste dumps in this quarry. As such there will not be any wash out due to stock pile or waste dumps.

The rain water falling in the quarry will be harvested in the sump at the lowest level of the quarry. This sump will act as a settling pond to prevent solids escaping along with discharge, before outlet. etc. Towards surface runoff management, a garland drain of length 754 m will be constructed around the quarry and will be connected to a settling pond with silt traps. The supernatant clear water from the settling pond will be flow to the downstream users. The surface runoff management structures diagram is given in **Figure No 4.4**.

C. Disturbance to drainage courses

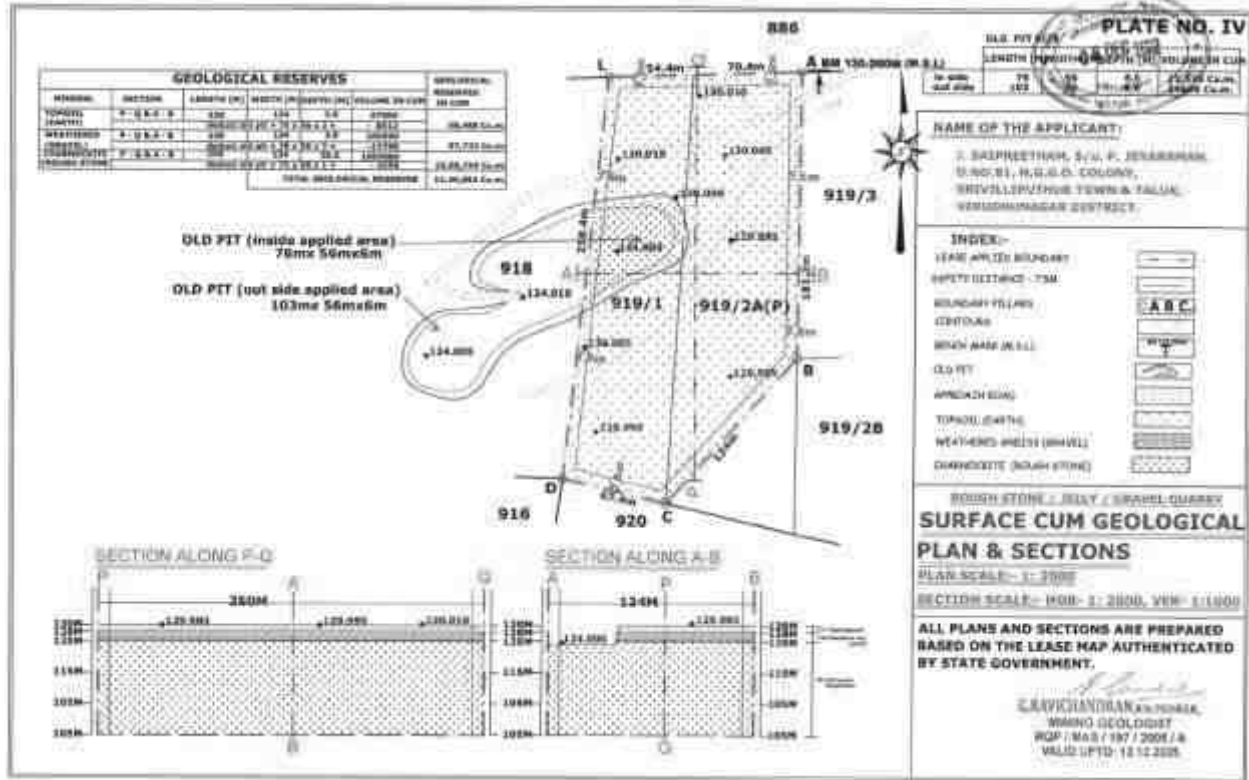
Kayalkudi river a seasonal rainwater carrying stream located about 1.7km on the SW side. No major water flow is observed in this river and it remains dry for major part of the year. There will be no generation of effluent or its discharge from the mining operation in this lease area and as such no impact on water quality of this river is expected. Direct rain fall into the pit will be collected in the mine floor sump. Mine sump capacity shall be 125 m x 67.0m x 1.0 m proposed. Water from sump will be pumped to settling pond for down stream users. Rainwater from the mine periphery will be collected through peripheral garland drain - 754 m x 1m x 0.6m proposed. Garland drain will be connected to a settling pond of 3.0M X 3.0 M X 1.5 M size and 13.5 m³ capacity. Supernatant clear water from settling pond will be let out to downstream users.

There is no proposal to discharge any effluent into the water body. No major impact is envisaged on the nearby water bodies due to project operations.



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Figure 0.4: Surface Runoff Management Structures



D. Generation of mine pit water pumped out from deeper workings if any.

The occurrence and movement of groundwater in hard rock formations are restricted to the porous zones of weathered formations and the open systems of fractures, fissures and joints. Generally, in hard rock regions, occurrence of weathered thickness is discontinuous both in space and depth. Hence recharge of groundwater in hard rock formations is influenced by the intensity and depth of weathering. In the nearby region, the formations are compact with less intergranular porosity and fractures leading to less permeability and transmissivity values and as such the ground water level in this area is deep from surface. The mining area consists of hard compact rock, hence no major water seepage within the mine is expected from the periphery. The ultimate pit depth of mining is 35 m. The ground water table in this area is below this level. Hence, ground water intersection is not envisaged and ground water will not be affected appreciably due to the quarrying operation. As mentioned earlier, the rainfall will be



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collected in the mine floor sump and advantageously used. Excess water if any in the sump will be pumped to settling pond for downstream users.

4.3.3.1 STAGE OF GROUNDWATER DEVELOPMENT

Details of hydrological scenario of the study area were given in para 3.6, Chapter – III. The groundwater resource data of Virudhunagar district was obtained from the data provided in the technical report of the Central Ground Water Board, South Eastern Coastal Region – ‘District groundwater brochure, Virudhunagar District.’

Table 0.8: Ground Water Resources Estimation– Vembakottai Taluk (M.Cum)

Net Groundwater Availability	Existing Gross Draft for Irrigation	Existing Gross Draft for Domestic and industrial water supply	Existing Gross Draft for all uses	Allocation for Domestic and Industrial Requirement supply upto next 25 years (2029)	Allocation for Domestic and Industrial Requirement supply upto next 25 years (2029)	Stage of Ground water Development (%)	Category of Block
26.82	13.14	23.7	15.51	24.7	11.22	58	Safe

From the table it is seen that the stage of groundwater development of Vembakottai where the study area falls is 58%. In view of this, this area can be categorized as ‘Safe’ from ground water development point of view. Thus there is scope for further ground water development.



4.3.4 REDUCING WATER CONSUMPTION OVER THE YEARS:

4.3.4.1 GENERAL METHODS:

Use of water will be monitored and used to the minimum required. Awareness will be spread to the employees about the importance of water conservation. Tap and showers will be turned off immediately after use and any leaks will be monitored and immediately controlled. Water requirement for greenbelt and dust suppression can be reduced by choosing the native plants/trees species with low water requirement and which can sustain in such conditions for greenbelt/ plantation and also optimum usage to the required minimum. While the dust suppression itself is an important method of pollution control for air pollution due to dust, the water consumption will be monitored strictly. The water tanker will be examined for any sources of leaks and if found will be immediately sealed so that water can be utilized for dust suppression effectively without loss.

4.3.4.2 RAINWATER HARVESTING PLAN

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

- a) Development of garland drain around the quarry connected to settling tank.
- b) Cleaning of drain periodically to prevent siltation
- c) The supernatant clear water from the settling pond will drain into the nearby drainage.
- d) Utilizing the rainwater harvested in the mine pit to meet the water requirement of the project.
- e) Excess water, if any in consultation with local villagers and in line with government practices shall be provided to the downstream users.

4.4 NOISE AND VIBRATION:

4.4.1 NOISE ENVIRONMENT:

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



4.4.1.1 IMPACT PREDICTION DUE TO NOISE:

Noise is one of the inevitable causes of pollution in mining operations, largely due to the extensive mechanization adopted. Besides, other operations such as drilling, blasting, movement of vehicles, etc., also produce noise of considerable magnitude in mining operations. The main sources of noise and expected levels are given below in **Table no – 4.9**.

Table 0.9: Main Sources of Noise

Sl. No.	Source	Inside Cabin	Noise level at dB(A) 10 m. from source
1	Shovel	84-91	59-68
2.	Dumpers/Tippers	87-96	75-85
3.	Drill	88- 95	75-83

Prolonged exposure to a high noise level is harmful to the human auditory system and can create mental fatigue, rebellious attitude, annoyance and carelessness, which may lead to neglect of work and also result in accidents. The impact of noise level as per World Health Organization’s 1986 notification is given below in **Table No-4.10**.

Table 0.10: Impact of Noise Levels

NOISE LEVELS	ADVERSE EFFECTS
90-115 dB	Partial deafness and nervous irritability
> 115 dB	Permanent deafness
Impulsive noise (>90dB)	Frightens livestock grazing in the nearby areas

OSHA (Occupational Safety and Health Administration), USA and other similar organisations stipulate that noise level up to 90 dB(A) is acceptable for eight hours exposure Leq (Equivalent sound level) (8hrs) per day. The Directorate General of Mines Safety, in circular No. DG (Tech)/18 of 1975, has prescribed the noise level in mining occupations (TLV) for workers, in an 8 hour shift period with unprotected ear as 90 dB(A) or less.

The production quantity is low and hence few equipment’s only will be used. Besides, the noise will be felt only near the active sources. There will be considerable reduction in the noise level due to the absorption factor, environmental surroundings and other attenuation factors. As far



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

as absorption factor is concerned, If the ground cover is vegetated or has a soft texture, sound will decrease at the rate of 4.5dB(A) every time the distance between the source and the observer is doubled. Besides, there will be shielding factor, which takes into account the environmental surroundings. With every 30m of dense land scape vegetation, 5dB(A) of additional attenuation can be obtained upto a maximum of 10 dB(A).As such at away places the effect of noise will not be felt.

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

Noise modeling is carried out using the following formula:

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

Table 0.11: Post Project Noise Levels

SI.No	Location	Baseline Day Eq.in dB(A)	Post project noise Eq in dB(A)	Limit dB(A) as per MoEF&CC
1.	North West Corner	52.4	60.7	90
2.	North East Corner	52.4	60.4	90
3	South East Corner	52.4	59.0	90
4	South West Corner	52.4	58.7	90
5	Parai Patti Village	50.3	50.5	55
6	Nathikudi Village	49.4	49.6	55
7	M.Duraisampuram Village	48.2	48.3	55
8	Achamthavirthan Village	45.4	45.6	55
9	Nagapalayam Village	49.8	49.9	55

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



4.4.1.2 CONTROL MEASURES FOR NOISE ENVIRONMENT:

Hence, by following mitigative measures for noise control, the impact on noise levels will be insignificant:

- Planting rows of native trees along roads, around mine area and other noise generating centers to act as acoustic barriers.
- Sound proof operator's cabin for equipments like shovel, tippers, etc.
- Proper and regular maintenance of equipments may lead to less noise generation.
- Providing in-built mechanism for reducing sound emissions.
- Providing earplugs to workers exposed to higher noise level.
- Conducting regular health check-up of workers including Audiometry test for the workers engaged in noise prone area.
- Displaying the noise level status of operational machinery on the machines to know the extent of noise level and to control the time to which the worker is exposed to higher noise levels.
- Provision of tin sheet in the lease periphery on the eastern side and green net on the other sides.

Further green belt and afforestation will be planned and executed to abate noise and dust propagation in the area.

4.4.2 GROUND VIBRATIONAL DUE TO BLASTING EFFECTS:

Vibrations due to blasting may cause damage to nearby structures, if appropriate control measures are not adopted. Flyrock is another possible damage causing outcome of blasting. There are many factors, which influence these, like long explosive column with little stemming column, improper burden, loose material or pebbles near holes and long water columns in the holes.

The following control measures will be planned to reduce ground vibratory conditions to sustainable statutory limits:



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

- 1) Carrying out controlled blasting using Nonel delay detonator.
- 2) Optimum design for burden and spacing.
- 3) Reducing explosive charge per delay to minimum.
- 4) The peak particle velocity (PPV) of ground vibration will be kept very low through optimally controlled blasting techniques, after necessary field trials.
- 5) To contain fly rocks, stemming column to be less than burden of the hole. Blasting area will also be muffled, if necessary, to stop fly rocks propagation.
- 6) Blasting will not be carried out when strong winds are. Blasting will be done during midday time.
- 7) Controlled blasting to avoid tension cracks which may endanger the stability of bench slopes in the mine.
- 8) Proper care and supervision during blasting by a competent and experienced person to be carried out.

By adoption of above measures, it will be ensured that the ground level vibration due to blasting are maintained within the limits prescribed by DGMS, Dhanbad at the mining areas vide Circular No. 7 dated 29 -08-1997 as given below

Table 0.12: Permissible Peak Particle Velocity (PPV) In Mining Areas

Type of structure	Dominant excitation frequency Hz		
	<8 Hz	8-25 Hz	>25 Hz
In mm/sec			
A. Buildings/structures not belonging to owner			
Domestic houses /structures (Kuchha brick and cement)	5	10	15
Industrial buildings (RCC and framed structures)	10	20	25
Objects of historical importance and sensitive structures.	2	5	10
B. Building belonging to owner with limited span of life			
Domestic houses/structures (Kuchha brick and cement)	10	15	25
Industrial buildings (RCC and framed structures)	15	25	50

Besides, different blasting time for the projects in the vicinity is suggested and the timing is to be mentioned in the display board in the respective mines entrance.



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.3350 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

4.5 LAND ENVIRONMENT:

The entire mine lease area of 3.33.50 Ha is aown patta land. Part of the lease area is already mined out. The present land use pattern, and the post mining land use pattern is shown below:

Table 0.13: Land Use Table

S.No	Land Use	Present Area (Ha)	Area in use during the quarrying period (Ha)
1.	Quarrying Pit	0.426	2.89.5
2.	Infrastructure & Roads	-	0.08.0
3.	Green Belt	-	0.27.0
4.	Fencing & Others	2.909	0.09.0
	Total	3.33.50	3.33.50

4.5.1 LAND RECLAMATION:

The overburden in the form of Gravel after excavation will be temporarily preserved if necessary and marketed to needy customers. Topsoil will be used for plantation purposes. There is no waste generation anticipated in this quarry operation since the entire excavated material will be utilized. Hence, there is no external overburden dump involved. In the post mining stage, entire 2.89.5 Ha of mined out area will be left as water body, 0.08.0 Ha will be the mine roads & infrastructure, 0.27.0 Ha will be covered with vegetation and 0.09.0 will be fencing.

Table 0.14: Land Use During Post Operational Period

S.No	Description	Land use (Ha.)			
		Plantation	Water body	Others	Total
1	Quarrying Pit	-	2.89.5	-	2.89.5
2	Infrastructure and Roads	-	-	0.08.0	0.08.0
3.	Green Belt	0.27.0	-	-	0.27.0
4.	Fencing / others	-	-	0.09.0	0.09.0
	TOTAL	0.27.0	2.89.5	0.17.0	3.33.50

Entire mined out area will be properly fenced to prevent inadvertent entry of men and animals. In the post mining stage, the rainwater harvested in the mined-out void shall be utilized to meet the water requirement of the project.



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

4.6 BIOLOGICAL ENVIRONMENT:

4.6.1 EXISTING FLORA AND FAUNA:

The core zone area is a hard rock formation area, with barren patches. Details of flora/fauna pattern in core and buffer zones have been described in chapter - III.

4.6.2 IMPACT OF MINING ON BIOLOGICAL ENVIRONMENT:

The significance of impact on biological environment due to mining and allied activities on various fronts is described below:

Table 0.15: Impact on Biological Environment

S.No	ISSUES	OBSERVATIONS
1	Clearance of vegetation due to mining and allied activities	No clearance of major vegetation is involved.
2	Retardation of tree growth, tip burning, etc, due to deposition of dust and the Particulate matter generated from the mining operation.	Necessary mitigative measures like dust suppression, proper maintenance of equipment's, roads will be carried out to prevent dust generation.
3	Proximity to national park/ wildlife sanctuary/reserve forest/mangroves/Coastline/estuary/sea	The mining lease area and the 10 km buffer zone from the periphery of the core zone is devoid of declared ecologically sensitive features like national parks, biospheres, sanctuaries, etc.
4	Release of effluents into water body that also supplies water to wildlife	There is no proposal to discharge any effluent into nearby water bodies.
5	Proposed project could increase siltation that would affect nearby biodiversity area	Surface runoff management structures like garland drain, settling pond etc. as explained above will be constructed and as such there will not be any appreciable impact on surface water quality which in turn can affect the bio diversity of the area.
6	Activities of the project affects the breeding/nesting sites of birds and animals	In the present ML area there is no wetland. A migratory bird needs sufficient wetlands with sufficient food, shelter, roosting places and nesting places which is not possible here.
7	Located near an area populated by rare or endangered species	There are no Schedule 1 animals
8	Risk of fall/slip or cause death to wild animals due to project activities	Barbed wire fencing is proposed all around the mined out void to prevent falling of animals in the mine pits.
9	Project affects the forest-based livelihood/any specific forest product on which local livelihood depends	Not applicable
10	Project likely to affect migration routes	No migration routes are in the area.
11	Project likely to affect flora of an area, which have medicinal value	No such significantly important medicinal value species within the ML area and its nearby region.



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

12	The project likely to affect wetlands, fish breeding grounds, marine ecology	There are no any wetlands, fish breeding grounds, marine ecology nearby the ML area which will be affected due to this project.
13	Project affects the agricultural activities in the region.	Due to poor soil condition and non availability of perrineal water source, no major agricultural activity is carried out in and around the lease area. Only patches of plantation are observed in few places in the monsoon season based on water availability.

There are no migratory corridors, migratory avian-fauna, rare endemic and endangered species. Therefore there shall be no impacts due to mining activity on them. Even though there are no impact on bio diversity and flora/fauna status due to project operations, positive impacts will arise due to well-planned reclamation measures for restoration of land status in the area ultimately to productive land category with elaborately planned green belt development activities.

4.6.3 CONTROL MEASURES FOR BIOLOGICAL ASPECTS:

To reduce the adverse effects on flora/fauna status of the area due to deposition of dust generated from mining operations, mobile water tanker systems will be ensured in all dust prone areas to arrest dust generation. Methodical and well-planned plantation scheme will be carried out depending upon the immediate need, priority and availability of land. The plantation will be done along the lease boundary in a phased manner.

4.6.4 GREEN BELT & PLANTATION:

In the lease area, safety barrier 7.5m around the periphery of the lease area. Greenbelt / Plantation will be carried out to enhance the vegetative growth and aesthetic in the safety zone area. About 1700 trees will be planted in and around the lease area.



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Table 0.16: Proposed Plantation

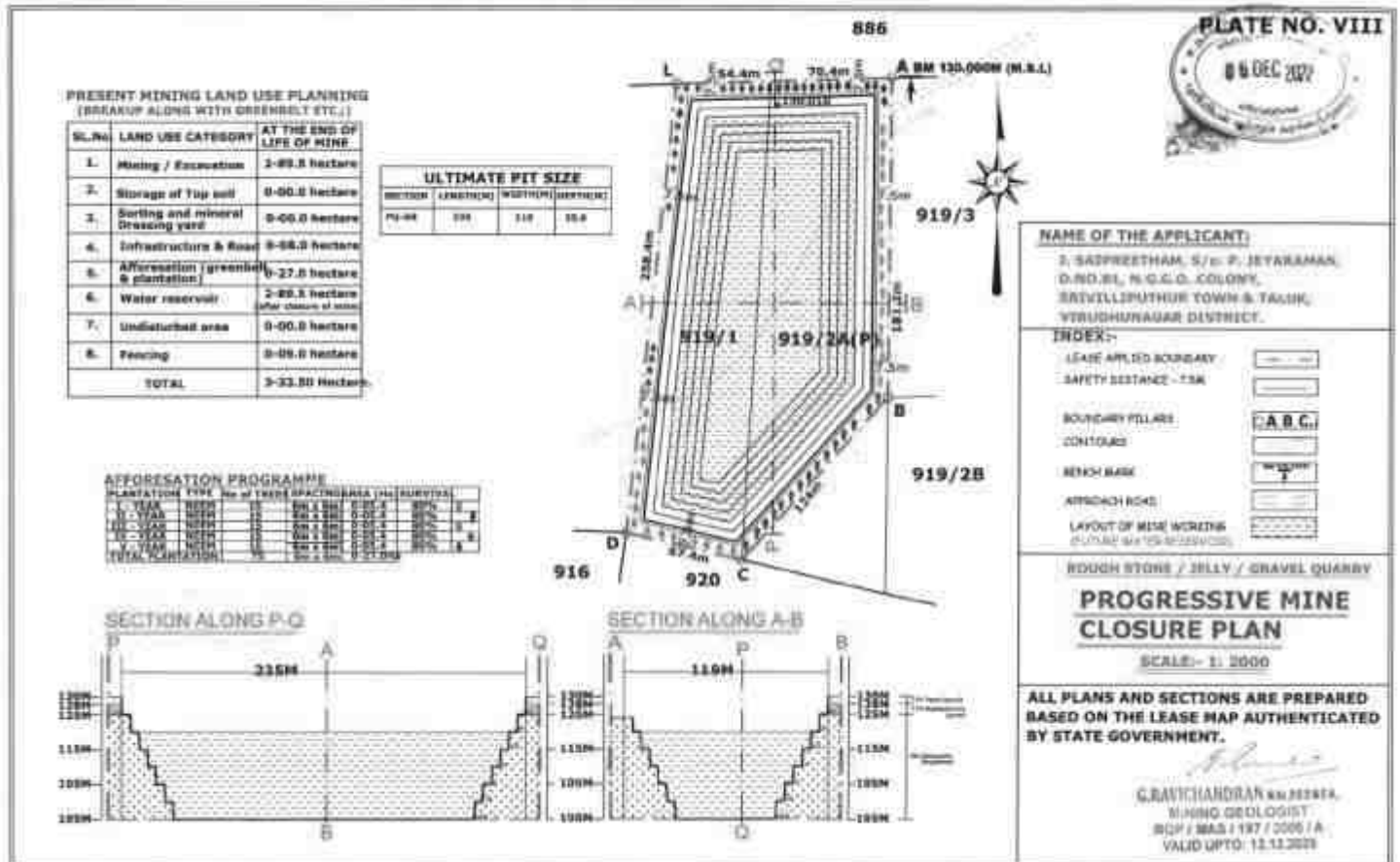
Year	No. of tress proposed to be planted	Name of the species
I	400	Pungai, Vagai, Vembu, Manjal konrai, Naval, Puvarasu, etc.,
II	400	
III	300	
IV	300	
V	300	
Total	1700	

In the post mining stage, entire 2.89.5 Ha will be left as water body, 0.08.0 Ha will be the mine roads & infrastructure, 0.27.0 Ha will be covered with vegetation and 0.09.0 will be fencing. The post mining land use plan showing afforestation and water body is shown in **Figure No- 4.5**.



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.3350 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Figure 0.5: Mine Closure Plan



4.7 SOCIO ECONOMIC ENVIRONMENT:

The entire lease area is in the proponent's possession. Hence, there are no habitations or hutments in the core zone area and no rehabilitation or resettlement problems will arise here. The seasonal odain proximity to the lease area not be disturbed by the proponent and sufficient safety barrier and protective measures has also been considered.

The mining operations in the proposed mine will employ about 15 persons directly and about 50 persons on indirect basis through allied opportunities in logistics, trading, repairing works etc. good employment potential will arise in this area, which will provide raising income levels and standards of living in the area through various service related activities connected with the project operations as shown under.

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

Besides, there will be improvement in the following aspects due to project operation:

- ❖ Improvement in infrastructural facilities, providing education aids etc. in nearby schools
- ❖ Betterment of drinking water facilities.
- ❖ Benefit to the State and the Central governments through financial revenues by way of royalty, tax, duties, etc from this project directly and also indirectly.

From above details, it is clear that the project operations will have highly beneficial positive impact in the area.



Table 0.17: CER Cost

Project Cost (Rs.)	Rs. 1,88,19,924./-
CER Cost Requirement (2% of the Project Cost) (Rs.)	Rs. 3,76,398.48/-
Actual CER cost allocated (Rs.)	Rs.5,00,000/-

Towards the socio economic development of the surrounding area, the proponent has earmarked an amount of Rs.5 Lakhs under Corporate Environmental Responsibility. The activities identified under CER will be implemented in a phased manner in provision of facilities in nearby Government School.

4.8 OCCUPATIONAL HEALTH AND SAFETY:

4.8.1 BASELINE STATUS:

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

4.8.2 IMPACTS ON OCCUPATIONAL HEALTH DUE TO PROJECT OPERATIONS:

Anticipated occupational illness sequel to mining activities can be as follows:

- Dust related pneumonia
- Tuberculosis
- Rheumatic arthritis
- Segmental vibration
- Miner's Nystagamus

4.8.3 MITIGATIVE MEASURES FOR OCCUPATIONAL HEALTH:

To reduce pollution emanation from the project, following measures are being and will be taken:

- Water sprinkling on haul roads etc.
- Green belt creation to arrest dust and reduce noise propagation.



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

- Acceptance of good control measures for reducing air pollution, as mentioned earlier in the chapter.
- Control of noise levels through good preventive maintenance of machineries, green belt creation, provision of ear plug to workers, etc.
- In addition to above measures, the following remedial steps are being and will be enforced to ensure minimization of occupational health and safety problems.
- Medical examination of workers by qualified doctors, as per DGMS circulars.
- Regular awareness campaigns amongst staff and workers
- Staff will be provided with PPE to guard against excess noise levels, Dust generation and inhalation, etc., as per standards prescribed by DGMS.

4.8.4 MITIGATIVE MEASURES FOR SAFETY ASPECTS:

The following safety gadgets will be provided to the staff and workers based on their area of operation and work& requirement:

SI No	Safety Equipments
1.	Helmets
2.	Shoes
3.	Goggles
4.	Dust Mask
5.	Hand Gloves
6.	Reflective Jackets
7.	Ear Muffs
8.	Signal Lights/Flags

4.9 LOGISTICAL SYSTEM:

From the mine the entire material will be transported to required users. The expected peak transport will be as follows:



Table 0.18: Details of Transportation

Sl.no	Particulars of activity	Quantity
A	Maximum Material Transported (m ³ /year)	1,05,305
B	No of days in a year	300
C	Transport hours per day	10
D	Truck capacity in T	20
	Trips per hour	5 Trips/hr

Since the production is less, there will be hardly about 5 trips per hour. The existing road can absorb this traffic due to this project. The following mitigative measures are suggested:

- ❖ Water sprinkling on material in the transport vehicles before transporting, so that no dust nuisance during transport will arise.
- ❖ Plantation on either side of the transport road in consultation with the concerned department.
- ❖ Proper maintenance of transport roads
- ❖ Proper maintenance of transport vehicles.
- ❖ Avoiding overloading of material
- ❖ Covering of loaded vehicles with tarpaulins sheet if warranted.
- ❖ Keeping traffic regulators at vulnerable locations.
- ❖ Distribution of transport vehicles for avoiding choking of roads
- ❖ Limiting of speed
- ❖ Installation of barriers at vulnerable locations
- ❖ Provision of tyre washing facility at the mine outlet

4.10 WASTE MANAGEMENT:

Solid Waste: Since the entire mined out material will be used there will not be any solid waste generation from this project.

Liquid waste: There is no process effluent generation from this mine. Hence no liquid waste is generated.



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Hazardous waste management: In this project the following management practices will be followed:

- Ensuring availability of different colour bins for collection of different types of waste.
- Storing of Hazardous waste material in a separate storage area with impervious containers for waste oil, oil contaminated clothes, used lead acid batteries, scraps, tyre storage etc.
- Ensure that there are no leakages/spillages of hazardous wastes.
- Ensuring that the fire extinguisher system is available at hazardous material storage area.

The hazardous waste if any will be disposed through authorized recyclers or re-processors periodically. The hazardous wastes will be transported in accordance with the provisions of rules. By effective implementation of above said mitigation measures no major impact due to Hazardous waste is expected.

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

* * * * *



CHAPTER - V

ANALYSIS OF ALTERNATIVES (TECHNOLOGY & SITE)

CHAPTER 5

ANALYSIS OF ALTERNATIVES

5.1 ALTERNATE TECHNOLOGY:

This is a proposed Rough Stone and Gravel Quarry in which Mechanized Open Cast mining will be carried out. It involves jack hammer drilling, blasting, excavation, loading and transportation of Rough stone to the crushing units. As this method is techno economically proven, consideration of an alternate technology is not warranted.

5.2 ALTERNATE SITE:

The mineral deposits are site specific in nature; hence question of seeking alternate site does not arise.

* * * * *



CHAPTER - VI

ENVIRONMENTAL MONITORING PROGRAMME

CHAPTER 6

ENVIRONMENTAL MONITORING PROGRAMME

6.1 GENERAL

In this project, appropriate environmental monitoring programme are framed. Regular, systematic and sustained programme schedules for implementation and monitoring of various control measures are devised with clear cut guidelines of various concerned plans for keeping a continuous surveillance on the various environmental quality parameters in the area.

The monitoring schedules are planned to aim at regular and systematic study of various pollution levels with respect to air and water quality, noise levels etc., to ensure that they conform to the standards laid down by the Environment Protection Act, 1986 and various Central and State Pollution Control Board Limits.

The various methodologies and frequency of studies of all environmental quality parameters will be as per prescribed norms laid down by MOEF&CC and State Pollution Control Board. This being a small quarry operation, the Mines in-charge will take care of all the environmental related works also.

Environmental control measures include components like air, water and soil quality, noise levels, afforestation measures, etc. For monitoring of environment over the life of the mine, a set of stations for study of quality parameters are fixed as per the actual requirements and prevailing conditions of environmental factors, as dictated from time to time, depending on the prevailing pollution levels.

6.2 MONITORING SCHEDULES FOR VARIOUS PARAMETERS

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



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Table 6.1: Environmental Monitoring Schedule

S.No	Environmental Parameters	Parameters to be monitored	Monitoring area coverage /locations	Frequency of monitoring
1	Air Quality	Sulphur dioxide (SO ₂), Oxides of Nitrogen (NO ₂), Respirable Particulate Matter (PM _{2.5} and PM ₁₀).	2 locations in the buffer zone and 1 work zone locations.	Once in a year in each location.
2	Water Quality	General, Physical, and chemical parameters	Ground Water samples (around the project area) and Mine Pit water samples	Once in a year
3	Water Table Fluctuations	Water Levels	Nearby wells and Borewells	On yearly basis pre and post monsoon level
4	Noise	Leq. Lmax Lmin, Leq Day & Leq Night dB(A)	Work zone locations and buffer zone villages	Once in a year
5	Vibration	Peak Particle Velocity	Mine periphery	Once to arrive at optimum blasting parameters
6	Socio Economic Environment	Socio Economic Survey, Review of implementation of CER activities proposed	Buffer Zone	Yearly basis
7	Occupational Health	Occupational health survey to detect early incidence of diseases, Audiometry Test for workers in noise prone area and review of safety matters.	Staff and Workers involved in the project	Once in a year
8	Greenbelt	Maintenance	Within the lease area	Regularly



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

6.3 LEGISLATIVE AND REGULATORY FRAME WORK:

The project will have environmental policy declaring its responsibility and commitment to protect the environment and to ensure public safety. The existing policy will be available with all concerned officials of the plant. The following environmental standards as per methodologies prescribed, by MOEF/CPCB/TNPCB will be enforced in this project:

Table 6.2: Environmental Standards

Standards	Issued By	Reference
National Ambient Air Quality Standards	Central Pollution Control Board	Table No. 6.3
Water quality standards per IS 10500:2012	Bureau of Indian Standards	Table No.6.4
Noise Standards	CPCB / MoEF&CC	Table No.6.5
Permissible Peak Particle Velocity	DGMS, Dhanbad	Table No.6.6



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.3350 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Table 6.3: National Ambient Air Quality Standards

[NOTIFIED] - [DATE]

[REVISED] - [DATE]

3

NATIONAL AMBIENT AIR QUALITY STANDARDS
CENTRAL POLLUTION CONTROL BOARD
NOTIFICATION
New Delhi, the 18th November, 2009

No. B-2009/2070/PC-4.—In exercise of the powers conferred by Sub-section (2) (b) of section 16 of the Air (Prevention and Control of Pollution) Act, 1981 (Act No.14 of 1981), and in supersession of the Notification No(s). S.O. 384(E), dated 11th April, 1994 and S.O. 955(E), dated 14th October, 1998, the Central Pollution Control Board hereby notify the National Ambient Air Quality Standards with immediate effect, namely:-

NATIONAL AMBIENT AIR QUALITY STANDARDS

S. No.	Pollutant	Time Weighted Average	Concentration in Ambient Air		
			Industrial, Residential, Rural and Other Area	Ecologically Sensitive Areas (notified by Central Government)	Methods of Measurement
(1)	(2)	(3)	(4)	(5)	(6)
1	Sulphur Dioxide (SO ₂), µg/m ³	Annual* 24 hours**	50 80	30 30	- Improved Wet and Gask - Ultraviolet fluorescence
2	Nitrogen Dioxide (NO ₂), µg/m ³	Annual* 24 hours**	40 80	30 30	- Modified Jauch & Hochheiser (Na-Arsenite) - Chemiluminescence
3	Particulate Matter (size less than 10µm) or PM ₁₀ , µg/m ³	Annual* 24 hours**	60 180	60 100	- Gravimetric - TCEM - Beta attenuation
4	Particulate Matter (size less than 2.5µm) or PM _{2.5} , µg/m ³	Annual* 24 hours**	40 60	40 60	- Gravimetric - TCEM - Beta attenuation
5	Ozone (O ₃), µg/m ³	8 hours** 1 hour**	158 180	100 150	- UV photometric - Chemiluminescence - Chemical Method
6	Lead (Pb), µg/m ³	Annual* 24 hours**	0.50 1.8	0.50 1.8	- AAS/ICP method after sampling on EPM 1000 or equivalent filter paper - ED-XRF using Teflon filter
7	Carbon Monoxide (CO), mg/m ³	8 hours** 1 hour**	62 94	62 94	- Non Dispersive Infra Red (NDIR) spectroscopy
8	Ammonia (NH ₃), µg/m ³	Annual* 24 hours**	100 400	100 400	- Chemiluminescence - Indophenol blue method



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

4 THE GAZETTE OF INDIA : EXTRAORDINARY [PART III—Sec. 4]

(1)	(2)	(3)	(4)	(5)	(6)
9	Benzene (C ₆ H ₆) µg/m ³	Annual*	05	05	- Gas chromatography based continuous analyzer - Adsorption and Desorption followed by GC analysis
10	Benz[a]Pyrene (BaP) - particulate phase only, ng/m ³	Annual*	01	01	- Solvent extraction followed by HPLC/GC analysis
11	Arsenic (As), ng/m ³	Annual*	06	06	- AAS /ICP method after sampling on EPM 2000 or equivalent filter paper
12	Nickel (Ni), ng/m ³	Annual*	20	20	- AAS /ICP method after sampling on EPM 2000 or equivalent filter paper

* Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

** 24 hourly or 08 hourly or 01 hourly monitored values, as applicable, shall be complied with 98% of the title in a year. 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

Note. — Whenever and wherever monitoring results on two consecutive days of monitoring exceed the limits specified above for the respective category, it shall be considered adequate reason to institute regular or continuous monitoring and further investigation.

SANT PRASAD GAUTAM, Chairman
[ADVT-III/13405/Exy.]

Note: The notifications on National Ambient Air Quality Standards were published by the Central Pollution Control Board in the Gazette of India, Extraordinary vide notification No(s). S.O. 384(E), dated 11th April, 1994 and S.O. 935(E), dated 14th October, 1998.



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Table 6.4: IS – 10500 :2012 Standards

Table 1 Organoleptic and Physical Parameters
(Foreword and Clause 4)

Sl No.	Characteristic	Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source	Method of Test, Ref to Part of IS 3025	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
i)	Colour, Hazen units, <i>Max</i>	5	15	Part 4	Extended to 15 only, if toxic substances are not suspected in absence of alternate sources
ii)	Odour	Agreeable	Agreeable	Part 5	a) Test cold and when heated b) Test at several dilutions
iii)	pH value	6.5-8.5	No relaxation	Part 11	—
iv)	Taste	Agreeable	Agreeable	Parts 7 and 8	Test to be conducted only after safety has been established.
v)	Turbidity, NTU, <i>Max</i>	1	5	Part 10	—
vi)	Total dissolved solids, mg/l, <i>Max</i>	500	2 000	Part 16	—

NOTE — It is recommended that the acceptable limit is to be implemented. Values in excess of those mentioned under 'acceptable' render the water not suitable, but still may be tolerated in the absence of an alternative source but up to the limits indicated under 'permissible limit in the absence of alternate source' in col 4, above which the sources will have to be rejected.



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Table No – 6.2 contd.

Table 2 General Parameters Concerning Substances Undesirable in Excessive Amounts
(Foreword and Clause 4)

Sl No.	Characteristic	Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source	Method of Test, Ref to	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
i)	Aluminium (as Al), mg/l, Max	0.03	0.2	IS 3025 (Part 55)	—
ii)	Ammonia (as total ammonia-N), mg/l, Max	0.5	No relaxation	IS 3025 (Part 34)	—
iii)	Anionic detergents (as MBAS) mg/l, Max	0.2	1.0	Annex K of IS 13428	—
iv)	Barium (as Ba), mg/l, Max	0.7	No relaxation	Annex F of IS 13428* or IS 15302	—
v)	Boron (as B), mg/l, Max	0.5	1.0	IS 3025 (Part 57)	—
vi)	Calcium (as Ca), mg/l, Max	75	200	IS 3025 (Part 40)	—
vii)	Chloramines (as Cl ₂), mg/l, Max	4.0	No relaxation	IS 3025 (Part 26)* or APHA 4500-Cl G	—
viii)	Chloride (as Cl), mg/l, Max	250	1 000	IS 3025 (Part 32)	—
ix)	Copper (as Cu), mg/l, Max	0.05	1.5	IS 3025 (Part 42)	—
x)	Fluoride (as F) mg/l, Max	1.0	1.5	IS 3025 (Part 60)	—
xi)	Free residual chlorine, mg/l, Min	0.2	1	IS 3025 (Part 26)	To be applicable only when water is chlorinated. Tested at consumer end. When protection against viral infection is required, it should be minimum 0.5 mg/l
xii)	Iron (as Fe), mg/l, Max	0.3	No relaxation	IS 3025 (Part 53)	Total concentration of manganese (as Mn) and iron (as Fe) shall not exceed 0.3 mg/l
xiii)	Magnesium (as Mg), mg/l, Max	30	100	IS 3025 (Part 46)	—
xiv)	Manganese (as Mn), mg/l, Max	0.1	0.3	IS 3025 (Part 59)	Total concentration of manganese (as Mn) and iron (as Fe) shall not exceed 0.3 mg/l
xv)	Mineral oil, mg/l, Max	0.5	No relaxation	Clause 6 of IS 3025 (Part 39) Infrared partition method	—
xvi)	Nitrate (as NO ₃), mg/l, Max	45	No relaxation	IS 3025 (Part 34)	—
xvii)	Phenolic compounds (as C ₆ H ₅ OH), mg/l, Max	0.001	0.002	IS 3025 (Part 43)	—
xviii)	Selenium (as Se), mg/l, Max	0.01	No relaxation	IS 3025 (Part 56) or IS 15303*	—
xix)	Silver (as Ag), mg/l, Max	0.1	No relaxation	Annex J of IS 13428	—
xx)	Sulphate (as SO ₄) mg/l, Max	200	400	IS 3025 (Part 24)	May be extended to 400 provided that Magnesium does not exceed 30
xxi)	Sulphide (as H ₂ S), mg/l, Max	0.05	No relaxation	IS 3025 (Part 29)	—
xxii)	Total alkalinity as calcium carbonate, mg/l, Max	200	600	IS 3025 (Part 23)	—
xxiii)	Total hardness (as CaCO ₃), mg/l, Max	200	600	IS 3025 (Part 21)	—
xxiv)	Zinc (as Zn), mg/l, Max	5	15	IS 3025 (Part 49)	—

NOTES

1 In case of dispute, the method indicated by * shall be the referee method.

2 It is recommended that the acceptable limit is to be implemented. Values in excess of those mentioned under 'acceptable' render the water not suitable, but still may be tolerated in the absence of an alternative source but up to the limits indicated under 'permissible limit in the absence of alternate source' in col 4, above which the sources will have to be rejected.



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Table 6.5: Noise Level Standards

Area Code	Category of Area	Limits in dB(A) Leq	
		Day Time	Night Time
(A)	Industrial area	75	70
(B)	Commercial area	65	55
(C)	Residential area	55	45
(D)	Silence Zone	50	40

Note :

1. Day time shall mean from 6 a.m. and 10.0 p.m.
2. Night time shall mean from 10.0 p.m. and 6 a.m.
3. Silence zone is an area comprising not less than 100 meters around hospitals, educational institutions, courts, religious places or any other area which is declared as such by the competent authority.
4. Mixed categories of areas may be average as one of the four above mentioned categories by the competent authority.

* dB(A) Leq denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.

A “decibel” is a unit in which noise is measured.

“A”, in dB(A) Leq, denotes the frequency weighting in the measurement of noise and corresponds to frequency response characteristics of the human ear.

Leq: It is energy mean of the noise level over a specified period.

Table 6.6: Permissible Noise For Industrial Workers As Laid Down By CPCB

Exposure time (in hr. per day)	Limit in dB(A)
8	90
4	93
2	96
1	99
1/2	102
1/4	105
1/8	108
1/16	111
1/32	114



Table 6.7: Permissible Peak Particle Velocity (PPV) In Mining Areas

In mm/sec.

Type of structure	Dominant excitation frequency Hz		
	<8 Hz	8-25 Hz	>25 Hz
A. Buildings/structures not belonging to owner			
Domestic houses /structures (Kuchha brick and cement)	5	10	15
Industrial buildings (RCC and framed structures)	10	20	25
Objects of historical importance and sensitive structures.	2	5	10
B. Building belonging to owner with limited span of life			
Domestic houses/structures (Kuchha brick and cement)	10	15	25
Industrial buildings (RCC and framed structures)	15	25	50

The above said monitoring location and the frequency of monitoring shall be suitably modified in consultation with the nodal agency as per the actual requirements and prevailing conditions of the mine and environmental factors, as dictated from time to time, depending on the prevailing pollution levels, if required.

6.4 ENVIRONMENTAL MONITORING COST:

Towards environmental monitoring it is proposed to allocate a budget of Rs. 1.00 Lakh per annum for this project. Further details of the capital and recurring cost of environmental management has been provided in in Table No. 10.2, Chapter-X.

* * * * *



CHAPTER - VII

ADDITIONAL STUDIES

CHAPTER 7 ADDITIONAL STUDIES

7.1 GENERAL:

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

1. Public consultation of the project as per MoEF&CC mandates.
2. Risk Assessment
3. R&R Plan
4. Mine closure planning

7.2 PUBLIC CONSULTATION:

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

7.3 RISK ASSESSMENT:

For the various risks, likely to arise, detailed analysis of causes and control measures is given in below:

S.No	Factors	Causes of risks	Control measures
1.	Removal of material	a) Bench may slide due to its unconsolidated nature. b) Vibration due to movement of vehicles in the benches.	Overall bench slope angle will be maintained optimally as per DGMS requirement. Working bench width will be more than bench height.
2.	Drilling	a) Due to high pressure of compressed air hoses may burst. b) Down the hole drill rod may break due to improper	<ul style="list-style-type: none">• Periodical preventative maintenance and replacement of worn out accessories in the compressor and drill equipment.• As per manufacturers recommendation



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

S.No	Factors	Causes of risks	Control measures
		maintenance of rod.	rod to be replaced and bits will be changed.
3.	Blasting	a)Fly rock, ground vibration, noise etc. b) Improper charging of explosives	<ul style="list-style-type: none"> • Burden and spacing will be kept optimum on trial basis. • Explosive charge per delay will be minimized. • Controlled blasting with Nonel will be used.
4.	Excavation	a)Hauling and loading equipment are in such proximity while excavation b)Swinging of bucket over the body of tipper c) Driving of unauthorized person	<ul style="list-style-type: none"> • Operator shall not operate the machine when person & vehicles are in such proximity. • Shall not swing the bucket over the cab and operator leaves the machine after ensuring the bucket is on ground. • Shall not allow any unauthorized person to operate the machine by effective supervision.
5.	Transportation	a)Operating the vehicle "nose to tail" b) Overloading of material c) While reversal & overtaking of vehicle d) Operator of truck leaving his cabin when it is loaded	<ul style="list-style-type: none"> • It will be ensured that all these causes will be nullified by giving training to the operators. • No over loading will be done. • Audio visual reverse horn will be provided. • Proper training will be given.
6.	Fire due to electricity and Oil	a)Due to the short circuit of cables & other electrical parts b) Due to the leakage of inflammable liquid like diesel, oil etc.	<ul style="list-style-type: none"> • Electrical parts shall be cleaned frequently with the help of dry air blower • All fastening parts and places will be tightening. Suitable fire suppression equipment shall be provided.
7.	Natural calamities	Unexpected happenings	The mine management is capable to deal with the situation.



7.3.1 DISASTER MANAGEMENT PLAN:

In general, following natural/industrial hazards may occur during normal operation.

- Inundation of mine pit due to flood/excessive rains :
- Slope failure of the pit and waste dumps
- Accident due to heavy mining equipment and
- Blasting and use of Explosives

Mining operation in this lease will be carried out under the management control and direction of a qualified mine manager. The DGMS have been issuing a number of standing orders, model standing orders and circulars to be followed by the mine management in case of disaster. All these orders statutory rules and regulations will be followed. Seismically project site and study area falls in the Zone – II and is described as least active zone. There are no perennial water body near the lease area to cause any flooding. As such no disaster due to this project is envisaged. In order to take care of above hazard / disasters the following control measures have been adopted.

- Checking and regular maintenance of garland drains and earthen bunds to avoid any inflow of surface water in the mine pit.
- Avoiding mining during heavy monsoon period and marching of all the HEMM to the top benches during rainy period.
- Provision of high capacity standby pumps with generator sets with sufficient quantity of diesel for emergency pumping especially during monsoon.
- All safety precautions and provisions of regulations will be strictly followed during all mining operations
- Prohibiting entry of unauthorized persons.
- Provision of Firefighting and first-aid provisions in the mines.
- Provisions of all the safety appliances such as safety boot, helmets, goggles, dust masks, ear plugs and ear muffs etc. are made available to the employees for their use.

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

- Training and refresher courses for all the employees working in hazardous premises
- Observance of all safety precautions for blasting and storage of explosives as per MMR 1961.
- Working of mine, as per approved plans and regularly updating the mine plans
- Cleaning of mine faces regularly
- Proper storage, usage of explosives through competent persons.
- Regular maintenance and testing of all mining equipment as per manufacturers guidelines
- Suppression of dust on the haulage roads with frequent water sprinkling, etc.
- Increasing the awareness of safety and disaster through competitions, posters and annual safety weeks and environmental weeks, encouraged through suitable rewards and other similar drives.

The management and the EMC will be able to deal with the situations efficiently keeping in view of the likely sources of dangers in the mine.

7.4 REHABILITATION AND RESETTLEMENT (R & R) PLAN:

The mining activities will be carried out within the mine lease area only. The entire mine lease area of 3.33.50 Ha is a patta land. There is no population within the ML area. Hence, the question of R& R does not arise.

7.5 MINE CLOSURE PLAN:

It is proposed to carryout mining operation up to a depth of mining 35m for 5 years. In the mine closure stage all necessary measures will be taken as per Act & Rules, There is no proposal for back filling, reclamation and rehabilitation. The quarried pits after the end of life of mine will be properly fenced all around to prevent inherent entry of public and cattle and all the statutory requirements will be fulfilled. As already explained, in the post mining stage the rainwater harvested in the mined out void shall be utilized for irrigation and domestic needs locally. The mine closure plan is provided in **Figure 4.5**.



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

7.6 CUMULATIVE IMPACT STUDY:

The details of other quarries located within the 500m radius of this project has been provided in Annexure-11 and the same has been shown below:

Table 7.1: Details of quarries within 500m radius

S. No	Quarry detail	Village	S.F. No.& Extent (Hect)	Proceedings No. & Lease Period
Existing Quarries:				
1	Thiru.S.Soundirarajan S/o, Subbaiah	Nathikudi	922/2, 922/3, 922/4 (2.92.00)	KV1/10050/2017, Dated:10.06.2019 18.10.2019 to 17.10.2024
2	Thiru.Jeyaraman S/o, Perumalsamy	Nathikudi	916/4C1, etc., (2.97.5)	KV1/424/2018 Dated:29.01.2019 01.02.2019 to 31.01.2024
3	Thiru.Jeyaraman S/o, Perumalsamy	Nathikudi	812/9, 812/10 812/11 (3.06.50)	KV1/422/2018 Dated:29.01.2019 08.02.2019 to 07.02.2024
4	Thiru.R.Sadharna Sadhana, S/O.RadhaKrishnan,	Nathikudi	807/4C (1.62.5)	KV1/22055/2016 dated:01.02.2019 08.02.2019 to 07.02.2024
5	Thiru.R.Vishnu Prasath S/o, Raclhkrishnan	Nathikudi	886/10 886/ 1A1 (3.47.00)	KV1/825/2017 Dated:01.02.2019 08.02.2019 to 07.02.2024
6	Thiru.S.Gururaja S/o.S.Sangaran	Nathikudi	805/4, 805/3 (2.93.0)	KV1/29597/2015, Dated:14.11.2018 28.11.2018 to 27.11.2023
Abandoned Quarry:				



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

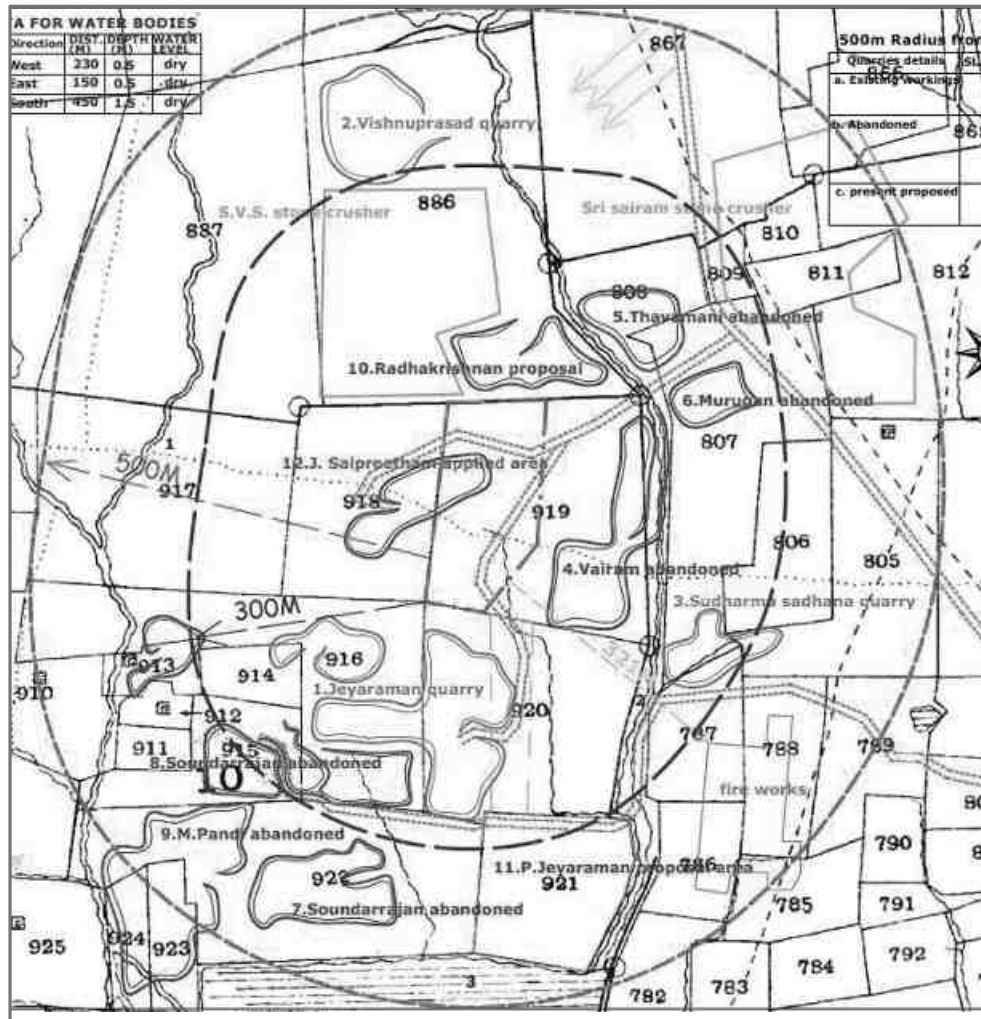
S. No	Quarry detail	Village	S.F. No.& Extent (Hect)	Proceedings No. 8s Lease Period
1	Thiru M.Pandi, S/o. Muniandi,	Nathikudi	924 (0.53.5)	KV1/1525/2010 Dated:12-01-2011 25-01-2011 to 24-01-2016
2	Tmt.L.Gayathiri, W/o.Loganathan	Nathikudi	919/2B (0.60.00)	KV1/ 794 / 2012 Dated: 12-09-2013 23-09-2013 to 22-09-2018
3	Thiru.K.Kannaiah S/o. Karuppaiah	Nathikudi	919/3 (2.02.50)	KV1/440/08 Dt.12.08.08 02.09.2008 to 01.09.2013
4	Thiru.S.Muthusamy, S/o. Sethu Thevar	Nathikudi	913 916/2 916/5 (0.55.00)	KV1/1840/2008 Dt. 17.12.2009 15.12.2009 to 28.12.2014
5	Tmt. M.Chinna Madathi, W/o. Murugan	Nathikudi	807/2 (1.04.00)	ICV1/1278/2009 Dt. 01.12.2009 29.12.2009 to 28.12.2014
6	Tmt.R.Muthugomathi, W/o. Srivinivasan	Nathikudi	918/1 (1.83.50)	KV1/86/2010 Dt. 03-05-2010 05.05.2010 to 04.05.2015
Present Proposed Quarry :				
1	Thiru.J.Saipreetham. S/o.Sri.P.Jeyaraman	Nathikudi	919/1 & (3.33.50)	KV1/33/2022 Dated: 19.10.2022

From that above it is seen that, although the individual lease area of this project is less than 6 Ha, the other existing and proposed quarries within the 500m radius along with this subject project works out to >5 Ha. As such cluster situation applicable and this report is prepared. A map showing the existing and proposed quarries located near the lease area is provided Figure No.7.1 given below:



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Figure 7.1: Vicinity Map



From the above table it is seen that there are 6 existing quarries present in the periphery. The baseline monitoring carried out for this project reflects the cumulative impact of this existing quarry. Considering that the lease period of the existing quarry quarries will be coming to an end the proposed quarry will serve as a replacement for the existing quarries to ensure meeting the present roughstone demands.

The baseline monitoring carried out for this project reflects the cumulative impact of these existing quarries. For the proposed quarries, a cumulative impact study has been carried out and is provided below:



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Table 7.2: Salient details of the proposed quarries

S.No	Project Name	Quarry of Thiru Saipreetham	Quarry of Thiru Radhakrishnan
1	Survey No.	919/1 & 919/2A (P)	886/2, 886/7 and 886/9
2	Village	Nathikudi	Nathikudi
3	Taluk	Vembakottai	Vembakottai
4	District	Virudhunagar	Virudhunagar
5	State	Tamil Nadu	Tamil Nadu
6	Lease Area	3.335	3.164
7	Precise Area Letter No.	KV1/33/2022-Kanimum, dated 19.10.2022	KV1/879/2018-Kanimum, dated 24.02.2021
8	Production Capacity	Roughstone-3,53,641.5 m3 Weathered Rock-62,157m3 Topsoil Earth-46,476 m3	Roughstone-2,64,480 m3 Gravel-64,780m3 Topsoil-12,956 m3
9	Method of mining	Opencast Mechanized Mining Method	Opencast Mechanized Mining Method
10	Lease Period	5 years	5 years
11	Ultimate Depth	35m	36m
12	Project cost	Rs.1.88 Crores	Rs.2.95 Crores
13	CER budget	Rs.5 Lakhs	Rs.6 Lakhs

The cumulative combined impact anticipated due to mining and allied activities in both the proposed quarries are determined for Air, Noise, Vibration, Water, Logistical, Socio Economic and Land Environment. Details of the same are provided below:

7.6.1 AIR ENVIRONMENT:

The mining and allied activities particularly excavation, hauling, loading and un loading etc. lead to emission of particulate matter. However, effective mitigative measures are provided in the EIA/EMP report to obviate these effects. The cumulative impact on ambient air quality for PM₁₀ and PM_{2.5} due to the operations of both these proposed projects are predicted based on Air Quality Model simulations. The modelling is done for the peak production to know the worst scenario. The cumulative peak Ground Level Concentration (GLC) after effective implementation of various mitigative measures have been computed and given below:

Table 7.3: Cumulative Peak Incremental Concentration

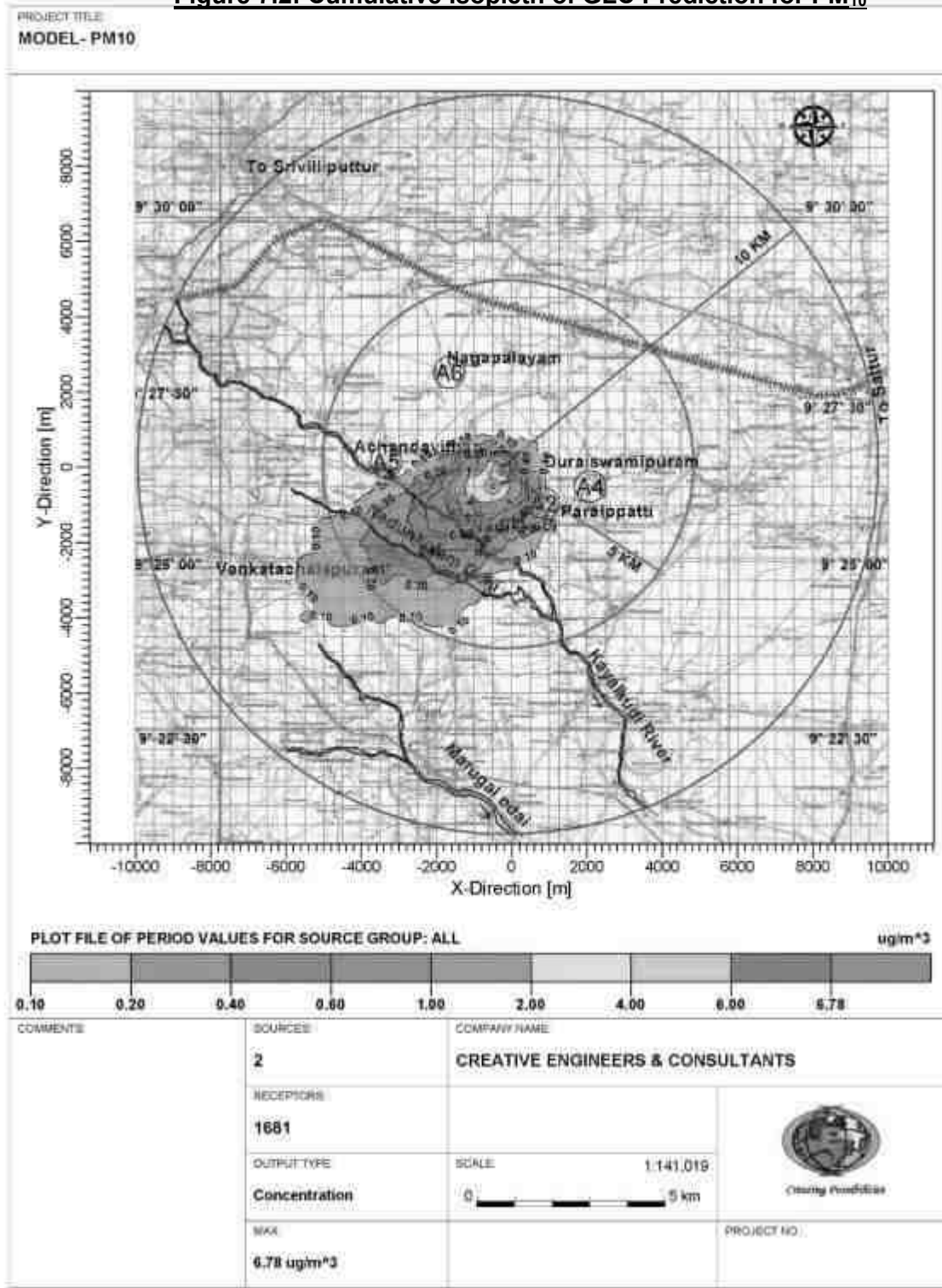
Activity	Peak Incremental Concentration (µg/m ³)
PM ₁₀	6.78
PM _{2.5}	4.77

The cumulative Isopleths of PM₁₀, PM_{2.5} concentrations have been drawn and these are given in Figure No – 7.2 to 7.3.

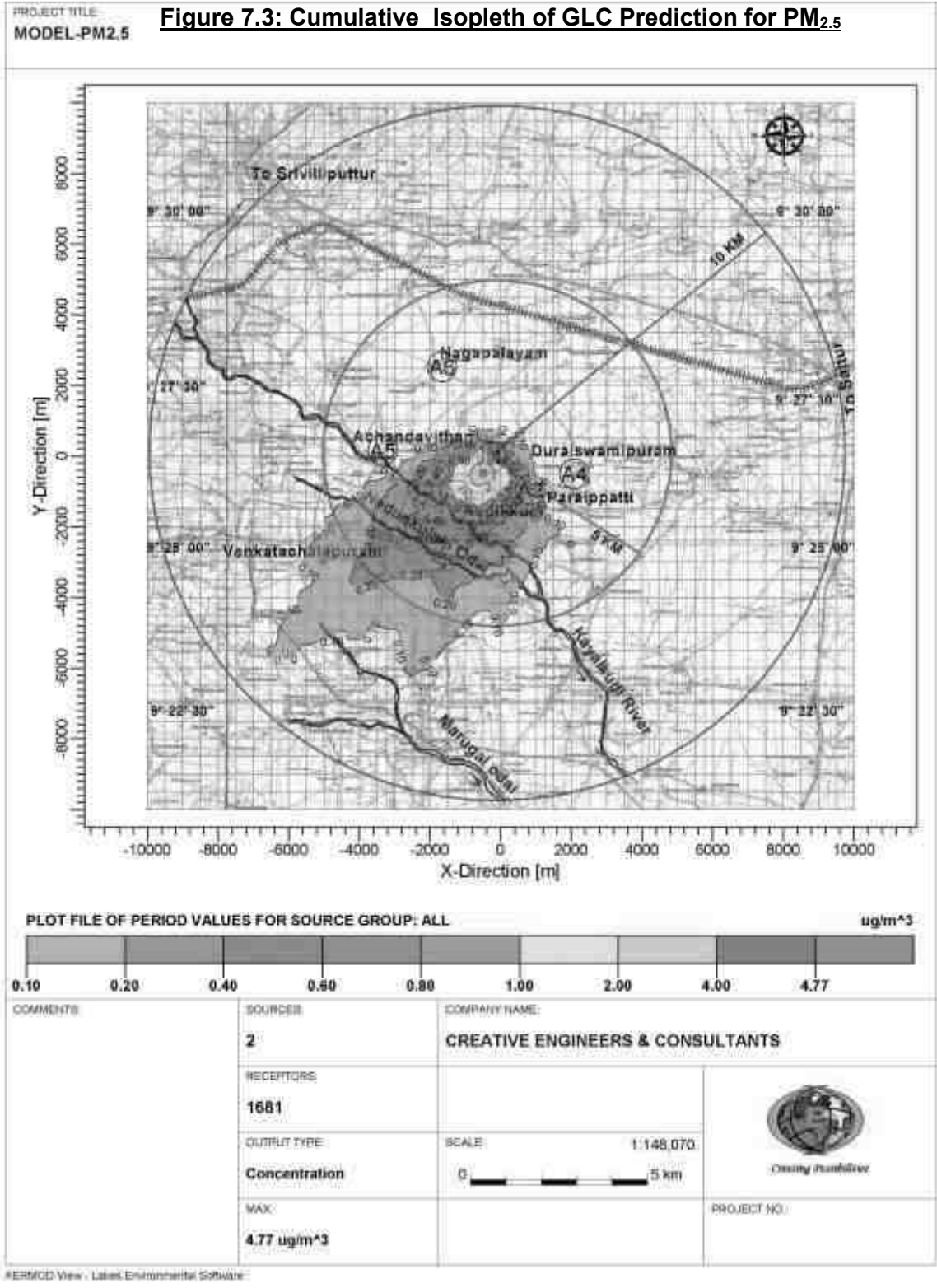


DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Figure 7.2: Cumulative Isopleth of GLC Prediction for PM₁₀



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

It is observed that the peak incremental concentration for PM₁₀, PM_{2.5} is occurring very near the source. At away from the source the values are getting reduced due to dispersion effects. The incremental and predicted concentrations at the locations of ambient air quality have been discussed below.

7.6.1.1 PREDICTED AMBIENT AIR QUALITY:

The cumulative combined post project Concentrations of PM₁₀, PM_{2.5}, (GLC) (base line + incremental) after adopting necessary control measures is given below:

Table 7.4: Concentrations of PM₁₀ after Project Implementation

S. No	Location	Background Concentration	Predicted Incremental Concentration	Values in µg/m ³	
				Post Project Concentration	Statutory Limits
1	Near Mine Lease Area	76.3	6.7	83.0	-
2	Parai Patti Village	60.6	1.0	61.6	
3	Nathikudi Village	58.6	2.0	60.6	100
4	M.Duraisampuram Village	56.8	<1.0	57.8	
5	Achamthavirthan Village	53.1	<1.0	54.1	
6	Nagapalayam Village	59.4	<1.0	60.4	

Table 7.5: Concentrations of PM_{2.5} after Project Implementation

S. No	Location	Background Concentration	Predicted Incremental Concentration	Post Project Concentration	Statutory Limits
1	Near Mine Lease Area	36.8	4.7	41.5	-
2	Parai Patti Village	29.8	<1.0	30.8	
3	Nathikudi Village	27.3	1.0	28.3	60
4	M.Duraisampuram Village	28.9	<1.0	29.9	
5	Achamthavirthan Village	25.6	<1.0	26.6	
6	Nagapalayam Village	28.9	<1.0	29.9	

It can be seen that the resultant added concentrations with baseline figures even at worst scenario and cumulative impact of the projects show that the values of ambient air quality with respect to PM₁₀ are in the range of 54.1 µg/m³ to 83.0 µg/m³ and with respect to PM_{2.5} are in the range of 26.6 µg/m³ to 41.5 µg/m³ which are within the statutory stipulations in respective case.



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

7.6.2 WATER ENVIRONMENT:

The water requirement for both the projects is 20KLD comprising 10KLD for each project. Though it may be sourced from outside agencies initially, for these projects it is planned to use the rain water collected in the mine sump later. Groundwater intersection is not envisaged due to both the quarrying operations. Besides, the stage of groundwater development in Vembakottai Taluk based on technical report of the Central Ground Water Board, South Eastern Costal Region – ‘District groundwater brochure, Virudhunagar District.’ is categorized as ‘Safe’ thus proving that there is further scope for groundwater development. Hence, no major impact is expected on groundwater regime due to the cumulative project operations.

7.6.3 NOISE ENVIRONMENT:

Post project noise in the core zone has already been provided under para 4.4, Chapter-IV where it is seen that the predicted Noise Levels due to mining operations at the periphery of the mine lease itself will be less even without considering any attenuation factor. However, practically there will be attenuation due to vegetation etc., and as such there will not be any adverse noise propagation outside the lease boundary. Hence, the cumulative post project noise in the nearby villages has been carried out using the following formula and the results are given below:

$$Lp2 = Lp1 - 20 \log R2/R1$$

Where, Lp1 and Lp2 are sound pressure levels at points located at distances R1 and R2 respectively from the source.

Table 7.6: Post project noise levels

S.No	Location	Baseline Day Eq.in dB(A)	Post project noise Eq in dB(A)	Limit dB(A) as per MoEF&CC
1	Parai Patti Village	50.3	50.6	55
2	Nathikudi Village	49.4	49.8	55
3	M.Duraisampuram Village	48.2	48.4	55
4	Achamthavirthan Village	45.4	45.7	55
5	Nagapalayam Village	49.8	49.9	55



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

7.6.4 VIBRATION:

By Carrying out controlled blasting using Nonel milli second delay detonator, Optimum design for burden and spacing & reducing the explosive charge per delay to minimum in both the projects no adverse impact due to blasting vibration is expected.

7.6.5 TRAFFIC:

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

Table 7.7: Cumulative number of trips

Details	Quarry of Thiru Saipreetham	Quarry of Thiru Radhakrishnan
Material Transported (m ³ /year)	1,05,305	69,216
No of days in a year	300	300
Transport hours per day	10	8
Truck capacity in T	20	20
Trips per hour	5Trips/hr	4 Trips/hr

The total trips from these projects there will be hardly about 9 trips per hour. The existing road can absorb this traffic due to this project. Various measures like proper maintenance of road, covering of the loaded truck with tarpaulin, water sprinkling will be carried out to ensure no adverse impact on the logistical front.

7.6.6 LAND ENVIRONMENT:

Thiru Sai Preetham's lease area of 3.33.50 Ha is a patta land. In the post mining stage, entire 2.89.5 Ha of mined out area will be left as water body, 0.08.0 Ha will be the mine roads & infrastructure, 0.27.0 Ha will be covered with vegetation and 0.09.0 will be fencing.

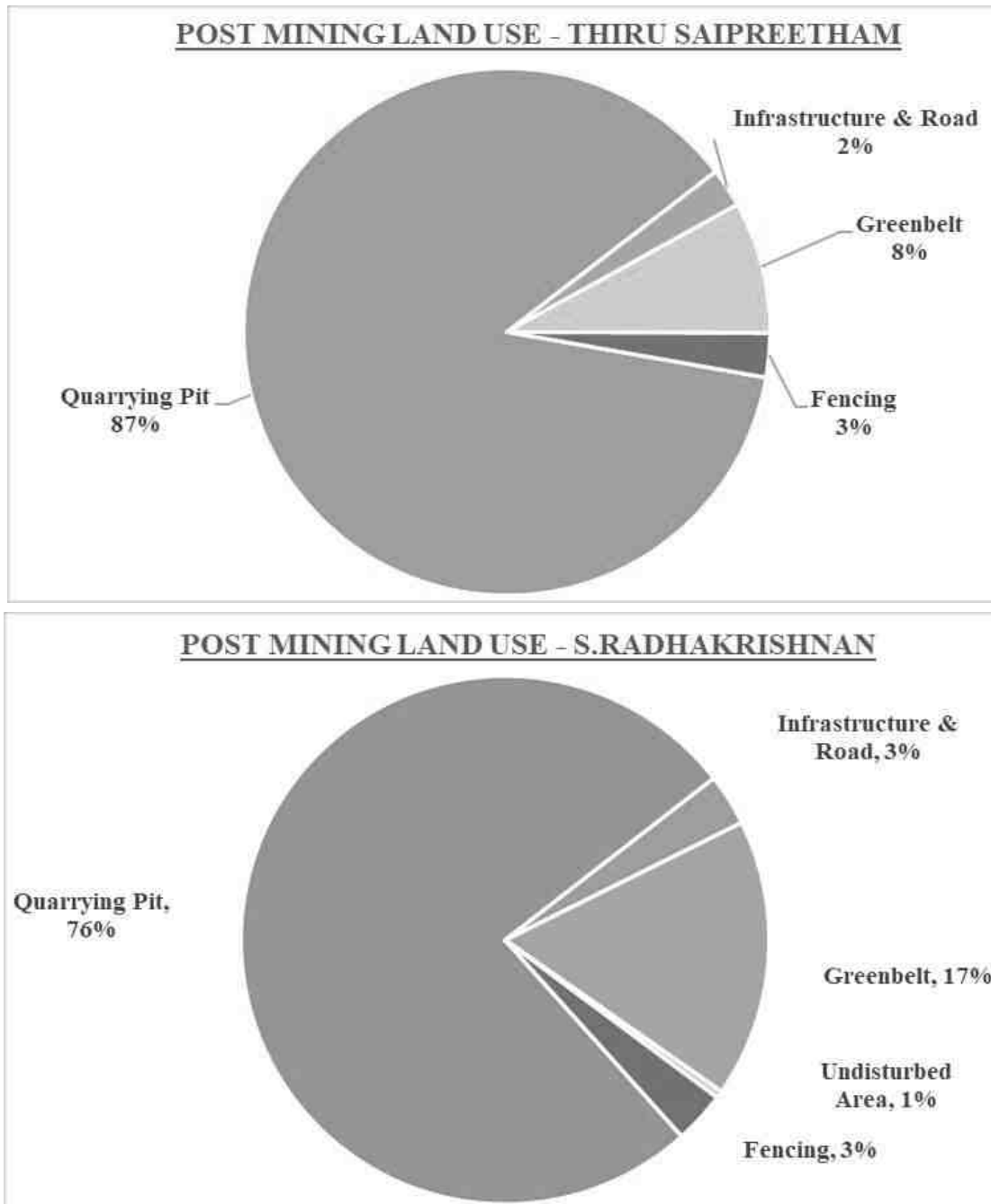
Thiru Radhakrishnan's lease area of 3.16.4 Ha is a patta land . In the post mining stage, entire 2.41 Ha of mined out area will be left as water body, 0.10 Ha will be the mine roads& infrastructure, 0.554 Ha will be covered with vegetation and 0.10 Ha will be fencing.



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

For both the projects, in the post mining stage it will be ensured that the entire mined out area will be properly fenced to prevent inadvertent entry of men and animals. The rainwater harvested in the mined-out void shall be utilized to meet the water requirement.

Figure 7.4: Post Mining Land Use



7.7 PIT SLOPE STABILITY PLAN

- Factors affecting slope stability of the mine are
 - Geological structure comprising dip, intervening shear zone formation, clay intrusion, joints / discontinuities, faults etc.,
 - Lithology of formation
 - slope geometry
 - Ground water availability which may cause increased thrust on the faces
- Site specific analysis
 - Proposed area is a hard rocky charnockite terrain.
 - Since the formation is of homogeneous rock type probability of slope failure is low and can be avoided if proper measures are adopted.
 - There will be a 7.5m wide barrier zone which will form a ridge which can also take care of the top section and as such no risk is envisaged on this front.
 - Small portion on the western side of the lease area is partly mined out with the maximum pit depth of 6m only.
 - It is proposed to follow proper systematic mining and ensure proper bench parameters
 - During future workings the following measures will be ensured:
 - Regular inspection of the mine faces to be carried out by mines manager for ensuring absence of any structural features like faults, joints, dyke, intrusive material in the rock strata which may affect the slope stability and cleared.
 - No loose material or boulders is to be stacked on the mine top or pit benches.
 - Height of the benches should be 5m. Working bench width should be at least 2.5 times the bench height. Ultimate pit bench width will be 5m & slope is kept at 45° to ensure slope stability.
 - Haul road formation will be at 1 in 16 slope with adequate road width.
 - There will be no ground water table intersection.
 - No seepage is expected due to formation. Adequate drainage management system comprising peripheral garland drain, settling pond to regulate monsoon water will be created to prevent saturation of compact layers, apparent drainage



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

over the bench slope to avert damages to quarry face and manage the water flow.

The above will ensure safe and stable mine prospects.

CONCLUSION:

No adverse impact on the surrounding environment is envisaged from this project since the number of equipment's to be used to achieve this production is less and the magnitude of operation is of low level.

Certified vehicles with low carbon emissions will only be used. These equipment's will be properly and regularly maintained. Besides, regular vehicular emission tests will be done for the transport vehicles to ensure minimal impact due to carbon emissions. To further mediate the carbon emissions, a good greenbelt and plantation plan has been planned wherein plantation will be carried out in and around the lease area.

Geologically the area in and around the lease area contains charnokite type rock formation containing mostly fallow land. As such there no major vegetation or agricultural activities are observed. There are no Protected or Eco-Sensitive Zone or forest land nearby wherein it can have an impact.

It will be ensured that mining will be carried out adhering to all the statutory rules and regulations, appointing statutory personnel's like qualified mines manager, blaster, informing DGMS before commencement of mining operations and maintaining the environmental quality within the prescribed standards by effective implementation of various mitigative measures.

As such release of Greenhouse gases (GHG), rise in temperature, affecting livelihood of the local people ,loss of Agriculture, Forestry and Traditional Practices is not envisaged. Such a limited scope will not induce any climatic change leading to droughts, floods etc.

Mine closure plan plan is prepared for the lease period and already included in the approved mine plan.

Due to absence of perennial water bodies nearby where in any marine ecosystem is observed, no effect on this front is also expected. Hydrological investigation carried out and as given in Para 3.6 of Chapter III & para 4.3 Chapter – IV shows that the all time ground water table in



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

this area is much below the mining level. Hence, ground water intersection is not envisaged for the entire life of the mine and ground water will not be affected due to the quarrying operation. As such there will not be any adverse impact on the ground water regime. Besides, this being a mining project, there will not be any process effluent. As mentioned earlier, the rainfall will be collected in the mine floor sump and gainfully used as per CGWA requirement. Excess water if any in the sump will be pumped to settling pond and supernatant clear water let out for downstream users.

It will be ensured that mining will be carried out adhering to all the statutory rules and regulations, appointing statutory personnel's like qualified mines manager, blaster, informing DGMS before commencement of mining operations and maintaining the environmental quality within the prescribed standards by effective implementation of various mitigative measures for the entire lease period.

* * * * *



CHAPTER - VIII

PROJECT BENEFITS

CHAPTER 8 PROJECT BENEFITS

The proposed Roughstone and Gravel Quarry of Thiru J. Saipreetham will improve physical and social infrastructures in the area like:

- Direct employment to 15 people.
- Indirect employment to scores of people.
- Financial gains for the governments, through collection of various taxes like royalty, GST, etc.,
- Increase in General Awareness of the People.
- Continual improvements of the local amenities for the local society
- Improvement of the General Living Standard of the People in the Vicinity
- Overall Improvement in HDI (Human Development Index)
- Growth of Allied Industries in the Area.
- Improvement in Per Capita Income.
- Providing certain facilities for the local schools and panchyats

In short, the proposed Rough Stone Quarry will benefit this region in the fields of employment opportunities, improved per capita income for local people, improved social welfare facilities in respect of education, medical systems, infrastructural build-up, etc in its own way.

By means of carrying out the socio-economic development activities, local community development is expected. Towards the same, the proponent has planned to allocate Rs.5.0 Lakhs for various activities under CER. From the CER activities allocated for various social welfare activities, the villages near the lease area will be benefited.

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CHAPTER - IX

ENVIRONMENTAL COST BENEFIT ANALYSIS

**CHAPTER 9
ENVIRONMENTAL COST BENEFIT ANALYSIS**

Appendix-III of the MoEF notification S.O. 1533 dated 14.09.2006, which describes the generic structure of Environmental Impact Assessment document, states that the chapter 'Environmental cost benefit analysis' is applicable if it is recommended during scoping stage.

ToR for this project has been received from SEIAA, Tamil Nadu vide their letter No. **SEIAA-TN/F.No.9851/ToR-1443/2023 dated 09.05.2023**. Environmental cost benefit analysis is not prescribed in the terms of reference. Hence, it is not applicable for this project.

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CHAPTER - X

ENVIRONMENTAL MANAGEMENT PLAN

CHAPTER 10

ENVIRONMENTAL MANAGEMENT PLAN

10.1 INTRODUCTION:

This chapter describes the implementation strategies of the environmental management measures described through the course of this EIA/EMP report for the purpose of mitigating significant impacts due to the proposed mining operations.

10.2 COMPONENTS OF THE ENVIRONMENTAL MANAGEMENT PLAN:

The environmental management plan comprises identification of the major impacts due to project operations and their suitable mitigative measures. (Provided in an elaborate manner in Chapter-IV) Based on the environmental policy of the company, the environmental management cell will oversee the implementation of these mitigative measures. The details of the proponent's environmental policy, environmental management cell and also the budgetary allocation towards various environmental management measures has been elaborated in this chapter.

10.2.1 ENVIRONMENTAL POLICY:

The proponent will frame a well-planned environmental policy. The salient features of this policy will be.

- ❖ Ensuring risk-free and safe mining operations by following all rules and conditions prescribed in the Indian mines Act, metalliferous mining regulation, mineral conservation and development rules, etc,
- ❖ Ensuring environmental preservation by adoption of remedial measures for control of air, water quality, noise status, biological improvements, green belt creation, etc,.
- ❖ Extending CER activities to cater to the needs of local community for various benefits like improvement of physical and social infrastructures for the welfare of local community.

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

- ❖ Ensuring that all mining operations such as deployment of HEMM, conduct of drilling and blasting operations, etc are strictly conducted keeping with regulatory standards & maintaining safe working environment in the area.
- ❖ Providing periodical training on safety, Health, & Environment to all employers.
- ❖ Any infringement / violation of any rule or unsafe mining operations should be reported mines manager, should be reported by the foremen/ blaster mate etc, who will take immediate corrective measures for avoiding major disasters. The report will ultimately reach the owner through upwardly hierarchical communicative channels from the lowest level to superior levels in a quick time bound duration.
- ❖ The mines manager will exercise overall control over entire mining and connected operations and all infringements / violations on any count pertaining to unsafe operations, environmental degradation, etc, should be brought to the notice of the owner of the quarry. Remedial measures for such violations and deviations should be taken care by the mines manager to avoid any hazards or disasters in the mine and nearby areas. The persons responsible for such violations will be punished through appropriate disciplinarily penal actions.
- ❖ The EC conditions and stipulations will be strictly observed by Mines manager of the mine in various issues like prescribed environmental monitoring schedules conducting of vibratory studies due to blasting, creation of green belt, management of mined area, occupational health review, etc.
- ❖ Penalty actions will be taken by the proponent in cases of continuous negligence resulting in violations deviations in this respect.
- ❖ A time schedule of once in 90 days for review of all operational factors as mentioned above is to be enforced, for proper and quick corrective actions needed in the matter.

10.2.2 ENVIRONMENTAL MANAGEMENT CELL:

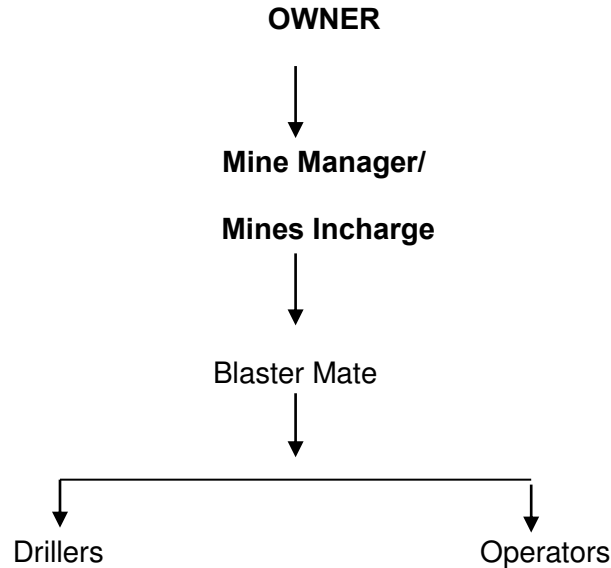
The Mines Manager/Mine Incharge will undertake effective monitoring and implementation of various environmental control measures promptly and effectively and to oversee various environmental management schemes for air quality control, water quality status, noise level



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control, plantation programme, social development schemes, etc in the mine. The organizational chart for the same has been provided below:

Figure 10.1: Organization Chart



The Mines Manager/Mines Incharge in the mine project site will be directly responsible for various environmental activities in the mine. The owner will correlate and oversee the environmental activities and their effective implementation in consonance with the guidelines in the EMP. The Mines Manager/Mines Incharge will oversee the environmental administration at the mine and he will directly supervise all activities of environmental administration on environmental issues. Necessary assistance from sub ordinates, external consultants and laboratories shall be taken.

Environmental control measures will span various factors like land degradation, air, water and soil quality, noise levels, effective land reclamation for excavated areas, afforestation measures, etc. The administrative functions are given below.

- ❖ To observe the implementation of environmental control measures.
- ❖ To study the effects of project activities on the environment.



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- ❖ To ensure implementation of Plantation Programme. Regular monitoring of survival rate of plants is carried out to achieve the desired result.
- ❖ To keep records of monitoring etc., in a systematic way, so as to facilitate easy access, when needed by statutory agencies, etc. Also send prescribed returns to statutory authorities.
- ❖ To ensure that adequate fencing and plantation is carried out in the safety zones.
- ❖ Conducting environmental studies and reporting to SPCB.
- ❖ To interact and liaise with Government Departments.
- ❖ To evaluate the performance of existing pollution control equipment and systems periodically and take timely action to keep the equipment at its optimum performance condition.
- ❖ To take immediate preventive action in case of some unforeseen environmental pollution attributable to the project.
- ❖ Conducting safety audits and programmes to create safety awareness in workers/ staff.
- ❖ Conducting annual health audits to detect any health problems promptly in the workers/staff. This will reduce occupational health problems.
- ❖ Imparting training on safety and conduct safety drills to educate employees. Firefighting equipment and system has to be kept in 'ready-to-fight' condition.
- ❖ Carrying out socio economic study in the surrounding areas to find out the benefits derived by the society due to the project and also to fulfill the deficiency, if any, immediately.
- ❖ Ensuring proper mine closure arrangements



10.2.3 ENVIRONMENTAL MANAGEMENT PLAN:

10.2.1.1 General:

Systematic monitoring systems and well-conceived and efficient Environment Management Plan will ensure that during the project operations, the various environmental parameters, are well within the statutorily sustainable limits. The environmental control measures proposed to keep various environmental parameters of the project in terms of air, water, noise, land, biological environment, etc. has been described below.

10.2.2.2 Air Quality:

With regards to air quality, to mitigate the fugitive and gaseous emission resulting from mining and allied activities, the following control measures are proposed to be undertaken:

- Regular water sprinkling in the transport roads using mobile tankers for dust suppression.
- Controlled blasting techniques with NONEL.
- Provision of dust filters / mask to workers working at highly dust prone and affected areas.
- Covering of drill holes with wet cloth, using sharp drill bits
- Avoiding blasting during high wind periods where the fine dust is carried out away easily affecting the ambient air quality.
- Proper maintenance of haul roads, HEMM and dumpers.
- Covering of loaded tippers with tarpaulins during transportation
- Vehicular emissions will be controlled through regular and proper preventive maintenance schedules and emissions tests are done with diesel smoke meter equipment to ensure emission values.
- Besides, there will be good green belt cover will be developed around mine periphery and in safety zone.

10.2.2.3 Water Environment:

There will be no process effluent generated from this project. The domestic sewage to be generated will be collected in septic tank with soak pit arrangements. Besides, there will be no waste dumps or stockpiles within the lease area as the entire material will be directly despatched to the consumers.

Surface runoff management structures such as garland drain of 754 m length connected to a settling pond will be constructed around the quarry to collect the rain water. The supernatant clear water from the settling pond will be provided to nearby downstream users. Towards rainwater harvesting, the rainwater harvested in the mine will be used to meet the water requirements during mining and excess water in consultation with villagers and in line with government practices will be out in to the nearby stream or shall be distributed to the nearby villages as per their need.

The lease area will be properly fenced with barbed wire and it will be ensured no impact is caused on this drainage course Elaborate details regarding the same is provided under section 4.3.3, Chapter-IV.

10.2.2.4 Noise Environment:

During the project operations, various control measures as listed below will be carried out to mitigate adverse impact due to the noise generated due to mining and allied activities:

- Good plantation will be carried out in the safety zone areas of 7.5m in the mine periphery of the eastern side of the lease area.
- Noise protectors, insulation of operator cabins, installation of silencers in machineries, etc.
- Proper and regular maintenance of equipments
- Providing earplugs to workers exposed to higher noise level.
- Providing in-built mechanism for reducing sound emissions.
- Conducting regular health check-up of workers including Audiometry test for the workers engaged in noise prone area.

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

- Displaying the noise level status of operational machinery on the machines to know the extent of noise level and to control the time to which the worker is exposed to higher noise levels.

10.2.2.5 Ground Vibration

During the project operations, various control measures as listed below will be carried out to mitigate adverse impact due to the ground vibration caused due to blasting activities:

- ❖ Controlled blasting techniques to maintain the peak particle velocity (PPV) below DGMS prescribed levels.
- ❖ Ideally formulating drilling and charging pattern and ensuring using less charge per delay.
- ❖ To contain fly rocks, stemming column will not be less than burden of the hole. Blasting area will also be muffled, if necessary, to stop fly rocks propagation.
- ❖ Blasting will not be carried out when strong winds are blowing towards the inhabited areas. Blasting will be done during midday time and never at night.
- ❖ Proper care and supervision during blasting by a competent and experienced person.
- ❖ Besides, different blasting time for the projects in the vicinity is suggested and the timing is to be mentioned in the display board in the respective mines entrance.

Further details regarding the same has been provided under section 4.4.2, Chapter-IV.

10.2.2.6 Biological Environment:

The mining lease area and 10km buffer zone are devoid of declared ecologically sensitive features such as national parks, sanctuaries etc. Besides, no Schedule-I animals are observed in the core and buffer zone. There will be no major clearance of vegetation involved in this project. However, good greenbelt and plantation programmes are planned within the lease area.

In the lease area, safety barrier 7.5m around the periphery of the lease area is left. Greenbelt / Plantation will be carried out to enhance the vegetative growth and aesthetic in the safety zone



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

area. This will boost the biological, visual and aesthetic outlook of the area. Elaborate details regarding the same is provided under section 4.6.4, Chapter-IV.

10.2.2.7 Socio-Economic Environment:

The proposed project operation will provide positive impacts in the region on the employment area as well as on physical and social infrastructural status. Many other tangible benefits will be gained by the local people in the surrounding areas due to ancillary units, trading operations, contractual needs, casual labor, green belt development, etc. Towards the socio economic development of the surrounding area, the proponent has earmarked an amount of Rs.5.0 Lakhs under Corporate Environmental Responsibility. The activities identified under CER will be implemented in a phased manner.

10.3 ENVIRONMENTAL POLLUTION CONTROL COST:

In this proposed quarry Implementation of environmental control measures as stated above involves capital as well as recurring expenses. The probable capital and recurring environmental control cost are calculated and given below **Table No – 10.1**

Table 10.1: Environmental Control Cost

Sl. No	Mitigation Measure	Rs. In lakhs	
		Capital cost in Lakhs	Recurring Cost / Annum in lakhs
Air Environment			
1	Compaction, gradation and drainage on both sides for Haulage Road	0.33	0.33
2	Water Sprinkling Arrangements	8.00	1.00
3	Air Quality will be regularly monitored as per norms within ML area & Ambient Area	0.00	0.50
4	Muffle blasting – To control fly rocks during blasting	0.00	0.10
5	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	0.25	0.03
6	No overloading of trucks/tippers/tractors-Manual Monitoring through Security guard	0.00	0.05
7	Stone carrying trucks will be covered by tarpaulin	0.00	0.10
8	Enforcing speed limits of 20 km/hr within ML area-Installation of Speed Governors	0.30	0.00
9	Regular monitoring of exhaust fumes as per RTO norms	0.00	0.05



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Sl. No	Mitigation Measure	Capital cost in Lakhs	Recurring Cost / Annum in lakhs
10	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	0.00	0.67
11	Installing wheel wash system near gate of quarry	0.50	0.20
Sub-Total (A)		9.38	3.03
Noise Environment			
12	Source of noise will be during operation of transportation vehicles, HEMM- For this proper maintenance will be done at regular intervals.	Will be part of Operating Cost	
13	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done		
14	Adequate silencers will be provided in all the diesel engines of vehicles.		
15	It will be ensured that all transportation vehicles carry a fitness certificate.		
16	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	
17	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Will be part of Operating Cost	
18	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.-Blowing Whistle by Mining Mate / Blaster / Compentent Person		
19	Provision for Portable blaster shed	0.5	0.02
20	NONEL Blasting will be practiced to control Ground vibration and fly rocks		13.16
Sub-Total (B)		0.50	13.18
Water Environment			
21	Surface Runoff Management Structures	0.33	0.05
Sub-Total (C)		0.33	0.05
Implementation of EC, Mining Plan & DGMS Condition			
22	Waste management (Spent Oil, Grease etc.,)-Provision for waste collection and disposal through authorized agency	0.25	0.20
23	Installation of dust bins	0.05	0.02
24	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	0.10	0.01
25	Workers will be provided with Personal Protective Equipment's	0.60	0.15



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Sl. No	Mitigation Measure	Capital cost in Lakhs	Recurring Cost / Annum in lakhs
26	Health check up for workers will be provisioned-IME & PME Health check up	0.00	0.15
27	First aid facility will be provided	0.00	0.13
28	Mine will have safety precaution signages, boards.	0.10	0.02
29	Barbed wire fencing	6.67	0.10
30	No parking will be provided on the transport routes. Separate parking area will be provided. Flaggers will be deployed for traffic management	1.67	0.10
31	Installation of CCTV cameras in the mines and mine entrance-Camera 4 Nos, DVR, Monitor with internet facility	0.30	0.05
32	Remuneration of statutory persons	0.00	7.80
Sub-Total (D)		9.74	8.73
Green Belt Development			
34	Plantation Inside the lease area(150 Nos.)	0.27	0.04
35	Plantation Outside the lease area (1550 Nos.)	4.70	0.47
Sub-Total (E)		4.97	0.51
Grand Total		24.92	25.50

Towards EMP measures, Rs.24.92 Lakhs is allocated under capital cost. Besides, Rs.25.50 Lakhs per annum will be spent under recurring cost. All the recurring cost of maintenance of pollution control measures, environmental monitoring etc., will be met from revenue.

10.4 CONCLUSION:

A meticulously well planned Environmental Management Plan, with various programme schedules and timely execution objectives, as above, will ensure that the future environmental quality in the area will be maintained within statutory limits. The environmental management strategy as explained above will prove that industrial growth, if properly planned with all environmental concerns and appropriate remedial measures can go a long way to improve life pattern and living conditions of the local community around the project.

* * * * *



CHAPTER-XI



**SUMMARY AND
CONCLUSION**

CHAPTER 11

SUMMARY & CONCLUSION

11.1 INTRODUCTION:

Thiru. J. Saipreetham proposes to operate a **Rough Stone and Gravel Quarry** at Survey No. 919/1 & 919/2A (P) over an area of 3.33.50 hectares In Nathikudi Village, Vembakottai Taluk, Virudhunagar District, Tamil Nadu. It is proposed to mine the revised quantity of 3,53,641.5 m³ of Rough Stone, 62,157 m³ Weathered rock gravel and 46,476 m³ of top soil earth upto depth of 35 m for the period of Five years after complying with ToR condition as against the mining plan approved quantity of 5,08,494 m³ of Rough Stone, 71,127 m³ Weathered rock gravel and 47,418m³ of top soil earth upto depth of 35 m for the period of Five years and has initiated action towards obtaining environmental clearance.

Although the individual lease area of this project is less than 5 Ha, the other existing and proposed quarries within the 500m radius cluster along with this subject project works out to >5 Ha. Hence, this proposal is considered under Category – B1 and as per MoEF & CC notification necessitates preparation of EIA/EMP report and public hearing. The details of the quarries located within the 500m radius of the project is given vide Annexure-3. A cumulative impact study has been carried out and furnished in Para 7.3, Chapter-VII. ToR for this project has been received from SEIAA, Tamil Nadu vide their letter No. **SEIAA-TN/F.No.9851/ToR-1443/2023 dated 09.05.2023**. The EIA/EMP report is prepared based on standard and specific Terms of Reference issued by SEIAA, Tamil Nadu and is in conformance of the generic structure prescribed by MOEF&CC in their notification of September 2006.

This draft EIA/EMP report will be exposed to public hearing as per rules and procedures in this respect, as per the EIA notification 2006. The opinions, concerns and objections, if any, of the surrounding public and other stake holders connected, will be taken into consideration and compliance report thereon will be submitted to SEIAA, Tamilnadu in the final EIA/EMP report.

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

11.1.1 STATUTORY APPROVALS:

S.No	Statutory Approval	Authority	Letter Number and Date	Reference
1.	Precise Area Communication Letter	Assistant Director, Dep. of Geology & Mining, Virudhanagar	KV1/33/2022-Kanimum, dated 19.10.2022	Annexure-1
2.	Mining Plan Approval	Assistant Director, Dep. of Geology & Mining, Virudhanagar	KV1/33/2022-Kanimum, dated 06.12.2022	Annexure-2
3.	Details of other quarries within 500m radius	Deputy Director, Dep. of Geology & Mining, Virudhanagar	KV1/33/2022-Kanimum, dated 06.12.2022	Annexure-3

11.1.2 ENVIRONMENTAL CLEARANCE APPLICATION:

Particulars	Details
Terms of Reference	Received from SEIAA, Tamil Nadu vide their Lr No. SEIAA-TN/F.No.9851/ToR-1443/2023 dated 09.05.2023
Baseline Data Collection	Carried out by Creative Engineers & Consultants , Chennai for Winter Season (Dec 2022– Feb 2023)

11.2 SALIENT FEATURES OF THE PROJECT:

Table 11.1: Site Details

PARTICULARS	DETAILS
Name of the project	Rough Stone and Gravel Quarry of Thiru J. Saipreetham
Extent	3.33.50 Ha
Revised 5 year production	3,53,641.5 m ³ of Rough Stone, 62,157 m ³ Weathered rock gravel and 46,476 m ³ of top soil earth upto depth of 35 m
Villages	Nathikudi
Tehesil	Vembakottai
District	Virudhunagar
State	Tamil Nadu
Latitude	9° 26' 13.6"N to 9° 26' 21.9"N
Longitude	77° 41' 35.8"E to 77° 41' 40.4"E
Toposheet	58 G/11
Type of land	Own Patta Land
Topography	The area applied for mining lease is a gentle plain terrain. Small part of the lease area contains mined out pit and the remaining part is dry lands without any vegetation.



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

PARTICULARS	DETAILS
Accessibility	The lease area lies 10 Km southeast of Sivakasi. It can be approached from the Malliputhur – Paraipatti Road which connects to the SH-42 (Srivilliputtur – Sivakasi). The nearest airport is at Madurai, located about 62 Km in the north eastern side.
Nearest Major RS	Sivakasi Railway Station is located at a distance of 10Km on the north eastern side of the lease area.
Nearest Airport	Madurai Airport is located at a distance of 62Km on the north eastern side of the lease area.

Table 11.2: Environment Setting of The Study Area

PARTICULARS	DETAILS
Nearest major water bodies	<ul style="list-style-type: none"> • Seasonal Odai- 150m-E • Drainage channel-230m-W • Sevalkulam-480m-S • Kayalkudi River -1.6km (SW) • Marugal odai - 6.8km-(SW)
Notified Archaeologically important places, Monuments	Nil within 10Km Radius.
Local Places of Historical and Tourism Interest	Nil within 10 Km radius
Environmental sensitive areas, Protected areas as per Wildlife Protection Act, 1972 (Tiger reserve, Elephant reserve, Biospheres, National parks, Wildlife sanctuaries, community reserves and conservation reserves)	Nil within 10 Km radius
Reserved / Protected Forests	Nil within 10 Km radius
Defence Relocations	Nil within 10 km radius
Seismic Zone	Zone – II (Least Active)
Other Industries in the area	Other than crushers, Roughstone quarries, match box, fire works factories no other major industries are located in the study area.



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Table 11.3: Technical Description

PARTICULARS	DETAILS			
Geological reserve	Roughstone – 10,00,744 cub. m , Weathered rock gravel - 87,732 cub.m & top soil earth - 58,488 cub.m.			
Revised Mineable reserves	Roughstone – 3,53,641.5 cub. m , Weathered rock gravel - 62,157 cub.m & top soil earth -46,476 cub.m.			
Method of Mining	Open cast mechanized mining method with shallow jack hammer drilling, blasting, excavation, loading and transportation of Roughstone to needy buyers.			
Revised Production	YEAR	TOP SOIL EARTH IN CU. M	WEATHERED ROCK GRAVEL IN CU.M	ROUGH STONE IN CU.M.
	I	18644	22612.5	51,702.5
	II	10360	14232	69,652.5
	III	17464	25312.5	114544
	IV	-	-	105305
	V	----	----	57127.5
	TOTAL	46,476	62,157	3,53,641.5
Waste Generation and Management	There is no waste generation anticipated in this quarry operation since the entire excavated material will be utilized. The top earth will be used for peripheral bund formation and plantation. Balance if any & weathered rock Gravel will be loaded into tipper and marketed to needy customers on payment of necessary Fees to Government. The excavated rough stone will be excavated and loaded into tipper to the needy buyers for producing crusher aggregates, M Sand.			
Depth	The ultimate depth of mining is restricted to 35m.			
Man power	Direct – 15, Indirect – 50			
Mode of transport	By Road			
Water requirement	10 KLD			
Source of water	The required water will be procured from outside agencies initially. Later, water collected in the mine pit will be used to meet the needs.			
Power requirement	All the equipment will be diesel operated. No electricity is needed for			

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

PARTICULARS	DETAILS
	mining operation. The minimum power requirement for office, etc will be met from state grid.
Life of the mine	5 Years
Project cost	Rs. 1,88,19,924/-

11.3 EXISTING ENVIRONMENTAL SCENARIO:

11.3.1 GENERAL:

The studies and data collection have been carried out systematically and meticulously as per relevant IS codes, CPCB and MoEF&CC guidelines and as per approved ToR during **Winter Season, December 2022 to February 2023**) For the purpose of this study, the area has been divided into two zones, namely, core and buffer zones. Core zone is considered as the total lease area, while buffer zone encompasses an area of 10 km radius distance from the periphery of core zone.

11.3.2 SOCIO-ECONOMIC STATUS:

The proposed Roughstone and gravel quarry is located in in Nathikudi Village, Vembakottai Taluk, Virudhunagar District. Based on 2011 census data, in the 10km radius there are 28 Rural villages and 7 urban areas from Three Taluks namely Rajapalayam, Sivakasi, Srivilliputhur.

Table 11.4: Social, Economic And Demographic Profile of the Study Area

Details	Population	Percentage
A. Gender-wise distribution		
Male Population	134570	49.67
Female Population	136384	50.33
Total	270954	100
B. Caste-wise population distribution		
Scheduled Caste	48390	17.86
Scheduled Tribes	292	0.11
Other	222272	82.03
Total	270954	100
C. Literate and Illiterate population		
Literate Males	107012	39.49



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Details	Population	Percentage
Literate Females	91000	33.59
Total Literate Population	198012	73.08
Others Males	27558	10.17
Others Females	45384	16.75
Others Population	72942	26.92
Total	270954	100
D. Occupational structure		
Main workers	119491	44.10
Marginal workers	10992	4.06
Total Workers	130,483	48.16
Total Non-workers	140471	51.84
Total	270954	100

11.3.2.1 SAMPLE SURVEY:

Nearby villages were visited for conducting sample Village survey on all socio-economic aspects and requirements of the people. The existing socio-economic scenario is studied and CER activities are also suggested to the proponent. The study details are given in **Para 3.2.4, Chapter – III.**

11.3.3 EXISTING ENVIRONMENTAL QUALITY:

Baseline monitoring was carried out during Winter Season, December 2022 to February 2023). The details of the same are provided below:

Table 11.5: Baseline Data

A) METEOROLOGICAL DATA	Monitoring Location - Near Mine Lease Area		
PARAMETERS	MINIMUM	MAXIMUM	
Temperature In °c	18.0	36.0	
Humidity in %	17.0	99.0	
Wind speed in km/hr	<1.8	27.7	
Predominant wind direction from	NE		
B) AMBIENT AIR QUALITY	Monitoring Location – 6 locations		
PARAMETER	RESULT (µg/m3)		*LIMIT (µg/m3)
Location	Core Zone	Buffer Zone	



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Particulate Matter (Size <10 µm)	54.1 – 76.3	41.4 – 60.6	100
Particulate Matter (Size <2.5 µm)	26.5 – 36.8	19.6 – 29.8	60
Sulphur Dioxide (as SO ₂)	5.6 – 7.8	4.7 – 8.3	80
Nitrogen Dioxide (as NO ₂)	7.6 – 10.6	5.4 – 11.3	80

Conclusion: The existing Ambient Air Quality levels for PM₁₀, PM_{2.5}, SO₂ and NO₂, are within the NAAQ standards prescribed CPCB limits of 100 µg/m³, 60 µg/m³, 80 µg/m³ & 80 µg/m³. The CO values in all the locations were found to be below detectable limit. Silica values in the study area are found to be below detectable limit. (Detection limit – 0.05 mg/m³)

C) WATER QUALITY		Monitoring Location – 6 locations	
PARAMETER	Result	*LIMIT (µg/m³)	
pH at 25 °C	7.32 – 8.02	6.5-8.5	
Total Dissolved Solids, mg/L	265 – 982	2000	
Chloride as Cl ⁻ , mg/L	35.6 – 346	1000	
Total Hardness (as CaCO ₃), mg/L	182 – 434	600	
Total Alkalinity (as CaCO ₃), mg/L	149– 331	600	
Sulphates as SO ₄ ²⁻ , mg/L	15.8 – 214	400	
Iron as Fe, mg/L	0.05 – 0.12	0.3	
Nitrate as NO ₃ , mg/L	1.95 – 4.26	45	
Fluoride as F, mg/L	0.12 – 0.48	1.5	

Conclusion: The water quality of ground water is found to be within the prescribed Permissible limits of IS: 10500 Norms in the absence of an alternative source as per Drinking Water Specifications.

D) NOISE LEVELS		Monitoring Location – 6 locations	
PARAMETER	RESULT dB(A)		*LIMIT (µg/m³)
	Day Equivalent	Night Equivalent	
Core Zone	52.4	39.9	90
Buffer Zone	48.2 – 50.3	37.9 – 43.5	Day Equivalent - 55dB(A), Night Equivalent - 45dB(A)

*Permissible noise for industrial workers as laid down by CPCB (at 8 hrs Exposure Time). While comparing with the MoEF&CC Norms, the monitored ambient noise levels are generally within the limit values.

E) SOIL QUALITY		Monitoring Location – 4 locations
PARAMETER	Range of values	
pH	6.94 – 7.99	
Electrical Conductivity (µmho/cm)	103.2 – 172.4	
Organic matter (%)	1.22 – 1.63	



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Total Nitrogen (mg/kg)	278 - 742
Phosphorus (mg/kg)	1.05 – 1.62
Sodium (mg/kg)	210 – 398
Potassium (mg/kg)	582-760
Soil is of silty loam type.	

F) LAND ENVIRONMENT:

For the present study on land use pattern in the study area, remote sensing satellite data have been used. The area estimated of land use categories around the 10km buffer zone is provided below:

Table 11.6: Land Use in 10Km Buffer Zone

S.No	Landuse Feature	Area (Sq.Km)	Percentage
1	Agriculture/ Plantation	87.07	26.91
2	Fallow Land	144.71	44.72
3	Land With Scrub	38.87	12.01
4	Land Without Scrub	22.97	7.10
5	Water bodies	5.27	1.63
6	Mining	9.28	2.87
9	Settlement	15.40	4.76
	Total	323.57	100

From the above table it is seen that 26.91% of the buffer area is classified under the Agriculture/ Plantation followed by 44.72 % of fallow land, 12.01 % constitutes land with scrub, 7.10 % constitutes land without scrub and the balance falls under other land use categories. Details are given in Table 3.21, Chapter – III.

G) BIOLOGICAL ENVIRONMENT:

Flora: The lease area is a non forest, private land. Part of the lease area is already mined, exposed with rock. The lease area is dominated with Prosopis juliflora. The detailed list of plants found in the core zone are given in Table no – 3.23 . The Dominated species in the buffer zone are Albizia lebbeck, Acacia auriculiformis, Sygygium cumuni, Borassus flabellifer, Azadirachta indica, Prosopis juliflora, etc. Patches of coconut and casurina farms are also observed.

Fauna: There is no Wild Life Sanctuary or National Park within the study area of 10 km. Domesticated animals like Cows, Buffalos, Dogs, Cats etc., are commonly found. The lease and



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

10 Km buffer zone does not fall in the Western Ghats ESA boundary. No wild mammalian species was directly sighted during the field survey. There is no Schedule I species in the core & buffer zone. The list of fauna within the study area is given in Table No – 3.27.

H) HYDROLOGICAL STUDY:

The area applied for mining lease is a gentle plain terrain. Part of the lease area has already been mined out. There is no major water body in the core zone. Further elaborate details of the same has been provided under section 4.3.3C, Chapter-IV. The drainage map prepared from the survey of India topographic maps shows the presence of few streams running in a dendritic pattern

The general trend of depth to water level for Rajapalayam Block, Virudhunagar District, Tamil Nadu the was obtained from the data obtained from India-WRIS, Department of Water Resources, Ministry of Jal Shakti.

In the study area, the shallow aquifer is developed through dug wells and deeper aquifer through tube wells. The groundwater has revealed that potential fractures are encountered at deeper levels. Rain water collected in the tanks in the region acts as a good source of water during post monsoon. The water in the wells are available mainly after post monsoon and it reduces during summer. Bore wells are as deep as 500 ft also and it reflects that the yield is only better at deeper water levels

The occurrence of groundwater mainly in the porous soil are weathered layers, very negligible amount of groundwater percolated through the poorly fractured layer, after that there is no existence of groundwater. Besides, the mining area consists of hard compact rock, no major water seepage within the mine is expected. From the nearby working mines, no such seepage is also observed.

11.4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES:

11.4.1 GENERAL:

This is a proposed project. Mechanized Open Cast mining will be carried out to quarry out Mineral. The identified impacts due to this mine during mining and associated activities have been studied in relation to various environmental components like Air, water, noise, vibration, land, transport etc.



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

11.4.2 AIR ENVIRONMENT:

The principal sources of air pollution in the area due to mining and allied activities are dust generation in the mine due to various activities such as excavation of material, movement of HEMM, loading, unloading and transportation operations.. Besides, Gas emission also occur as a result of emission of SO₂, NO_x, CO etc., from diesel driven mining equipment, compressors, generator sets, etc. The following measures will be adopted to control impact on the air quality due to mining operations in the lease area:

Table 11.7: Mitigation Measures – Air Environment

S.No	Activity	Mitigation Measures
1	Drilling	Usage of Drill bits in good condition
		Covering of drill holes with wet cloth
		Usage of sharp drill bits for drilling of holes.
		Provision of dust filters / mask to workers working at highly dust prone and affected areas.
2	Blasting	Well-designed blasting parameter, effective stemming to achieve optimum breakage occurs without generating fines.
		Use of appropriate explosives for blasting and avoiding overcharging of blast holes.
		Avoiding blasting during high wind periods where the fine dust is carried out away easily affecting the ambient air quality.
		Use of controlled blasting techniques with Nonel to keep the dust generation, noise as well as vibration level within the prescribed limits.
3	Excavation and Loading	Proper maintenance of HEMM
		Enclosures for operator cabin.
		Imparting sufficient training to operators on safety and environmental parameters.
		Proper maintenance of hauling equipments.
		Avoiding overloading of dumpers.
4	Transportation	Setting up of tyre wash facility in the transport road.
		Proper maintenance of haul road and other roads
		Avoiding overloading of tippers
		Covering of loaded tippers with tarpaulins during transportation
		Vehicular emissions will be controlled through regular and proper

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

		preventive maintenance schedules and emissions tests are done with diesel smoke meter equipment to ensure emission values.
5	Others	Development of greenbelt / barriers around mine in the safety zone and carrying out plantation within the lease area.

Due to adoption of all these measures, no major impact on air quality is envisaged due to this proposed opencast mining operation.

The impact on air quality due to the proposed project is estimated using AERMOD View Gaussian Plume Air Dispersion Model developed by Lakes Environmental Software which is based on steady state Gaussian plume dispersion. Ground Level Concentration (GLC) have been computed using hourly meteorological data for particulate matter PM10 and PM2.5.

The resultant added concentrations with baseline figures even at worst scenario, show that the values of ambient air quality with respect to PM₁₀ are in the range of 54.1µg/m³ to 80.8µg/m³ and with respect to PM2.5 are in the range of 26.6µg/m³ to 39.7µg/m³ which are within the statutory limits in each case.

For preservation of environment in this mine strict enforcement of management schemes will be undertaken for taking corrective actions, as needed. By adopting the effective implementation of all the mitigative measures, no adverse impact on Air quality due to the mining operation in this lease area is expected.

11.4.3 WATER ENVIRONMENT:

Water Requirement: The total water requirement for this project will be 10.0 KLD comprising 1.0 KLD for drinking water and domestic use, 8.0 KLD for dust suppression and 1.0 KLD for greenbelt. The water will be sourced initially from outside agencies. Later the rainwater collected in the mine pit sump will be used for this purpose.

The activity / source of pollution, its impact / consequence, proposed control measures are explained below:



Table 11.8: Mitigation Measures – Water Pollution

S.No	Source	Consequence	Mitigation Measures
A	Domestic use	Generation of waste water	The domestic sewage to be generated from the project will be collected in septic tank with soak pits.
B	Rainfall	Runoff from waste dump and stack	Towards surface runoff management, a garland drain of length 754 m will be constructed around the quarry and will be connected to a settling pond with silt traps. The supernatant clear water from the settling pond will be flow to the downstream users.
		Rainwater Harvesting	The rain water falling in the quarry will be harvested in the sump at the lowest level of the quarry. This sump will act as a settling pond to prevent solids escaping along with discharge, before outlet. etc.
C	Drainage Course	Disturbance to drainage course	<ul style="list-style-type: none"> There is no proposal to discharge any effluent into this water body. No major impact is envisaged on the nearby water bodies due to project operations.

- Stage of Groundwater Development:** The groundwater resource data of Virudhunagar district was obtained from the data provided in the technical report of the Central Ground Water Board, South Eastern Costal Region – ‘District groundwater brochure, Virudhunagar District.’ Based on the report it is seen that this area can be categorized as ‘Safe’ from ground water development point of view.
- Generation of mine pit water:** The occurrence and movement of groundwater in hard rock formations are restricted to the porous zones of weathered formations and the open systems of fractures, fissures and joints. Generally, in hard rock regions, occurrence of weathered thickness is discontinuous both in space and depth. Hence recharge of groundwater in hard rock formations is influenced by the intensity and depth of weathering. In the nearby region, the formations are compact with less intergranular porosity and fractures leading to less permeability and transmissivity values and as such the ground water level in this area is deep from surface. The mining area consists of hard compact rock, hence no major water seepage within the mine is expected from the periphery. The ultimate pit depth of mining is 35m. The ground water table in this area is below this level. Hence, ground water intersection in not envisaged and ground water will not be affected appreciably due to the quarrying operation.

11.4.4 NOISE ENVIRONMENT:

Anticipated noise levels resulting from operation of the various machineries like excavator, tippers, drill have been computed using point source model. Computation of cumulative noise levels at the nearby villages is made based on the assumption that there are no attenuation paths between the source and the boundary. From the studies, it is found that the predicted Noise Levels due to mining operations at the periphery of the mine lease itself will be less even without considering any attenuation factor. However, practically there will be attenuation due to vegetation etc., and as such there will not be any adverse noise propagation outside the lease boundary. Since the habitations are also away the effect of noise due to mining operations will not be felt at all in the surrounding village. Hence, by implementing the following mitigative measures for noise control, the impact on noise levels will continue to be insignificant:

- Planting rows of native trees along roads, around mine area and other noise generating centers to act as acoustic barriers.
- Sound proof operator's cabin for equipments like shovel, tippers, etc.
- Proper and regular maintenance of equipments may lead to less noise generation.
- Providing in-built mechanism for reducing sound emissions.
- Providing earplugs to workers exposed to higher noise level.
- Conducting regular health check-up of workers including Audiometry test for the workers engaged in noise prone area.
- Displaying the noise level status of operational machinery on the machines to know the extent of noise level and to control the time to which the worker is exposed to higher noise levels.
- Provision of tin sheet/green netting in the lease periphery on the eastern side and green net on the other sides.

Further green belt and afforestation will be planned and executed to abate noise and dust propagation in the area.

11.4.5. VIBRATION:

To reduce ground vibratory conditions, various control measures will be implemented such as keeping PPV below 10mm/s for 8-25hz frequency range, formulating drilling and charging pattern with less explosive charge, initiating sequence and using NONEL, carrying out blasting with minimum charge per delay, avoiding blasting during strong winds etc. By adoption of above measures, it will be ensured that the ground level vibration due to blasting are maintained within the limits prescribed by DGMS, Dhanbad at the mining areas vide Circular No. 7 dated 29 -08-1997. Besides, different blasting time for the projects in the vicinity is suggested and the timing is to be mentioned in the display board in the respective mines entrance. Elaborate details regarding the same are provided under section 4.4.2, Chapter-IV.

11.4.6 IMPACT ON LAND ENVIRONMENT:

The entire mine lease area is a own patta land. Part of the lease area is already mined out. There is no waste generation anticipated in this quarry operation since the entire excavated material will be utilized. Hence, there is no external overburden dump involved. Plantation will be carried out in this safety zone area. In the post mining stage, entire 2.89.5 Ha of mined out area will be left as water body, 0.08.0 Ha will be the mine roads & infrastructure, 0.27.0 Ha will be covered with vegetation and 0.09.0 will be fencing. Entire mined out area will be properly fenced to prevent inadvertent entry of men and animals. In the post mining stage the rainwater harvested in the mined out void shall be utilized.

11.4.7 BIOLOGICAL ENVIRONMENT:

Part of the lease area is already mined and free from major vegetation. No clearance of major vegetation is involved since eastern part of the lease area is already mined, exposed with rock and western part contains abandoned crusher items. Necessary mitigative measures like dust suppression, proper maintenance of equipment's, greenbelt and plantation etc., will be carried out to prevent dust generation & any further impact on the vegetation. In the lease area, safety barrier has been left around the mine periphery. Greenbelt / Plantation will be carried out to enhance the vegetative growth and aesthetic in the safety zone area. Ultimately the entire 2.89.5 Ha of mined out area will be left as water body, 0.08.0 Ha will be the mine roads & infrastructure, 0.27.0 Ha will be covered with vegetation and 0.09.0 will be fencing. Proponent has already carried out plantation in the nearby crusher area periphery.

11.4.8 SOCIO ECONOMIC ENVIRONMENT:

The entire lease area is a private patta land. Hence, there are no habitations or hutments in the core zone area and no rehabilitation or resettlement problems will arise here. The seasonal odai in proximity to the lease area not be disturbed by the proponent and sufficient safety barrier has also been left. Towards the same, it is proposed to construct a bund on the eastern side along with fencing.

The mining operations in the proposed quarry will employ about 15 people. Besides through allied opportunities in logistics, trading, repairing works etc. good employment potential will arise in this area, which will provide raising income levels and standards of living in the area through various service related activities connected with the project operations.

Towards the socio economic development of the surrounding area, the proponent has earmarked an amount of Rs.5.0 Lakhs under Corporate Environmental Responsibility. The activities identified under CER will be implemented in a phased manner. In consultation with the locals based on the need & priority it will be implemented.

11.4.9 OCCUPATIONAL HEALTH AND SAFETY ASPECTS:

In order to ensure minimisation of occupational health and safety problems in the project operation, the following preventive remedial measures will be effectively exercised in the project operations, so as to comply with applicable standards.

- Medical examination of workers at pre-entry level stage of workers, etc., by qualified doctors, with periodical examination of all workers/staff at least once a year, as per DGMS circulars.
- Regular awareness campaigns amongst staff and workers
- Staff will be provided with PPE to guard against excess noise levels, Dust generation and inhalation, etc., as per standards prescribed by DGMS.

11.4.10 IMPACT ON LOCAL LOGISTICAL SYSTEM DUE TO PROJECT:

From this proposed quarry the entire output will be transported to the consumers like external crusher units for producing stone aggregates of different sizes or construction of roads, bridges, buildings and other buyers etc. Since the productivity is less, there will be about 5 trips per hour. The transport route can absorb this negligible traffic due to this project. The following mitigative measures are suggested for mitigation of adverse impacts on the logistical aspect of the project:

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

- ❖ Water sprinkling on Rough stone in the transport vehicles before transporting, so that no dust nuisance during transport will arise.
- ❖ Proper maintenance of transport roads
- ❖ Proper maintenance of transport vehicles.
- ❖ Avoiding overloading of material
- ❖ Covering of loaded vehicles with tarpaulins sheet if warranted.

11.4.11 WASTE MANAGEMENT:

Since the entire mined out material will be used there will not be any solid waste generation from this project. There is no process effluent generation from this mine. Hence no liquid waste is generated.

The hazardous waste generated in this mine will be stored in a separate storage area with impervious containers for waste oil, oil contaminated clothes, used lead acid batteries, scraps, tyre storage etc. It will be disposed through authorized recyclers or re-processors periodically. The hazardous wastes will be transported in accordance with the provisions of rules. By effective implementation of above said mitigation measures no major impact due to Hazardous waste is expected.

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

11.5 ENVIRONMENTAL MONITORING PROGRAMME:

The monitoring schedules are planned for systematic study of various pollution levels with respect to air and water qualities, noise levels, etc. to ensure that they conform to the standards laid down by Environmental Protection Act and various statutory Limits.

Monitoring location and the frequency of monitoring shall be suitably modified in consultation with the nodal agency as per the actual requirements and prevailing conditions of the mine and environmental factors, as dictated from time to time, depending on the prevailing pollution levels, if required.

Towards EMP measures, Rs. 24.92 lakhs is allocated under capital cost. Besides, Rs. 25.50 lakhs per annum will be spent under recurring cost. All the recurring cost of



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maintenance of pollution control measures, environmental monitoring etc., will be met from revenue. Further details of the capital and recurring cost of environmental management has been provided in in Table No. 10.2, Chapter-X.

11.6 ADDITIONAL STUDIES:

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

1. Public consultation of the project as per MoEF&CC mandates.
2. Risk Assessment
3. R&R Plan
4. Mine closure plan

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

Elaborate description in respect of Risk Assessment and Mine closure plan are given in **Chapter - VII**.

Although the individual lease area of this project is less than 5 Ha, the other existing and proposed quarries within the 500m radius along with this subject project works out to >5 Ha. As such cluster situation applicable and this EMP is prepared. The baseline monitoring carried out for this project reflects the cumulative impact of the existing quarry. For the proposed quarries, a cumulative impact study has been carried out.

Air : The cumulative impact on ambient air quality for PM₁₀ and PM_{2.5} due to the operations of these proposed projects are predicted based on Air Quality Model simulations. It can be seen that the resultant added concentrations with baseline figures even at worst scenario and cumulative impact of the projects show that the values of ambient air quality with respect to



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PM₁₀ are in the range of 54.1µg/m³ to 83.0µg/m³ and with respect to PM_{2.5} are in the range of 26.6µg/m³ to 41.5µg/m³ which are within the statutory stipulations in respective case.

Water : The water requirement for the projects is comprising of 10 KLD.

Though it may be sourced from outside agencies initially, for this projects it is planned to use the rain water collected in the mine sump later. Groundwater intersection is not envisaged due to both the quarrying operations. Besides, the stage of groundwater development in Vembakottai Taluk based on technical report of the Central Ground Water Board.

is categorized as 'Safe' thus proving that there is further scope for groundwater development. Hence, no major impact is expected on groundwater regime due to the cumulative project operations.

Noise :Cumulative post project noise levels in the nearby 6 villages are within the statutory limits of 55dB(A). Besides it is proposed to carry out various mitigative measures such as carrying out greenbelt and afforestation to act as acoustic barriers.

Vibration: By Carrying out controlled blasting using Nonel milli second delay detonator, Optimum design for burden and spacing & reducing the explosive charge per delay to minimum in both the projects no adverse impact due to blasting vibration is expected.

Traffic: The mined out minerals will be transported by means of trucks to the consumers like crusher units for producing stone aggregates of different sizes or construction of roads, bridges, buildings and other buyers etc. The total trips from these projects there will be about 5 trips per hour. The existing road can absorb this traffic due to this project. Various measures like proper maintenance of road, covering of the loaded truck with tarpaulin, water sprinkling will be carried out to ensure no adverse impact on the logistical front.

Socio-Economy: The mining operations will provide direct employment opportunity and indirect employment opportunity for scores of people through allied opportunities in logistics, contract workers, trading, repairing works etc. Towards development of the surrounding area, various activities will be carried out under Corporate Environmental Responsibility for these projects.



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. J. SAIPREETHAM, AT SURVEY NO. 919/1 & 919/2A (P) OVER AN AREA OF 3.33.50 HECTARES IN NATHIKUDI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Land use: For the projects, in the post mining stage it will be ensured that the entire mined out area will be properly fenced to prevent inadvertent entry of men and animals. The rainwater harvested in the mined out void shall be utilized to meet the water requirement.

11.7 CONCLUSION:

By systematic and scientific mining adhering to all the statutory norms and enforcing and strictly implementing the above said mitigation measures mentioned in this report, no adverse impact is envisaged. The proposed mining project will benefit this region in the fields of potential employment opportunities, improved per capita income for local people, improved social welfare facilities in respect of education, medical healthcare systems, etc. in its own way and also revenue to Government through royalty, taxes etc. Besides, it will meet the raw material requirement of the construction industry also.

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CHAPTER - XII

DISCLOSURE OF CONSULTANTS ENGAGED

CHAPTER 12

DISCLOSURE OF CONSULTANTS ENGAGED

Creative Engineers & Consultants, Chennai is an **NABL** accredited testing laboratory and **NABET** accredited EIA consultancy. Established over 25 years ago, this company has steadily made good strides in the environmental impact assessment fields, and is also one of the first companies to get accredited by NABET as an Accredited Consultant Organization as early as 2011. Creative Engineers & Consultants has to its credit, successful completion of numerous EIA/EMP reports, grant of environmental clearances and periodic environmental monitoring works. Presently, the company has been accredited by NABET as a 'Category-A' organization for the sectors of Mining of Minerals (opencast only), Thermal Power Plants, Mineral Beneficiation and Cement Plants with the accreditation valid upto 23.12.2023. The team of experienced professionals that are a part of this organization has been detailed below.

Figure 12.1: Disclosure of consultants engaged

EXPERT NAME	QUALIFICATION	POSITION	EXPERIENCE
Mr. P. Giri	AMIE (Mining)	EIA Coordinator & Functional area Expert (AP,NV,HW),	Over 30 years of experience in EIA/EMP report, mine plan preparation, including modeling
Mr. K. Shankar	M.Sc (Geology). PGMEMG	Functional area Expert (GEO, HG, SHW, RH) & IBM approved RQP.	Over 25 years of experience in EIA/EMP report, Mine plan, hydrological report preparation
Dr. N. Radhakrishnan	M.Sc., M.Tech., Ph.D	Functional area Expert (Land use)	Over 25 years of experience in using the advanced spatial analysis techniques in GIS environment. Specialized in Spatial Information Technology and Applications (remote sensing, GIS)
Mr.S.S.Rajendran	M.Sc. (Pharmaceutical Chemistry)	Lab head	More than 9 years of experience in Environmental



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EXPERT NAME	QUALIFICATION	POSITION	EXPERIENCE
			laboratory.
Mr. R. Babu raj	M.A (Sociology), B.Com(Y.L&Cost), ITI, Advance Diploma in Computer application	Functional Area Expert (Socio Economy)	Over 13 years of experience in dispersion modeling, computer applications. Specialized in CAD and computer software, applications. 5years experience in the field of socio economy and its allied report preparation.
Mr. B. Govindaraman	B.Sc.	Field technician	Over 20 years of field monitoring & data collection experience
Dr.B.Swamynathan	M.Sc (Ecology & Environmental Sciences), M.Phill (Botany), Ph.D (Ecology & Environmental Sciences)	EIA Coordinator & Functional Area Expert (EB,SC,LU&AP)	More than 12 years of experience in Environment and allied fields.
Ms. G. Sandhya	B. Tech Chemical Engineering M.Tech Environmental Engineering	Functional Area Expert (AQ, WP)	Over 5 years experience in preparation of EIA/EMP reports



ANNEXURES

புவியியல் மற்றும் சுரங்கத்துறை

ந.க.எண்:கேவி1/33/2021-கனிமம்,

உதவி இயக்குநர் அலுவலகம்,
மாவட்ட ஆட்சியர் அலுவலக வளாகம்,
விருதுநகர்.

நாள்: 19.10.2022.

குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும் - விருதுநகர் மாவட்டம் - வெம்பக்கோட்டை வட்டம் - நதிக்குடி கிராமம் - பட்டா புல எண்கள்: 919/1 (1.63.00 Hects.), & 919/2A(P) (1.70.50 Hects.) மொத்தப்பரப்பு 3.33.50 ஹெக்டேர் - ஐந்து வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கல் - சரியான பரப்பு (Precise Area) தேர்வு செய்யப்பட்டது - திருத்தி சுரங்ககத்திட்டம் மற்றும் மாநில அளவிடான சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் இசைவினைப் பெற்று சமர்ப்பிக்க கோருவது - தொடர்பாக.

- பார்வை:**
1. திரு.ஜெ.சாய்பிரித்தம், த/பெ.பெ.ஜெயராமன், திருவில்லிபுத்தூர் விண்ணப்பம் நாள்: 27.12.2021.
 2. சாத்தூர் வருவாய் கோட்டாட்சியர் கடிதம் எண்: மூ.மு.அ2/7599/2021 நாள்: 31.01.2021.
 3. உதவி இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை அவர்களின் புலத்தணிக்கை அறிக்கை நாள்: 05.02.2022
 4. விருதுநகர், புவியியல் மற்றும் சுரங்கத்துறை உதவி இயக்குநர் குறிப்பாணை எண்:கேவி1/1229/2021 நாள்:31.03.2022.
 5. திரு.ஜெ.சாய்பிரித்தம், த/பெ. பெ.ஜெயராமன், திருவில்லிபுத்தூர் கடிதம் நாள்:இல்லை பெறப்பட்ட நாள்: 07.10.2022.

விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம், நதிக்குடி கிராமம், பட்டா புல எண்கள்: 918/3 (0.81.00), 919/1 (1.63.00) மற்றும் 919/2A (2.17.00) மொத்தப்பரப்பு 4.61.00 ஹெக்டேர் நிலத்தில் 10 வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கக்கோரி விருதுநகர் மாவட்டம், திருவில்லிபுத்தூர் வட்டம், என்.ஜி.ஜி.ஓ காலனி, கதவு எண்:81 என்ற முகவரியில் குடியிருந்து வரும் திரு.ஜெ.சாய்பிரித்தம், த/பெ. பெ.ஜெயராமன் என்பவரின் விண்ணப்பத்தினை ஏற்று மேற்படி புலங்கள் கற்குவாரி உரிமம் வழங்க ஏதுவான புலங்களாக (Precise Area) பார்வை 4-ல் கண்ட குறிப்பாணையின் வாயிலாக

அறிவிக்கப்பட்டு விதி எண்.41-ன் படி சுரங்கத்திட்ட வரைபடம் தயார் செய்து அளிக்கவும், விதி எண்.42-ன் படி மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் இசைவினை பெற்று சமர்ப்பிக்கவும் விண்ணப்பதாரர் கேட்டுக்கொள்ளப்பட்டார். மேற்படி குறிப்பாணையின் படி மனுதாரரால் சமர்ப்பிக்கப்பட்ட சுரங்கத்திட்ட வரைபடம் உதவி இயக்குநரால் 31.03.2022 - ல் ஒப்புதல் செய்யப்பட்டு மனுதாரரிடம் அளிக்கப்பட்டது.

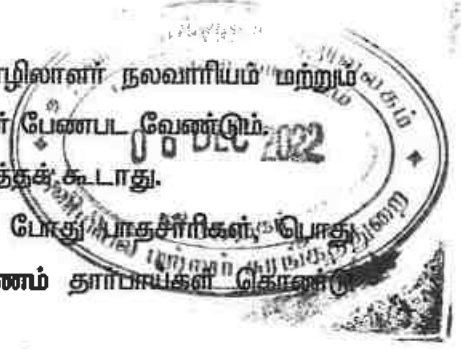
இந்நிலையில் பார்வை 5-ல் கண்ட விண்ணப்பதாரரின் கடிதத்தில் நிதி சுமை மற்றும் சுற்றுச்சூழல் பாதுகாப்பு கருதி புல எண்கள்: 919/1 (1.63.00 Hects.), & 919/2A (P) (1.70.50 Hects.) மொத்தப்பரப்பு 3.33.50 ஹெக்டேரில் மட்டும் கற்குவாரி குத்தகை உரிமம் வழங்கிட நடவடிக்கை எடுக்குமாறு கேட்டுக்கொண்டுள்ளார்.

மனுதாரரின் கோரிக்கை மற்றும் விண்ணப்ப புலங்களுக்கு அருகிலுள்ள நிரந்தர அமைப்புகளை ஆய்வு செய்ததில் மனுதாரரின் கோரிக்கை நியாயமாக இருப்பதால் கற்குவாரி குத்தகை உரிமம் வழங்க கோரிய வெம்பக்கோட்டை வட்டம், நதிக்குடி கிராமம், புஞ்சை புல எண்கள்: 919/1 (1.63.00 Hects.), & 919/2A (P) (1.70.50 Hects.) மொத்தப்பரப்பு 3.33.50 ஹெக்டேர் ஐந்து ஆண்டுகளுக்கு குவாரி உரிமம் வழங்க உகந்த பரப்பாக (Precise Area) அறிவிக்கப்படுகிறது. மேற்படி பரப்பிற்கு உரிய திருத்திய சுரங்கத்திட்ட வரைபடம் அங்கீகரிக்கப்பட்ட நபரால் தயார் செய்து பெற்று சமர்ப்பிக்க விண்ணப்பதாரர் திரு.ஜெ.சாய்பிரித்தம், த/பெ. பெ.ஜெயராமன் என்பவரை கேட்டுக்கொள்ளப்படுகிறது.

நிபந்தனைகள்:

- 1) அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5 மீ பாதுகாப்பு இடைவெளி விடுத்து குவாரி செய்தல் வேண்டும்.
- 2) புல எண்கள்: 919/1 மற்றும் 919/2A -ன் வழியே செல்லும் வண்டிப்பாதையினை மனுதாரருக்கு சொந்தமான புல எல்லையின் வழியாக மாற்றி அமைத்துக்கொள்ள உரிய நடவடிக்கைகளை மேற்கொள்ள வேண்டும்.
- 3) நீர்நிலைகள், ஓடைகள் பாதிக்கா வண்ணம் உரிய பாதுகாப்பு வழிமுறைகளை கடைபிடித்தல் வேண்டும்.
- 4) பொதுமக்கள் / விவசாய நிலங்களுக்கு பாதிப்பு ஏற்படாத வகையில் தகுதி வாய்ந்த அங்கீகரிக்கப்பட்ட நபர்கள் மூலம் வெடிமருந்துகள் சேமிக்கப்பட்டு குவாரியில் வெடித்தல் வேண்டும். குவாரியில் குறைந்த சக்தி கொண்ட வெடி மருந்துகளை பயன்படுத்தல் வேண்டும்.
- 5) சுரங்கத்திட்டம் மற்றும் சுற்றுச்சூழல் தடையில்லாச் சான்று குத்தகை உரிமம் வழங்குவதற்கு முன் சமர்ப்பிக்க வேண்டும்.

- 6) குவாரியில் வேலை செய்யும் தொழிலாளர்கள் தொழிலாளர் நலவாரியம் மற்றும் காப்பீடு திட்டத்தில் பதிவு செய்து தொழிலாளர் நலன் பேண்பட வேண்டும்.
- 7) குழந்தை தொழிலாளர்களை குவாரி பணியில் அமர்த்தக் கூடாது.
- 8) கனிமங்களை வாகனங்களில் கொண்டு செல்லும் போது பாதுகாப்பாளர்கள் பொது மக்கள் மற்றும் பிற வாகனங்கள் பாதிக்காதவண்ணம் தார்பாய்கள் கொண்டு மூடி எடுத்துச் செல்ல வேண்டும்.



[Handwritten Signature]
உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
விருதுநகர்

பெற்றநர்
திரு.ஜெ.சாய்பிரித்தம்,
த/பெ. பெ.ஜெயராமன்,
கதவு எண்: 81,
என்.ஜி.ஜி.ஓ காலனி,
திருவில்லிபுத்தூர் வட்டம்,
விருதுநகர் மாவட்டம்.

[Handwritten Signature]
19/12/2022

[Handwritten Signature]
J. Sain Pritham

From

Thiru.T.Selvasekar, M.Sc.,
Assistant Director,
Geology and Mining,
Virudhunagar.

To

Thiru.J.Saipreetham,
S/o.Sri.P.Jeyaraman,
D.No: 81, N.G.G.O, Colony,
Srivilliputhur Town & Taluk,
Virudhunagar District.

Roc.No: KV1/33/2022, Dated:06.12.2022

Sir,

Sub: Mines and Minerals - Minor Mineral -
Virudhunagar District - Vembakkottai Taluk -
Nathikudi Village - Patta Land - S.F.Nos:
919/1 (1.63.00 Hects.), & 919/2A (1.70.50
Hects.) - Extent 3.33.50 Hectares - Quarry
lease application preferred by
Thiru.J.Saipreetham for quarrying Rough
Stone and Gravel - Details of quarries in 500
meter radius - Regarding.

Ref: 1. Quarry lease application received from
Thiru.J.Saipreetham dated: 27.12.2021.
2. The Assistant Director, Geology and
Mining, Virudhunagar
Rc.No.KV1/33/2022, Dated: 19.10.2022
3. Thiru.J.Saipreetham letter, dated:
06.12.2022.

Thiru.J.Saipreetham has preferred an application for the grant of quarrying lease to quarry Rough Stone and Gravel over an Extent of 3.33.50 Hectares of Patta Land in S.F.Nos: 919/1 (1.63.00 Hects.), & 919/2A (1.70.50 Hects.) of Nathikudi Village, Vembakkottai Taluk for a period of 10 (Ten) Years Under Rule 19 of Tamil Nadu Minor Mineral Concession Rules 1959.

The applicant Thiru.J.Saipreetham in the reference 3rd cited has requested to furnish details of quarries situated within 500 m radial distance from the applied area.

In this connection, it is informed that the details of quarry situated within 500 meter radius from the proposed area for Environmental Clearance as detailed below:

J. Sai Preetham

1) Details of quarry within 500 m radius from the applied area

S. No	Quarry detail	Village	S.F. No.& Extent (Hect)	Proceedings No. & Lease Period
I	Existing Quarries:			
1.	Thiru.S.Soundirarajan S/o, Subbaiah	Nathikudi	922/2, 922/3, 922/4 (2.92.00)	KV1/10050/2017, Dated:10.06.2019 18.10.2019 to 17.10.2024
2.	Thiru.Jeyaraman S/o, Perumalsamy	Nathikudi	916/4C1 916/7A etc., (2.97.5)	KV1/424/2018 Dated:29.01.2019 01.02.2019 to 31.01.2024
3.	Thiru.Jeyaraman S/o, Perumalsamy	Nathikudi	812/9 812/10 812/11 (3.06.50)	KV1/422/2018 Dated:29.01.2019 08.02.2019 to 07.02.2024
4.	Thiru.R.Sadharna Sadhana, S/O.RadhaKrishnan,	Nathikudi	807/4C (1.62.5)	KV1/22055/2016 dated:01.02.2019 08.02.2019 to 07.02.2024
5.	Thiru.R.Vishnu Prasath S/o, Radhakrishnan	Nathikudi	886/10 886/1A1 (3.47.00)	KV1/825/2017 Dated:01.02.2019 08.02.2019 to 07.02.2024
6.	Thiru.S.Gururaja S/o.S.Sangaran	Nathikudi	805/4, 805/3 (2.93.0)	KV1/29597/2015, Dated:14.11.2018 28.11.2018 to 27.11.2023
II	Abandoned Quarry :			
1.	Thiru M.Pandi, S/o. Muniandi,	Nathikudi	924 (0.53.5)	KV1/1525/2010 Dated:12-01-2011 25-01-2011 to 24-01-2016
2.	Tmt.L.Gayathiri, W/o.Loganathan	Nathikudi	919/2B (0.60.00)	KV1/ 794 / 2012 Dated: 12-09-2013 23-09-2013 to 22-09-2018
	Thiru.K.Kannaiah S/o. Karuppaiah	Nathikudi	919/3 (2.02.50)	KV1/440/08 Dt.12.08.08 02.09.2008 to 01.09.2013
3.	Thiru.S.Muthusamy, S/o. Sethu Thevar	Nathikudi	913 916/2 916/5 (0.55.00)	KV1/1840/2008 Dt. 17.12.2009 15.12.2009 to 14.12.2014
4.	Tmt. M.Chinna Madathi, W/o. Murugan	Nathikudi	807/2 (1.04.00)	KV1/1278/2009 Dt. 01.12.2009 29.12.2009 to 28.12.2014
5.	Tmt.R.Muthugomathi, W/o. Srivinivasan	Nathikudi	918/1 (1.83.50)	KV1/86/2010 Dt. 03-05-2010 05.05.2010 to 04.05.2015

J. Sai Babu

III Present Proposed Quarry :			
1.	Thiru.J.Saipreetham, S/o.Sri.P.Jeyaraman, D.No: 81, N.G.G.O, Colony, Srivilliputhur Town & Taluk, Virudhunagar District.	Nathikudi	919/1 & 919/2A (3.33.50)
			KV1/33/2022, Dated: 19.10.2022

[Handwritten Signature]
Assistant Director,
Geology and Mining,
Virudhunagar.

Copy to:
The Member Secretary,
State Level Environmental Impact
Assessment Authority,
PanagalMaligai,
No. I Jeenis Road,
Saidapet,
Chennai-15.

[Handwritten Signature]
6/10/2022

[Handwritten Signature]
J. Sain Arinman

From
Thiru.T.Selvasekar, M.Sc.,
Assistant Director,
Geology and Mining,
Virudhunagar.

To
Thiru.J.Saipreetham,
S/o.Sri.P.Jeyaraman,
D.No: 81, N.G.G.O, Colony,
Srivilliputhur Town & Taluk,
Virudhunagar District.

Roc.No: KV1/33/2022, Dated:06.12.2022.

Sir,

Sub: Mines and Minerals - Minor Mineral - Virudhunagar District - Vembakkottai Taluk - Nathikudi Village - Patta Land - S.F.Nos: 919/1 (1.63.00 Hects.), & 919/2A (1.70.50 Hects.) - Extent 3.33.50 Hectares - Quarry lease application preferred by Thiru.J.Saipreetham for quarrying Rough Stone and Gravel - Approval of Mining Plan - Regarding.

- Ref:**
1. Quarry lease application received from Thiru.J.Saipreetham dated: 27.12.2021.
 2. The Assistant Director, Geology and Mining, Virudhunagar Rc.No.KV1/33/2022, Dated: 19.10.2022
 3. Thiru.J.Saipreetham letter, dated: 06.12.2022.

Thiru.J.Saipreetham has preferred an application for the grant of quarrying lease to quarry Rough Stone and Gravel over an Extent of 3.33.50 Hectares of Patta Land in S.F.Nos: 919/1 (1.63.00 Hects.), & 919/2A (1.70.50 Hects.) of Nathikudi Village, Vembakkottai Taluk, Virudhunagar District for a period of 10 (Ten) Years Under Rule 19 of Tamil Nadu Minor Mineral Concession Rules 1959.

2) The application was examined and consented to grant lease to quarrying Rough Stone and Gravel over an extent of 3.33.50 Hectares of Patta Land in S.F.Nos: 919/1 (1.63.00 Hects.), & 919/2A (1.70.50 Hects.) for a period of 5 (Five) years subject to produce Mining Plan for approval and to obtain Environment Clearance from SEIAA in the reference 2nd cited.

3) The applicant has submitted the Mining Plan, prepared as per guidelines issued by the Commissioner of Geology and Mining and as per Rules and Acts. The Geological and Mineable reserves are

J. Sai Preetham

discussed in Part - A 3. The applicant can quarry the mineral in the following measurements:-

GEOLOGICAL RESERVES (As per Mining Plan)

MINERAL	SECTION	LENGTH (M)	WIDTH (M)	DEPTH (M)	VOLUME IN CUM	TOTAL VOLUME IN CU.M.
TOPSOIL (Earth)	PQ-AB	250	134	2.0	67000	58488
	Deduct old pit = 76 x 56 x 2 =				-8512	
Weathered (Gravel)	PQ-AB	250	134	3.0	100500	87732
	Deduct old pit = 76 x 56 x 3 =				-12768	
Charnockite Roughstone	PQ-AB	250	134	30.0	1005000	1000744
	Deduct old pit = 76 x 56 x 1 =				-4256	
TOTAL GEOLOGICAL RESERVES					11,46,964 Cu.M.	

MINEABLE RESERVES (As per Mining Plan)

MINERAL	SECTION	BENCH	LENGTH (M)	WIDTH (M)	DEPTH (M)	VOLUME IN CUM	MINEABLE RESERVES IN CUM
Topsoil (Earth)	PQ-AB	I	235	119	2.0	55930	47418
	Deduct old pit = 76 x 56 x 2 =					-8512	
Weathered (Gravel)	PQ-AB	I	235	119	3.0	83895	71127
	Deduct old pit = 76 x 56 x 3 =					-12768	
Charnockite Roughstone	PQ-AB	II	225	109	5.0	122625	508494
	PQ-AB	III	215	99	5.0	106425	
	PQ-AB	IV	205	89	5.0	91225	
	PQ-AB	V	195	79	5.0	77025	
	PQ-AB	VI	185	69	5.0	63825	
	PQ-AB	VII	175	59	5.0	51625	
	Deduct old pit = 76 x 56 x 1 =						
TOTAL MINEABLE RESERVES						6,27,039 Cu.M.	

Production Schedule For 10 Years (As per Mining Plan)

Year	Section	Bench	Length (M)	Width (M)	Depth (M)	VOLUME IN CUM			Total Production in Cu.m.
						Topsoil Earth	Weathered rock Gravel	Charnockite Roughstone	
I	PQ-AB	I	65	119	2.0	15470	----	----	
	PQ-AB	I	65	119	3.0	----	23205	----	
	PQ-AB	II	60	109	5.0	----	----	32700	
	PQ-AB	III	55	99	5.0	----	----	27225	

J. Sai Reshmi

II	PQ-AB	IV	50	89	5.0	----	----	22250	120850
	PQ-AB	I	60	119	2.0	14280	----	----	
	PQ-AB	I	60	119	3.0	----	21420	----	
	PQ-AB	II	60	109	5.0	----	----	32700	
	PQ-AB	III	60	99	5.0	----	----	29700	
	PQ-AB	IV	60	89	5.0	----	----	26700	
III	PQ-AB	I	80	119	2.0	10528	----	----	140864
	Deduct pit = 76 x 56 x 2 = -8512								
	PQ-AB	I	80	119	3.0	----	15792	----	
	Deduct pit = 76 x 56 x 3 = -12768								
	PQ-AB	II	80	109	5.0				
	PQ-AB	III	80	99	5.0	----	----	114544	
	PQ-AB	IV	80	89	5.0				
Deduct pit = 76 x 56 x 1 = -4256					----	----	114544		
IV	PQ-AB	I	30	119	2.0	7140	----	----	125075
	PQ-AB	I	30	119	3.0	----	10710	----	
	PQ-AB	II	25	109	5.0	----	----	107225	
	PQ-AB	III	20	99	5.0				
	PQ-AB	IV	15	89	5.0				
	PQ-AB	V	195	79	5.0				
V	PQ-AB	VI	185	69	5.0	----	----	115450	115450
	PQ-AB	VII	175	79	5.0	----	----	115450	
TOTAL PRODUCTION						47418	71127	508494	6,27,039

The available mineable reserves have been computed as **5,08,494 m³** as Charnockite Rough Stone, Weathered Gravel as **71,127m³** & Topsoil as **47,418 m³** up to the depth of **35m** from the ground level. The Environmental Management Plan and Mine closure plan are discussed Part - B 9 & 10 and all conditions has been incorporated in the Mining Plan as laid down by the authorities.

4) In view of the above, in exercise of the powers delegated under Rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959, I hereby approve the Mining Plan submitted by Thiru.J.Saipreetham for quarrying Rough Stone and Gravel over an Extent of 3.33.50 Hectares of Patta Land in S.F.Nos: 919/1 (1.63.00 Hects.), & 919/2A (1.70.50 Hects.) of Nathikudi Village, Vembakkottai Taluk, Virudhunagar District for a period of 5 (Five) years to obtain Environment Clearance from SEIAA, Chennai subject to the following conditions:

1. The Mining Plan is approved without prejudice to any other law applicable to the quarry permission from time to time where such Laws are made by the State Government or any other authority.

J. Sai Pritham

2. This approval of the Mining Plan does not in any way imply the approval of the Government in terms of any other provisions of the Tamil Nadu Minor Mineral Concession Rules, 1959.
3. The Mining Plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
4. The approval of the Mining Plan does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Development and Regulation) Amendment Act, 2015 or any other connected Laws including, Environment Protection Act, 1986, and the Rules made there under in Tamil Nadu Minor Mineral Concession Rules, 1959.

Encl: Two copies of Mining Plan.

[Handwritten Signature]
Assistant Director,
Geology and Mining,
Virudhunagar.

Copy to:

The Member Secretary,
State Level Environmental Impact
Assessment Authority,
PanagalMaligai,
No. 1 Jeenis Road,
Saidapet, Chennai-15.

[Handwritten Note]
6/1/2011

[Handwritten Signature]
J. Sai Ramesh

POPULATION BREAKUP & LITERACY LEVEL WITHIN THE BUFFER ZONE AS PER 2011 CENSUS

Sl.No	No. of Villages	Name of village	Rural / urban	HOUSE HOLDS	POPULATION			POPULATION BELOW 6 AGE GROUP			SCHEDULE CASTE			SCHEDULE TRIBE			LITRERATES			ILLITRERATES		
					TOTAL	MALE	F.MALE	TOTAL	MALE	F.MALE	TOTAL	MALE	F.MALE	TOTAL	MALE	F. MALE	TOTAL	MALE	F.MALE	TOTAL	MALE	F.MALE
0-2 km,Sivakasi Sub-District, Virudhunagar District																						
1	1	Nadukkudi	Rural	1348	4797	2383	2414	575	296	279	2439	1231	1208	0	0	0	3122	1717	1405	1675	666	1009
total (A)				1348	4797	2383	2414	575	296	279	2439	1231	1208	0	0	0	3122	1717	1405	1675	666	1009
2-5 km,Srivilliputhur Sub-District, Virudhunagar District																						
2	1	Deyvendri	Rural	277	943	477	466	125	65	60	336	166	170	0	0	0	593	341	252	350	136	214
3	2	Achchandavilthan	Rural	1881	6365	3190	3175	622	317	305	1419	703	716	0	0	0	4234	2370	1864	2131	820	1311
Sivakasi Sub-District, Virudhunagar District																						
4	1	Thiruthangal (Part)	Rural	2604	9504	4743	4761	1012	495	517	1505	737	768	17	10	7	7115	3810	3305	2389	933	1456
5	2	Vendurayapuram	Rural	661	2383	1195	1188	285	155	130	528	266	262	0	0	0	1445	837	608	938	358	580
total (B)				5423	19195	9605	9590	2044	1032	1012	3788	1872	1916	17	10	7	13387	7358	6029	5808	2247	3561
5-10 km,Rajapalayam Sub-District, Virudhunagar District																						
6	1	Keelrajakularaman	Rural	2575	8986	4487	4499	817	413	404	2319	1160	1159	40	23	17	6302	3459	2843	2684	1028	1656
7	2	Melarakularaman (Part)	Rural	5238	16652	8394	8258	1617	843	774	2978	1502	1476	96	46	50	12060	6744	5316	4592	1650	2942
Srivilliputhur Sub-District, Virudhunagar District																						
8	1	Viluppanur	Rural	1557	5304	2719	2585	544	285	259	2864	1431	1433	1	0	1	3843	2152	1691	1461	567	894
9	2	Nallingaperi	Rural	159	532	265	267	37	24	13	187	94	93	0	0	0	390	207	183	142	58	84
10	3	Muthuvenkatarayapuram	Rural	561	1862	915	947	175	103	72	770	393	377	0	0	0	1161	647	514	701	268	433
11	4	Vadakkusrivilliputhur	Rural	604	2157	1070	1087	261	123	138	1318	647	671	0	0	0	1551	847	704	606	223	383
12	5	Athikulam Sengulam	Rural	1033	3542	1775	1767	370	198	172	1919	966	953	0	0	0	2730	1470	1260	812	305	507
13	6	Thilakulam	Rural	368	1289	652	637	127	76	51	271	129	142	0	0	0	899	494	405	390	158	232
14	7	Mullikulam	Rural	466	1658	803	855	176	92	84	608	306	302	0	0	0	1099	608	491	559	195	364
15	8	Tadagannai Managaseri	Rural	602	2143	1049	1094	210	109	101	719	351	368	0	0	0	1380	771	609	763	278	485
16	9	Malli	Rural	1681	5839	2940	2899	594	312	282	1454	718	736	1	0	1	4092	2279	1813	1747	661	1086
17	10	Pillaiyarkulam (part)	Rural	1913	6271	3119	3152	649	329	320	928	461	467	0	0	0	4325	2391	1934	1946	728	1218
18	11	Srivilliputtur R.F.	Rural	20	71	35	36	19	10	9	0	0	0	68	34	34	19	14	5	52	21	31
Sivakasi Sub-District, Virudhunagar District																						
19	1	Krishnaperi	Rural	223	776	390	386	90	50	40	87	47	40	0	0	0	526	301	225	250	89	161
20	2	Injar	Rural	1901	7386	3637	3749	739	377	362	1028	514	514	0	0	0	5068	2754	2314	2318	883	1435
21	3	Anaiyur (Part)	Rural	1364	4919	2408	2511	610	288	322	2630	1281	1349	0	0	0	3523	1882	1641	1396	526	870
22	4	Maraneri	Rural	2706	9746	4733	5013	1046	508	538	4251	2110	2141	0	0	0	6555	3519	3036	3191	1214	1977
23	5	Paranayakkanpatti	Rural	783	2715	1351	1364	274	151	123	554	277	277	0	0	0	1900	1066	834	815	285	530
24	6	Edirkottai	Rural	1203	4329	2129	2200	465	254	211	331	156	175	0	0	0	3086	1656	1430	1243	473	770
25	7	Kongankulam	Rural	318	1050	507	543	87	44	43	138	64	74	0	0	0	761	409	352	289	98	191
26	8	Alangulam (Part)	Rural	508	1924	1004	920	164	95	69	480	247	233	0	0	0	1473	812	661	451	192	259
27	9	Kundayiruppu	Rural	1846	6812	3365	3447	852	424	428	1677	820	857	0	0	0	4602	2498	2104	2210	867	1343
28	10	Surarpatti	Rural	406	1523	751	772	195	103	92	999	496	503	0	0	0	933	525	408	590	226	364
Rajapalayam Sub-District, Virudhunagar District																						
29	1	Ramalingapuram (CT)	Urban	1391	4505	2252	2253	477	240	237	416	213	203	0	0	0	3233	1810	1423	1272	442	830
Srivilliputhur Sub-District, Virudhunagar District																						
30	1	Srivilliputhur (M)	Urban	21411	75396	37423	37973	6884	3466	3418	4681	2291	2390	10	5	5	58687	31263	27424	16709	6160	10549
31	2	Padikkasu vaithanpatti (CT)	Urban	2807	9538	4797	4741	1047	515	532	2170	1084	1086	0	0	0	6951	3890	3061	2587	907	1680
Sivakasi Sub-District, Virudhunagar District																						
32	1	Sengamalanachiarpatti (CT)	Urban	3614	13811	6740	7071	1443	721	722	2579	1228	1351	14	8	6	10509	5408	5101	3302	1332	1970
33	2	Anaiyur (CT)	Urban	6884	24436	12060	12376	2620	1349	1271	2142	1047	1095	8	3	5	17469	9344	8125	6967	2716	4251
34	3	Sithurajapuram (CT)	Urban	4728	16860	8337	8523	1748	875	873	858	418	440	36	21	15	12567	6665	5902	4293	1672	2621
35	4	Alangulam (CT)	Urban	1364	4930	2475	2455	456	236	220	807	398	409	1	1	0	3809	2052	1757	1121	423	698
total (C)				70234	246962	122582	124380	24793	12613	12180	42163	20849	21314	275	141	134	181503	97937	83566	65459	24645	40814
Grand Total (A+B+C)				77005	270954	134570	136384	27412	13941	13471	48390	23952	24438	292	151	141	198012	107012	91000	72942	27558	45384

*Source: District Primary Cences Absract, Virudhunagar District of Tamilnadu State-2011

OCCUPATIONAL STRUCTURE WITHIN THE BUFFER ZONE AS PER 2011 CENSUS

Sl.No	No. of Villages	Name of village	Rural / urban	MAIN WORKERS		CULTIVATORS		AGRI LABOURS		HOUSE HOLD		OTHERS		MARGINAL WORKERS		NON WORKERS	
				MALE	F.MALE	MALE	F.MALE	MALE	F.MALE	MALE	F.MALE	MALE	F.MALE	MALE	F.MALE	MALE	F.MALE
0-2 km,Sivakasi Sub-District, Virudhunagar District																	
1	1	Nadukkudi	Rural	1327	1156	109	69	154	164	9	23	1055	900	117	152	939	1106
		total (A)		1327	1156	109	69	154	164	9	23	1055	900	117	152	939	1106
2-5 km,Srivilliputhur Sub-District, Virudhunagar District																	
2	1	Deyvendri	Rural	233	153	6	3	47	43	0	1	180	106	45	52	199	261
3	2	Achchandavilthan	Rural	1866	1380	285	177	408	653	54	59	1119	491	84	163	1240	1632
Sivakasi Sub-District, Virudhunagar District																	
4	1	Thiruthangal (Part)	Rural	2733	1553	72	46	98	86	32	59	2531	1362	95	78	1915	3130
5	2	Vendurayapuram	Rural	719	513	55	29	72	65	11	5	581	414	12	49	464	626
		total (B)		5551	3599	418	255	625	847	97	124	4411	2373	236	342	3818	5649
5-10 km,Rajapalayam Sub-District, Virudhunagar District																	
6	1	Keelrajakularaman	Rural	2521	1357	293	120	610	622	12	13	1606	602	167	261	1799	2881
7	2	Melarajakularaman (Part)	Rural	5173	3317	246	186	417	550	158	277	4352	2304	130	325	3091	4616
Srivilliputhur Sub-District, Virudhunagar District																	
8	1	Viluppanur	Rural	1520	1217	98	67	494	694	22	20	906	436	36	84	1163	1284
9	2	Nallingaperi	Rural	153	113	68	40	28	51	0	1	57	21	1	6	111	148
10	3	Muthuvenkatarayapuram	Rural	244	106	42	7	17	14	2	4	183	81	331	427	340	414
11	4	Vadakkusrivilliputhur	Rural	624	526	24	19	77	115	57	82	466	310	4	11	442	550
12	5	Athikulam Sengulam	Rural	845	593	41	18	166	199	12	9	626	367	197	263	733	911
13	6	Thilakulam	Rural	355	198	30	10	53	77	3	3	269	108	29	66	268	373
14	7	Mullikulam	Rural	505	341	36	16	104	147	4	10	361	168	13	47	285	467
15	8	Tadaganai Managaseri	Rural	374	369	26	15	70	83	3	4	275	267	249	161	426	564
16	9	Malli	Rural	1668	1071	126	70	243	315	30	55	1269	631	103	214	1169	1614
17	10	Pillaiyarkulam (part)	Rural	1577	780	42	22	256	237	17	19	1262	502	237	394	1305	1978
18	11	Srivilliputtur R.F.	Rural	17	17	0	0	2	2	0	0	15	15	0	1	18	18
Sivakasi Sub-District, Virudhunagar District																	
19	1	Krishnaperi	Rural	219	168	18	23	19	22	1	5	181	118	1	1	170	217
20	2	Injar	Rural	1800	1272	141	104	265	353	28	54	1366	761	68	81	1769	2396
21	3	Anaiyur (Part)	Rural	1406	1113	73	29	103	90	7	55	1223	939	21	43	981	1355
22	4	Maraneri	Rural	2806	2315	97	53	96	78	44	94	2569	2090	24	24	1903	2674
23	5	Paranayakkanpatti	Rural	792	669	11	14	4	1	12	7	765	647	15	24	544	671
24	6	Edirkottai	Rural	1178	836	70	34	44	37	11	5	1053	760	131	182	820	1182
25	7	Kongankulam	Rural	320	271	11	7	197	222	1	0	111	42	3	1	184	271
26	8	Alangulam (Part)	Rural	547	340	21	6	42	58	9	14	475	262	9	9	448	571
27	9	Kundayiruppu	Rural	1707	1406	141	87	344	472	26	19	1196	828	220	251	1438	1790
28	10	Surarpatti	Rural	274	254	4	7	34	22	0	0	236	225	185	195	292	323
Rajapalayam Sub-District, Virudhunagar District																	
29	1	Ramalingapuram (CT)	Urban	1327	754	33	9	70	110	7	10	1217	625	35	54	890	1445
Srivilliputhur Sub-District, Virudhunagar District																	
30	1	Srivilliputhur (M)	Urban	20490	9780	109	25	715	526	1300	1826	18366	7403	1289	997	15644	27196
31	2	Padikkasu vaithanpatti (CT)	Urban	2601	1739	39	17	211	320	13	22	2338	1380	208	210	1988	2792
Sivakasi Sub-District, Virudhunagar District																	
32	1	Sengamalanachiarpatti (CT)	Urban	3948	2076	31	17	69	77	46	100	3802	1882	91	106	2701	4889
33	2	Anaiyur (CT)	Urban	6745	3957	33	17	61	57	85	98	6566	3785	471	337	4844	8082
34	3	Sithurajapuram (CT)	Urban	4677	2522	22	19	24	9	42	89	4589	2405	451	436	3209	5565
35	4	Alangulam (CT)	Urban	1350	618	98	11	191	232	61	24	1000	351	103	112	1022	1725
		total (C)		67763	40095	2024	1069	5026	5792	2013	2919	58700	30315	4822	5323	49997	78962
		Grand Total (A+B+C)		74641	44850	2551	1393	5805	6803	2119	3066	64166	33588	5175	5817	54754	85717

*Source: District Primary Cences Absract, Virudhunagar District of Tamilnadu State-2011

EDUCATIONAL FACILITIES IN THE STUDY AREA

Sl.No	No. of Villages	Name of village	Educational Facilities (A(1)/ NA(2))	Govt Pre - Primary School (Nursery/LKG/UKG) (Numbers)	Govt Primary School (Numbers)	Govt Middle School (Numbers)	Govt Secondary School (Numbers)	Govt Senior Secondary School (Numbers)	Govt Arts and Science Degree College (Numbers)	Govt Engineering College (Numbers)	Govt Medicine College (Numbers)	Govt Management Institute (Numbers)	Govt Polytechnic (Numbers)	Govt Vocational Training School/ITI (Numbers)	Government Non Formal Training Centre (Numbers)	Government School For Disabled (Numbers)
0-2 km,Sivakasi Sub-District, Virudhunagar District																
1	1	Nadukkudi	1	3	3	1	0	0	0	0	0	0	0	0	3	0
		total (A)		3	3	1	0	0	0	0	0	0	0	0	3	0
2-5 km,Srivilliputhur Sub-District, Virudhunagar District																
2	1	Deyvendri	1	1	0	0	0	0	0	0	0	0	0	0	0	0
3	2	Achchandavilthan	1	2	5	1	0	0	0	0	0	0	0	0	5	0
Sivakasi Sub-District, Virudhunagar District																
4	1	Thiruthangal (Part)	1	6	5	3	0	0	0	0	0	0	0	0	5	0
5	2	Vendurayapuram	1	9	6	2	2	0	0	0	0	0	0	0	6	0
		total (B)		18	16	6	2	0	0	0	0	0	0	0	16	0
5-10 km,Rajapalayam Sub-District, Virudhunagar District																
6	1	Keelrajakularaman	1	8	8	4	2	1	0	0	0	0	0	0	8	0
7	2	Melarajakularaman (Part)	1	12	7	2	2	2	0	0	0	0	0	0	7	0
Srivilliputhur Sub-District, Virudhunagar District																
8	1	Viluppanur	1	3	6	1	2	2	0	0	0	0	0	1	6	0
9	2	Nallingaperi	1	1	1	0	0	0	0	0	0	0	0	0	1	0
10	3	Muthuvenkatarayapuram	1	2	2	0	0	0	0	0	0	0	0	0	2	0
11	4	Vadakkusrivilliputhur	1	0	1	0	0	0	0	0	0	0	0	0	1	0
12	5	Athikulam Sengulam	1	4	3	1	0	0	0	0	0	0	0	0	3	0
13	6	Thilakulam	1	0	1	0	0	0	0	0	0	0	0	0	1	0
14	7	Mullikulam	1	1	2	0	0	0	0	0	0	0	0	0	2	0
15	8	Tadaganai Managaseri	1	5	4	1	1	0	0	0	0	0	0	0	4	0
16	9	Malli	1	7	7	1	1	0	0	0	0	0	0	0	7	0
17	10	Pillaiyarkulam (part)	1	3	3	0	0	0	0	0	0	0	0	0	3	0
18	11	Srivilliputtur R.F.	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Sivakasi Sub-District, Virudhunagar District																
19	1	Krishnaperi	1	2	1	0	0	0	0	0	0	0	0	0	1	0
20	2	Injar	1	5	6	1	1	0	0	0	0	0	0	0	5	0
21	3	Anaiyur (Part)	1	9	6	2	1	0	0	0	0	0	0	0	6	0
22	4	Maraneri	1	2	3	1	0	0	0	0	0	0	0	0	3	0
23	5	Paranayakkanpatti	1	1	1	1	0	0	0	0	0	0	0	0	1	0
24	6	Edirkottai	1	2	2	0	0	0	0	0	0	0	0	0	2	0
25	7	Kongankulam	1	1	0	0	0	0	0	0	0	0	0	0	0	0
26	8	Alangulam (Part)	1	5	3	3	2	2	0	0	0	0	0	0	3	0
27	9	Kundayiruppu	1	3	3	1	0	0	0	0	0	0	0	0	3	0
28	10	Surarpatti	1	2	3	1	0	0	0	0	0	0	0	0	3	0
		total (C)		78	73	20	12	7	0	0	0	0	0	1	72	0
		Grand Total (A+B+C)		99	92	27	14	7	0	0	0	0	0	1	91	0

*Source: District Primary Cences Absract, Virudhunagar District of Tamilnadu State-2011

MEDICAL FACILITIES IN THE STUDY AREA

Sl.No	No. of Villages	Name of village	Medical Facilities (A(1)/NA(2))	Community Health Centre (Numbers)	Primary Health Centre (Numbers)	Primary Health Sub Centre (Numbers)	Maternity And Child Welfare Centre (Numbers)	TB Clinic (Numbers)	Hospital Allopathic (Numbers)	Hospital Alternative Medicine (Numbers)	Dispensary (Numbers)	Veterinary Hospital (Numbers)	Mobile Health Clinic (Numbers)	Family Welfare Centre (Numbers)
0-2 km,Sivakasi Sub-District, Virudhunagar District														
1	1	Nadukkudi	1	0	0	1	0	0	0	0	0	0	0	0
		total (A)		0	0	1	0	0	0	0	0	0	0	0
2-5 km,Srivilliputhur Sub-District, Virudhunagar District														
2	1	Deyvendri	2	0	0	0	0	0	0	0	0	0	0	0
3	2	Achchandavilthan	1	0	0	1	1	0	0	0	0	0	0	0
Sivakasi Sub-District, Virudhunagar District														
4	1	Thiruthangal (Part)	1	0	1	1	1	1	0	0	1	1	0	1
5	2	Vendurayapuram	2	0	0	3	0	0	0	0	0	0	0	0
		total (B)		0	1	5	2	1	0	0	1	1	0	1
5-10 km,Rajapalayam Sub-District, Virudhunagar District														
6	1	Keelrajakularaman	1	1	1	1	1	1	0	0	1	1	0	1
7	2	Melarajakularaman (Part)	1	0	1	3	1	1	0	0	1	1	0	1
Srivilliputhur Sub-District, Virudhunagar District														
8	1	Viluppanur	1	0	0	1	0	0	0	0	0	0	0	0
9	2	Nallingaperi	2	0	0	0	0	0	0	0	0	0	0	0
10	3	Muthuvenkatarayapuram	2	0	0	0	0	0	0	0	0	0	0	0
11	4	Vadakkusrivilliputhur	2	0	0	0	0	0	0	0	0	0	0	0
12	5	Athikulam Sengulam	1	0	0	1	0	0	0	0	0	1	0	0
13	6	Thilakulam	2	0	0	0	0	0	0	0	0	0	0	0
14	7	Mullikulam	2	0	0	0	0	0	0	0	0	0	0	0
15	8	Tadagannai Managaseri	1	0	1	1	1	1	0	0	1	0	0	1
16	9	Malli	1	0	0	1	0	0	0	0	0	1	0	0
17	10	Pillaiyarkulam (part)	1	0	0	1	1	0	0	0	0	0	0	0
18	11	Srivilliputtur R.F.	2	0	0	0	0	0	0	0	0	0	0	0
Sivakasi Sub-District, Virudhunagar District														
19	1	Krishnaperi	2	0	0	0	0	0	0	0	0	0	0	0
20	2	Injar	1	0	0	1	1	0	0	0	0	0	0	0
21	3	Anaiyur (Part)	1	0	0	1	1	0	0	0	0	0	0	0
22	4	Maraneri	1	0	1	1	1	1	0	0	1	1	0	1
23	5	Paranayakkanpatti	2	0	0	0	0	0	0	0	0	0	0	0
24	6	Edirkottai	1	0	0	1	0	0	0	0	0	0	0	0
25	7	Kongankulam	1	0	0	1	0	0	0	0	0	0	0	0
26	8	Alangulam (Part)	1	1	1	1	1	1	0	0	1	1	0	1
27	9	Kundayiruppu	1	0	0	3	0	0	0	0	0	0	0	0
28	10	Surarpatti	2	0	0	0	0	0	0	0	0	0	0	0
		total (C)		2	5	18	8	5	0	0	5	6	0	5
		Grand Total (A+B+C)		2	6	24	10	6	0	0	6	7	0	6

*Source: District Primary Cences Absract, Virudhunagar District of Tamilnadu State-2011

Note : A: Available, NA- Not Available

INFRASTRUCTURAL FACILITIES AVAILABLE IN THE STUDY AREA

Sl.No	No. of Villages	Name of village	Tap Water-Treated	Covered Well	Hand Pump	Tube Wells/Borehole	Spring	River/Canal	Tank/Pond/Lake	Post Office	Sub Post Office	Post And Telegraph Office	Telephone (landlines)	Mobile Phone Coverage	Public Bus Service	Railway Station	Commercial Bank	Cooperative Bank	Agricultural Credit Societies
0-2 km,Sivakasi Sub-District, Virudhunagar District																			
1	1	Nadukkudi	1	2	1	2	1	2	2	2	1	2	1	1	1	2	2	1	1
2-5 km,Srivilliputhur Sub-District, Virudhunagar District																			
2	1	Deyvendri	1	1	2	1	2	2	2	2	2	2	1	1	1	2	2	2	2
3	2	Achchandavilthan	1	2	1	1	2	2	2	2	1	2	1	1	1	2	2	1	1
Sivakasi Sub-District, Virudhunagar District																			
4	1	Thiruthangal (Part)	1	2	1	1	2	2	2	2	1	2	1	1	1	2	2	2	1
5	2	Vendurayapuram	1	2	1	1	2	2	2	2	1	2	1	1	1	1	1	2	2
5-10 km,Rajapalayam Sub-District, Virudhunagar District																			
6	1	Keelrajakularaman	1	2	1	1	2	2	2	1	1	1	1	1	1	2	2	1	1
7	2	Melarakularaman (Part)	1	1	1	1	1	2	2	2	1	2	1	1	1	2	1	1	1
Srivilliputhur Sub-District, Virudhunagar District																			
8	1	Viluppanur	1	2	1	2	2	2	2	2	1	2	1	1	1	2	1	1	1
9	2	Nalingaperi	1	2	1	1	1	2	2	2	2	2	1	1	1	2	2	2	2
10	3	Muthuvenkatarapuram	1	1	1	1	2	2	2	2	1	2	1	1	1	2	2	2	2
11	4	Vadakkusrivilliputhur	1	2	2	1	2	2	2	2	1	2	1	1	1	2	1	1	1
12	5	Athikulam Sengulam	1	2	2	1	2	2	2	2	1	2	1	1	1	1	2	1	1
13	6	Thilakulam	1	2	2	1	2	2	2	2	2	2	1	1	1	2	2	2	2
14	7	Mullikulam	1	1	2	1	2	2	2	2	2	2	1	1	2	2	2	2	2
15	8	Tadagannai Managaseri	1	2	2	1	2	2	2	2	1	2	1	1	2	2	2	2	2
16	9	Malli	1	1	1	1	2	2	2	2	1	2	1	1	1	2	2	2	1
17	10	Pillaiyarkulam (part)	1	1	1	1	2	2	2	1	2	1	1	1	1	2	2	1	1
18	11	Srivilliputtur R.F.	1	2	2	1	1	2	2	2	2	2	2	1	2	2	2	2	2
Sivakasi Sub-District, Virudhunagar District																			
19	1	Krishnaperi	1	2	1	1	2	2	2	2	2	2	1	1	1	2	2	2	2
20	2	Injar	1	2	1	1	2	2	2	2	1	2	1	1	1	2	2	1	2
21	3	Anaiyur (Part)	1	1	1	1	2	2	2	2	1	2	1	1	1	2	2	1	1
22	4	Maraneri	1	1	1	1	2	2	2	2	1	2	1	1	2	2	1	2	1
23	5	Paranayakkanpatti	1	2	1	1	2	2	2	2	2	2	1	1	1	2	2	2	2
24	6	Edirkottai	1	1	2	2	2	2	2	2	1	2	1	1	1	2	2	1	1
25	7	Kongankulam	1	2	1	1	2	1	2	2	2	2	1	1	1	2	2	2	1
26	8	Alangulam (Part)	1	1	1	1	2	2	2	1	1	1	1	1	1	2	1	1	1
27	9	Kundayiruppu	1	2	2	1	2	2	2	2	1	2	1	1	1	2	2	2	1
28	10	Surarpatti	1	2	1	1	2	2	2	2	2	2	1	1	1	2	2	2	2

*Source: District Primary Census Abstract, Virudhunagar District of Tamilnadu State-2011

Note : A: Available, NA- Not Available, A(1) , NA(2))



CREATIVE ENGINEERS & CONSULTANTS

(NABET ACCREDITED, NABL ACCREDITED TESTING LABORATORY,
DEPARTMENT OF INDUSTRIES AND COMMERCE REGISTERED COMPANY)

AMBIENT AIR QUALITY

Project	:	Rough Stone and Gravel Quarry Of Thiru. J. Saipreetham,
Name of the Location	:	Near Mine Lease Area
Station Code	:	A1

SL.NO	DATE	PM10	PM2.5	SO2	NO2
1	06.12.2022	67.7	32.6	6.9	8.9
2	07.12.2022	71.3	34.2	7.4	9.3
3	17.12.2022	65.9	31.6	6.7	8.7
4	18.12.2022	54.1	26.5	5.8	7.9
5	20.12.2022	59.6	28.7	6.1	8.1
6	21.12.2022	65.1	31.2	6.6	8.6
7	31.12.2022	73.5	35.4	7.7	9.6
8	01.01.2023	69.5	33.2	7.1	9.1
9	03.01.2023	56.2	28.3	5.6	8.5
10	04.01.2023	61.4	29.4	6.2	8.3
11	14.01.2023	54.2	27.2	5.9	7.6
12	15.01.2023	60.5	29.1	6.1	8.2
13	17.01.2023	66.8	32.1	6.8	8.8
14	18.01.2023	71.9	34.6	7.5	9.4
15	28.01.2023	57.8	27.7	5.8	7.9
16	29.01.2023	63.2	30.3	6.5	8.5
17	31.01.2023	68.6	32.9	7.1	9.1
18	01.02.2023	74.7	35.8	7.8	9.7
19	11.02.2023	70.4	33.8	7.2	9.2
20	12.02.2023	58.7	28.1	5.9	8.1
21	14.02.2023	62.3	29.9	6.4	8.4
22	15.02.2023	56.9	27.3	5.7	7.8
23	25.02.2023	76.3	36.8	7.8	10.6
24	26.02.2023	72.6	34.8	7.2	9.5
	MIN	54.1	26.5	5.6	7.6
	AVE	65.0	31.3	6.7	8.7
	MAX	76.3	36.8	7.8	10.6

Note: BDL – Below Detectable Limit, DL: Detectable Limit.

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AMBIENT AIR QUALITY

Project	:	Rough Stone and Gravel Quarry Of Thiru. J. Saipreetham,
Name of the Location	:	Parai Patti Village
Station Code	:	A2

SL.NO	DATE	PM10	PM2.5	SO2	NO2
1	06.12.2022	54.3	26.0	7.0	8.6
2	07.12.2022	51.5	24.7	6.4	8.1
3	17.12.2022	57.9	27.8	7.8	9.2
4	18.12.2022	53.5	25.7	6.8	8.5
5	20.12.2022	59.0	28.3	8.0	9.4
6	21.12.2022	55.5	26.6	7.2	8.7
7	31.12.2022	50.3	24.1	6.2	7.9
8	01.01.2023	47.3	22.7	5.8	7.5
9	03.01.2023	58.2	27.9	7.9	9.3
10	04.01.2023	55.9	26.8	7.4	8.8
11	14.01.2023	47.8	23.4	6.1	7.6
12	15.01.2023	50.9	24.3	6.3	8.0
13	17.01.2023	53.9	25.8	6.9	8.6
14	18.01.2023	57.5	27.6	7.7	9.1
15	28.01.2023	49.7	23.8	6.1	7.8
16	29.01.2023	47.9	23.0	5.9	7.6
17	31.01.2023	48.5	23.3	6.0	7.7
18	01.02.2023	52.3	25.1	6.6	8.3
19	11.02.2023	56.3	27.0	7.5	8.9
20	12.02.2023	52.7	25.3	6.7	8.4
21	14.02.2023	60.6	29.8	8.1	10.1
22	15.02.2023	56.7	27.4	7.6	9.0
23	25.02.2023	54.7	26.1	7.1	8.7
24	26.02.2023	51.9	24.9	6.5	8.2
	MIN	47.3	22.7	5.8	7.5
	AVE	53.5	25.7	6.9	8.5
	MAX	60.6	29.8	8.1	10.1

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AMBIENT AIR QUALITY

Project	:	Rough Stone and Gravel Quarry Of Thiru. J. Saipreetham,
Name of the Location	:	Nathikudi Village
Station Code	:	A3

SL.NO	DATE	PM10	PM2.5	SO2	NO2
1	08.12.2022	48.7	22.9	7.4	9.2
2	09.12.2022	49.9	23.4	7.8	9.7
3	15.12.2022	46.0	21.7	6.6	8.3
4	16.12.2022	50.2	23.6	7.9	9.8
5	22.12.2022	47.5	22.3	7.1	8.9
6	23.12.2022	46.3	21.7	6.7	8.4
7	29.12.2022	49.3	23.2	7.6	9.4
8	30.12.2022	46.9	22.0	6.9	8.7
9	05.01.2023	49.6	23.3	7.7	9.5
10	06.01.2023	46.6	21.9	6.8	8.5
11	12.01.2023	47.6	21.0	6.5	8.2
12	13.01.2023	48.4	22.7	7.3	9.1
13	19.01.2023	50.8	23.9	8.1	10.0
14	20.01.2023	47.2	22.2	7.0	8.8
15	26.01.2023	55.3	26.0	8.3	10.7
16	27.01.2023	53.6	25.2	7.9	10.4
17	02.02.2023	49.0	23.0	7.5	9.3
18	03.02.2023	50.5	23.7	8.0	9.9
19	09.02.2023	47.8	22.4	7.2	9.0
20	10.02.2023	51.4	24.1	7.9	10.1
21	16.02.2023	58.6	27.3	8.3	11.3
22	17.02.2023	52.2	24.6	7.8	10.3
23	23.02.2023	54.8	25.7	7.6	10.5
24	24.02.2023	51.7	24.3	8.3	10.2
	MIN	46.0	21.0	6.5	8.2
	AVE	50.0	23.4	7.5	9.5
	MAX	58.6	27.3	8.3	11.3

Note: BDL – Below Detectable Limit, DL: Detectable Limit.


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AMBIENT AIR QUALITY

Project	:	Rough Stone and Gravel Quarry Of Thiru. J. Saipreetham,
Name of the Location	:	M.Duraisampuram Village
Station Code	:	A4

SL.NO	DATE	PM10	PM2.5	SO2	NO2
1	08.12.2022	56.8	28.9	7.4	9.7
2	09.12.2022	51.6	25.0	6.1	8.6
3	15.12.2022	52.4	25.3	6.2	8.7
4	16.12.2022	49.5	23.8	5.6	8.1
5	22.12.2022	45.6	21.0	5.2	7.4
6	23.12.2022	48.8	23.6	5.5	8.0
7	29.12.2022	44.6	20.6	5.0	7.2
8	30.12.2022	47.3	21.7	5.2	7.7
9	05.01.2023	54.2	26.3	6.6	9.1
10	06.01.2023	46.6	21.6	5.1	7.6
11	12.01.2023	52.8	25.6	6.3	8.8
12	13.01.2023	50.0	24.1	5.7	8.2
13	19.01.2023	45.5	21.2	5.1	7.3
14	20.01.2023	47.6	21.9	5.6	7.8
15	26.01.2023	53.9	26.0	6.5	9.0
16	27.01.2023	50.8	24.6	5.9	8.4
17	02.02.2023	54.5	27.1	6.7	9.2
18	03.02.2023	51.3	24.8	6.0	8.5
19	09.02.2023	45.5	20.8	5.3	7.3
20	10.02.2023	46.4	21.2	5.0	7.5
21	16.02.2023	44.4	20.3	5.6	7.1
22	17.02.2023	48.3	23.3	5.9	7.9
23	23.02.2023	53.4	25.8	6.4	8.9
24	24.02.2023	50.3	24.3	5.8	8.3
	MIN	44.4	20.3	5.0	7.1
	AVE	49.7	23.7	5.8	8.2
	MAX	56.8	28.9	7.4	9.7

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AMBIENT AIR QUALITY

Project	:	Rough Stone and Gravel Quarry Of Thiru. J. Saipreetham,
Name of the Location	:	Achamthavirthan Village
Station Code	:	A5

SL.NO	DATE	PM10	PM2.5	SO2	NO2
1	10.12.2022	44.2	21.1	5.1	7.6
2	11.12.2022	47.0	22.8	5.9	8.3
3	13.12.2022	41.8	19.7	5.1	7.0
4	14.12.2022	45.0	21.6	5.5	7.8
5	24.12.2022	48.6	23.7	6.4	8.8
6	25.12.2022	43.0	20.4	5.3	7.3
7	27.12.2022	41.9	19.6	4.9	7.1
8	28.12.2022	43.8	20.9	5.3	7.5
9	07.01.2023	42.6	20.2	5.5	7.2
10	08.01.2023	48.2	23.6	6.2	8.6
11	10.01.2023	41.4	19.6	4.8	7.0
12	11.01.2023	44.6	21.4	5.5	7.7
13	21.01.2023	49.4	24.2	6.6	8.9
14	22.01.2023	46.6	22.6	5.8	8.2
15	24.01.2023	49.0	24.0	6.5	8.8
16	25.01.2023	45.4	21.8	5.5	7.9
17	04.02.2023	53.1	25.6	7.2	10.3
18	05.02.2023	47.4	23.0	6.2	8.4
19	07.02.2023	42.2	20.0	4.8	7.1
20	08.02.2023	45.8	22.1	5.6	8.0
21	18.02.2023	46.2	22.3	5.7	8.1
22	19.02.2023	43.4	20.7	4.9	7.4
23	21.02.2023	49.8	24.4	6.7	9.0
24	22.02.2023	47.9	23.2	6.1	8.5
	MIN	41.4	19.6	4.8	7.0
	AVE	45.8	22.0	5.7	8.0
	MAX	53.1	25.6	7.2	10.3

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AMBIENT AIR QUALITY

Project	:	Rough Stone and Gravel Quarry Of Thiru. J. Saipreetham,
Name of the Location	:	Nagapalayam Village
Station Code	:	A6

SL.NO	DATE	PM10	PM2.5	SO2	NO2
1	10.12.2022	47.9	22.7	5.2	6.0
2	11.12.2022	51.0	24.2	5.7	6.7
3	13.12.2022	53.3	25.3	5.8	6.9
4	14.12.2022	48.8	23.2	5.4	6.2
5	24.12.2022	50.6	24.0	5.7	6.5
6	25.12.2022	47.0	22.3	5.2	5.8
7	27.12.2022	45.2	21.4	4.7	5.4
8	28.12.2022	49.3	23.4	5.5	6.3
9	07.01.2023	45.1	22.6	4.8	6.9
10	08.01.2023	47.5	22.5	5.1	5.9
11	10.01.2023	50.1	23.8	5.6	6.5
12	11.01.2023	46.1	21.9	5.1	6.2
13	21.01.2023	44.8	21.2	4.7	5.9
14	22.01.2023	46.6	22.1	4.9	5.7
15	24.01.2023	48.4	22.9	5.3	6.1
16	25.01.2023	52.8	25.1	5.8	6.8
17	04.02.2023	55.5	26.3	6.0	7.3
18	05.02.2023	45.7	21.7	4.7	5.5
19	07.02.2023	59.4	28.9	7.1	9.4
20	08.02.2023	53.7	25.5	5.9	7.0
21	18.02.2023	49.7	23.6	5.6	6.4
22	19.02.2023	54.6	25.9	6.3	7.2
23	21.02.2023	54.2	25.7	5.9	7.1
24	22.02.2023	56.4	26.8	6.6	7.4
	MIN	44.8	21.2	4.7	5.4
	AVE	50.2	23.9	5.5	6.5
	MAX	59.4	28.9	7.1	9.4

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WATER QUALITY DATA

Project Name	:	Rough Stone and Gravel Quarry Of Thiru. J. Saipreetham,							
Location Name	:	Location Code				Location Name			
		W1				Near Mine Lease Area			
		W2				Parai Patti Village			
		W3				Nathikudi Village			
		W4				M.Duraisampuram			
		W5				Achamthavirthan Village			
		W6				Nagapalayam Village			

S. No.	Parameter	Unit	W1	W 2	W 3	W 4	W 5	W 6	*Permissible Limits
1	pH	-	7.85	7.94	8.02	7.71	7.98	7.32	6.5-8.5
2	Electrical Conductivity	µmhos/cm	436.4	1632	528.3	992.4	1025	610	-
3	Odor	-	AGREEABLE	AGREEABLE	AGREEABLE	AGREEABLE	AGREEABLE	AGREEABLE	AGREEABLE
4	Turbidity	NTU	<1	<1	<1	<1	<1	<1	5.0
5	Total Hardness as CaCO ₃	mg/L	182	354	208	396	434	296	600
6	Calcium Hardness CaCO ₃	mg/L	110	166.0	143	232	216	172	-
7	Magnesium Hardness CaCO ₃	mg/L	72.0	188	65.0	164	218	124	-
8	Calcium Ca	mg/L	44.0	66.4	57.2	92.8	86.4	68.8	200
9	Magnesium	mg/L	17.3	45.1	15.6	39.4	52.3	29.8	100

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S. No.	Parameter	Unit	W1	W 2	W 3	W 4	W 5	W 6	*Permissible Limits
	Mg								
10	Alkalinity CaCO ₃	mg/L	149	331	198	265	323	201	600
11	Chloride Cl ⁻	mg/L	35.6	346	45.3	120	93.4	56.4	1000
12	Sulphate SO ₄ ²⁻	mg/L	15.8	214	42.2	115	132	72.4	400
13	Iron Fe	mg/L	0.06	0.12	0.05	0.11	0.08	BDL(D.L-0.01)	0.3
14	Nitrate NO ₃	mg/L	BDL(D.L-1.0)	2.65	1.95	3.24	2.56	4.26	45
15	Fluoride F	mg/L	0.12	0.47	0.36	0.32	0.35	0.48	1.5
16	Total Dissolved Solids	mg/L	265	982	320	596	620	370	2000
17	Free Residual Chlorine Cl ⁻	mg/L	BDL (D.L-0.2)	BDL (D.L-0.2)	BDL (D.L-0.2)	BDL(D.L-0.2)	BDL(D.L-0.2)	BDL(D.L-0.2)	1.0
18	Manganese Mn	mg/L	BDL (D.L-0.05)	BDL (D.L-0.05)	BDL (D.L-0.05)	BDL (D.L-0.05)	BDL (D.L-0.05)	BDL (D.L-0.05)	0.3

Note: * The water quality of the collected ground water samples were found to be within the prescribed permissible limits of IS: 10500:2012 Norms for Drinking in the absence of an alternative source.


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LAND USE PATTERN OF THE STUDY AREA WITHIN 10 KM RADIUS

Sl.No	No. of Villages	Name of village	Total Geographical Area (in Hectares)	Forest Area (in Hectares)	Area under Non-Agricultural Uses (in Hectares)	Barren & Uncultivable Land Area (in Hectares)	Permanent Pastures and Other Grazing Land Area (in Hectares)	Land Under Miscellaneous Tree Crops etc. Area (in Hectares)	Culturable Waste Land Area (in Hectares)	Fallows Land other than Current Fallows Area (in Hectares)	Current Fallows Area (in Hectares)	Total Unirrigated Land Area (in Hectares)	Area Irrigated by Source (in Hectares)
0-2 km,Sivakasi Sub-District, Virudhunagar District													
1	1	Nadukkudi	2384.77	0	353.28	0	4.1	114.9	4.93	1071.64	273.41	373.85	188.66
		total (A)	2384.77	0	353.28	0	4.1	114.9	4.93	1071.64	273.41	373.85	188.66
2-5 km,Srivilliputhur Sub-District, Virudhunagar District													
2	1	Deyvendri	564.99	0	93.82	0	0	89.05	4.77	83.08	0	144.42	149.85
3	2	Achchandavilthan	1947.63	0	27.25	4.86	3.81	0	5.6	306.27	879.98	669.28	50.58
Sivakasi Sub-District, Virudhunagar District													
4	1	Thiruthangal (Part)	790.2	0	50.32	80.31	10.55	60.05	120.5	113.63	200.15	42.27	112.42
5	2	Vendurayapuram	1252.3	0	158.1	0	5.36	0	0	0	887.28	23.41	178.15
		total (B)	4555.12	0	329.49	85.17	19.72	149.1	130.87	502.98	1967.41	879.38	491
5-10 km,Rajapalayam Sub-District, Virudhunagar District													
6	1	Keelrajakularaman	2394.68	0	308.98	0	0	0.2	1.18	1248.11	83.48	217	535.73
7	2	Melarajakularaman (Part)	2016.59	0	332.29	2.27	0	165.24	0	994.33	0	24.59	497.87
Srivilliputhur Sub-District, Virudhunagar District													
8	1	Viluppanur	2238.39	0	300.98	16.95	0	0	5.42	0	1617.65	87.41	209.98
9	2	Nallingaperi	116.8	0	26.59	0	0	0	1.02	0	72.74	0.69	15.76
10	3	Muthuvenkatarapuram	600.63	0	179.71	0	0	0.16	20.51	162.64	100.98	0.05	136.58
11	4	Vadakkusrivilliputhur	630.4	0	245	0	0	0	0	0	213.3	6.1	166
12	5	Athikulam Sengulam	541.47	0	237.64	0	0	0.9	4.01	80.53	35.56	3.06	179.77
13	6	Thilakulam	125.5	0	34.8	0	0	0	0	0	49.2	8.8	32.7
14	7	Mullikulam	301.35	0	57.23	0	0	0	0	0	158.18	2.77	83.17
15	8	Tadagannai Managaseri	473.38	0	113.33	0	0	0	0.34	0	215.43	10.39	133.89
16	9	Malli	1983.32	0	554.23	0	0	3.2	81.4	969.23	83.98	29.4	261.88
17	10	Pillaiyarkulam (part)	1694.33	0	357.47	82	6.96	0	0	0	945.66	29.54	272.7
18	11	Srivilliputtur R.F.	14369	14369	0	0	0	0	0	0	0	0	0
Sivakasi Sub-District, Virudhunagar District													
19	1	Krishnaperi	256.17	0	43.69	0	0	6.99	0.37	107.29	44.38	24.35	29.1
20	2	Injar	2321.22	0	120	210	75	40	84	260.22	1301	179	52
21	3	Anaiyur (Part)	1834.27	0	265.66	0	23.43	0	24.45	1332.08	108.4	42.37	37.88
22	4	Maraneri	1936.44	0	202.97	4.31	18.41	17	15.2	1491.12	49.56	86.97	50.9
23	5	Paranayakkanpatti	382.57	0	97.23	0	4.59	0	0.03	273.31	0.73	6.66	0.02
24	6	Edirkottai	1916	0	151.39	0	1.8	8.81	9.1	1459.59	68.06	188.48	28.77
25	7	Kongankulam	128.59	0	5.81	0	0	0.01	0.51	16.29	27.43	65.95	12.59
26	8	Alangulam (Part)	1491.2	0	102.14	20	3.4	38.05	5.21	944.23	157.45	196.89	23.83
27	9	Kundayiruppu	1464.07	0	225.42	0	3.09	15	2	768.64	205.16	205.59	39.17
28	10	Surarpatti	486.8	0	75.29	0	4.7	21.1	3.04	317.57	13.25	47.85	4
		total (C)	39703.17	14369	4037.85	335.53	141.38	316.66	257.79	10425.18	5551.58	1463.91	2804.29
		Grand Total (A+B+C)	46643.06	14369	4720.62	420.7	165.2	580.66	393.59	11999.8	7792.4	2717.14	3483.95

*Source: District Primary Cences Absract, Virudhunagar District of Tamilnadu State-2011

**MINING PLAN & ENVIRONMENT MANAGEMENT
PLAN FOR ROUGH STONE, JELLY & GRAVEL**

**(PREPARED UNDER RULE 19 (1) & 22 OF TNMMCR 1959
AMENDED 2015)**



**MINING PLAN SUBMITTED UNDER RULE NO. 41 & 42 OF TNMMCR
AMENDED 2015**

**For Obtaining Environmental Clearance from
State Environmental Authority**

PATTA LAND LEASE PERIOD FIVE YEARS

LOCATION OF THE AREA

EXTENT : 3-33.50HECTARE
S.F. No. : 919/1,2A(P)
VILLAGE : NATHIKUDI
TALUK : VEMBAKOTTAI
PANCHAYATH UNION : VEMBAKOTTAI
DISTRICT : VIRUDHUNAGAR
STATE : TAMIL NADU

APPLICANT

**SHRI. J. SAIPREETHAM,
S/o.SHRI. P. JEYARAMAN,
D. NO. 81, N.G.G.O. COLONY,
SRIVILLIPUTHUR TOWN & TALUK,
VIRUDHUNAGAR DISTRICT .**

PREPARED BY

**G. RAVICHANDRAN, Msc(Geol)
REGISTRATION NO: RQP/MAS/197/2005/A
VALID UPTO: 12/12/2025.**

J. Sai Pritham

**THIRU. J. SAIPREETHAM,
S/o. SRI. P. JEYARAMAN,
D.NO. 81, N.G.G.O. COLONY,
SRIVILLIPUTHUR TOWN & TALUK,
VIRUDHUNAGAR DISTRICT.**



CONSENT LETTER FROM THE APPLICANT

The Mining Plan in respect of **ROUGH STONE, JELLY AND GRAVEL** deposit over an Extent of 3-33.50 Hectares in S.F. Nos. 919/1, 919/2A(P) (Patta Land) in Nathikudi Village, Vembakottai Taluk, Virudhunagar District, Tamil Nadu state has been prepared by

Shri. G. RAVICHANDRAN,
RQP/MAS/197/2005/A

I request the District Collector Virudhunagar, State Environmental Authority to make further correspondence regarding the mining plan with the said Recognized Qualified Person in his following addresses:

Shri. G. RAVICHANDRAN
Vennila Livings, G-H, B Block,
Rettivaykkal Vayalur Road, Trichy - 620 102.
Mobile No. 8778311236
RQP/MAS/197/2005/A
Valid Up to 12/12/2025

I hereby undertake that all the modifications, if any made in the mining plan by the Recognized Qualified Person may be deemed to have made with my knowledge and shall be acceptable to me and binding on me in all respects.

Place: Virudhunagar

Date: .11.2022

Signature of the Applicant

J. Sai Preetham

J. SAIPREETHAM

THIRU. J. SAIPREETHAM,
S/o. SRI. P. JEYARAMAN,
D.NO. 81, N.G.G.O. COLONY,
SRIVILLIPUTHUR TOWN & TALUK,
VIRUDHUNAGAR DISTRICT.



DECLARATION OF THE APPLICANT

The Mine Plan In Respect of **ROUGH STONE, JELLY AND GRAVEL** deposit over an Extent of 3-33.50 Hectares in S.F. Nos. 919/1, 919/2A(P) (Patta Land) in Nathikudi Village, Vembakottai Taluk, Virudhunagar District, Tamil Nadu state has been prepared with full consultation with me. I have understood its contents and I agree to implement the same in accordance with the Laws applicable to mines.

I am also giving further undertaking to plant the species as specified in the afforestation plan to provide Green belt to protect the environmental aspects while quarrying Rough Stone and Gravel in the Patta Land.

Place: Virudhunagar

Date: .11.2022

Signature of the Applicant

J. Sai Preetham

J. SAIPREETHAM

This Mining is approved based on guidelines/ instructions issued in the CGM, Letter No.3868/LC/2012 dated 19-11-2012 and incorporation of the particulars specified in the latter Roc.No. *KV.1.33/2021*..... Dated *06/12/2022* of the Deputy Director of Geology and Mining, Virudhunagar and subject to further Fulfillment of the conditions laid down under rule 41,42 of Tamil Nadu Minor Mineral Concession Rules 1959

[Signature]
Assistant Director of Geology & Mining
Virudhunagar

This Mining Plan is approved Subject to the conditions / Stipulation Indicated in the Mining Plan Approval
[Signature]
Letter Roc. No. *KV1/33/2021* Dated *06/12/2022*

Shri. G. RAVICHANDRAN
Reg. No. RQP/MAS/197/2005/A
Vennila Livings, G-H, B Block,
Rettivaykkal Vayalur Road,
Trichy - 620 102.



Mobile No. 87783 11236

CERTIFICATE FROM THE RECOGNISED QUALIFIED PERSON

This is to certify that the provisions of the Mines Act, Metalliferrous Mines Rules and Regulations, Miner Mineral Conservation and Development Rules, 2010 & Minerals Amended Rules of Tamilnadu Minor Mineral Concession Rule 1959 etc, made there under have been observed in the preparation of Mining Plan for **ROUGH STONE, JELLY AND GRAVEL** deposit over an Extent of 3-33.50 Hectares in S.F. Nos. 919/1, 919/2A(P) (Patta Land) in Nathikudi Village, Vembakottai Taluk, Virudhunagar District, Tamil Nadu state.

THIRU. J. SAIPREETHAM,
S/o. SRI. P. JEYARAMAN,
D.NO. 81, N.G.G.O. COLONY,
SRIVILLIPUTHUR TOWN & TALUK,
VIRUDHUNAGAR DISTRICT.

Wherever Specific permission are required , the applicant will approach the concerned authorities of state Government and State Environmental Authority officers, for such permission, approvals, exemption or relaxation Standards prescribed by Rules and regulations in respect of miners health and the rules will be strictly implemented.

It is also certified that the information furnished in the mining plan is true and correct to the best of my knowledge.

Place: Trichy - 620 102

Date: .11.2022


G. RAVICHANDRAN

G.RAVICHANDRAN, M.Sc., PGD.MEN,
MINING GEOLOGIST
RQP / MAS / 197 / 2005 / A
VALID UPTO: 12.12.2025

J. Saipreetham 102

TABLE OF CONTENTS



Sl.NO	Description	Page No
	Introduction	1
1	GENERAL INFORMATION	2
2	LOCATION	3
	PART - A	
3	GEOLOGY AND MINEABLE RESERVES	4
4	MINING	4
5	BLASTING	6
6	MINE DRAINAGE	8
7	OTHER PERMANENT STRUCTURES	8
8	EMPLOYMENT POTANTIAL AND WELFARE MEASURES	9
	PART - B	
9	ENVIRONMENTAL MANAGEMENT PLAN	10
10	MINE CLOSURE PLAN	16
11	ANY OTHER INFORMATIONS	16

J. Sai Pritham

LIST OF ANNEXURES



S.No	Description	Annexure No.
1.	GEOLOGICAL RESERVES	I
2.	MINEABLE RESERVES	II
3.	YEARWISE PRODUCTION SHEDULE	III
4.	BASE LINE STUDIES, HYDROGEOLOGICAL REPORT & GEOPHYSICAL ELECTRICAL RESISTIVITY SURVEY	IV
5.	Copy of RQP CERTIFICATE	V
6.	Copy of PRICISE AREA COMMUNICATION	VI
7.	A.D.. INSPECTION REPORT	VII
8.	APPLICANT I.D. PROOF	VIII
9.	FMB SKETCH & VILLAGE MAP	IX
10.	PATTA COPY OF THE CONCERNED SURVEY FIELD NUMBERS	X
11.	FIELD PHOTOGRAPH ATTESTED BY V.A.O. & V.A.O. CERTIFICATE	XI
12.	R.D.O., TASILDAR, D.T., R.I, V.A.O., FIRCA SURVEYOR'S REPORT & A1-NOTICE	XII
13.	EXPLOSIVE LICENCE DOCUMENT AGREEMENT COPY & LICENCE COPIES	XIII

J. Sai Pritham

LIST OF PLATES



S.No	Description	Plate No	Scale
1	Location Plan	I	1cm=12.5kms
2	Key map	I-A	Not to scale
3	Topo sketch-10Km Radius	II	1:1,00,000
4	Lease Plan	III	1:2000
5	Surface cum Geological Plan & section	IV	Plan :-1:2000 section scale :- HOR-1:2000, Ver-1:1000
6.	Land use cum year wise production plan & Section	V	Plan :-1:2000 section scale :- HOR-1:2000, Ver-1:1000
7.	Conceptual mining Plan & section	VI	Plan :-1:2000 section scale :- HOR-1:2000, Ver-1:1000
8.	Satellite Imaginery with E.M.P. Plan	VII	1:5000
9.	Village map showing Environmental features	VII-A	1:5000
10.	Progressive Mine Closure Plan	VIII	Plan :-1:2000 section scale :- HOR-1:2000, Ver-1:1000

J. Sai Pritham

**MINING PLAN INCLUDING
ENVIRONMENT MANAGEMENT PLAN FOR
ROUGH STONE /JELLY / GRAVEL QUARRY**



**Over an Extent of 3-33.50 Hectares in S.F. Nos. 919/1,2A(P)
(Patta Land) in Nathikudi Village, Vembakottai Taluk,
Virudhunagar District, Tamilnadu**

INTRODUCTION

Extracting minor minerals from an area of less than 5 hectares will need environment clearance from the Union ministry of environment and forest (MOEF). The EIA (Environmental Impact Assessment) notification 2006, requires mining projects, including new projects, expansion, modernization, or renewal of mine leases, with lease area of 5 hectare and above irrespective of major or minor mineral of obtain prior environment clearance. Mining projects with lease area of 5 hectares and above but less than 50 hectares are categorized as category 'B' whereas projects with lease area of 50 hectares and above are categorized as category 'A'. The category 'A' projects are to be given clearance by MOEF while category 'B' projects are considered by the respective state-level EIA authority.

The mining plan has been prepared towards the order of Supreme Court of India 27 February, 2012, based on the Supreme court order, Tamilnadu Government , Secretary, Industry Department (NCI) as issued order vide G.O.Ms.No.79 dated 06.04.2015. In this order Tamilnadu Minor Mineral Concession Rule 1959 as amended rule 41 & 42 as the approved mining plan is required to the grant of mining lease and the lessee of existing quarry which has already granted with quarry lease should also obtain environmental clearance from SEIAA, Tamilnadu.

The approved mining plan has to be obtained prior environment clearance by the committee formed recently by the SEIAA. The government of tamilnadu has formed one committee headed by the chairmen of SEIAA and the nominated members from each department as members. The environment clearance has to be issued by the SEIAA to grant of quarry lease and this mining plan is submitted based on the above orders to obtain environment clearance from SEIAA Tamilnadu committee.

The applicant, Thiru. J. Saipreetham, S/o. Sri. P. Jeyaraman, D.No.81, N.G.G.O Colony, Srivilliputhur Town & Taluk, Virudhunagar District as an individual having good experience and skill on quarrying of Rough Stone, Jelly and Gravel. He has applied for fresh grant of Quarry lease to the state government over an extent of 3.33.50 Hectares in S.F. Nos. 919/1,2A(P) (Patta Land) in Nathikudi Village, Vembakottai Taluk, Virudhunagar District, Tamil Nadu.

1. General Information

- a) Name of the applicant : THIRU. J. SAIPREETHAM
- b) Address of the Applicant : THIRU. J. SAIPREETHAM
S/o. SRI. P. JEYARAMAN
81, SRIVILLIPUTHUR TOWN & TALUK,
VIRUDHUNAGAR DISTRICT.
- c) Mobile No. : 94410 19225
- d) Status of the applicant : Private Individual
- e) Mineral which the applicant Intends to mine : Rough Stone, Jelly and Gravel
- f) Precise area communication letter details received from the competent authority of Government : KV 1/33/2022-KANIMUM
Dated : 19.10.2022
- g) Period of Permission / lease to be granted : 5 Years.
- h) Name and address of the RQP /Authorized person preparing the Mining plan : G. Ravichandran,
Vennila Livings, G-H B Block
Rettaivayakkal Vayalur Road,
Trichy - 620 102.
Mobile No. 87783 11236
Registration No : RQP/MAS/197/2005/A

2. LOCATION



STATE	DISTRICT	PANCHAYATH UNION	TALUK	VILLAGE		
Tamil nadu	Virudhu nagar	Vembakottai	Vemba kottai	Nathikudi	919/1,2A(P) (Patta Land)	3-33.5 Hect

b) Classification of the area : Patta Lands

c) Ownership / Occupancy of the applied area : Patta lands
(Surface right)

d) Toposheet No : 58-G/11

Latitude : 9° 26' 14.1"N to 9° 26' 21.9"N

Longitude : 77° 41' 35.8"E to 77° 41' 40.4"E

e) Existence of public road / Railway line, : The area applied for quarry lease lies in 4km southside of Sivakasi-Srivilliputhur road and 12Km from Sivakasi as shown in the KEY MAP (Plate No.1A). The nearest Rail Head is at Sivakasi at a distance of 15km. The nearest airport is at Madurai in 80Km distance.

Part-A



3. GEOLOGY AND MINEABLE RESERVES

3.1 Topography and general Geology

The area applied for mining lease is a gentle plain terrain. The area applied for quarry lease is dry lands without any vegetation. The Topsoil (Earth) & weathered rock (Gravel) having a thickness of 5m.

The rocks in this area belonging to ARCHEAN group of rocks. Below the weathered rock formation a hard (Rough stone) Charnockite are noted. The rocks are Phaneric to medium grained nature. And in these rocks there are mineral constituents of BLUE QUARTS, MICRO CLINE FELDSPAR, HYPERSTHENE and flacks of BIOTITE MICA. The rocks are striking towards North - South direction dipping 80° Vertical towards East direction. The strike length of the deposit is 250m with an average width of 134meter.

3.2 DETAILS OF EXPLORATION

As noted in this area one old pit having a length of 179m, width of 56m and depth of 6m and also nearby working quarries in the radius of 500m, the Topsoil (earth) and weathered rock (gravel) having a thickness of 5m. Below 5m Charnockite (Rough stone) is noted.

3.3 ESTIMATION OF RESERVES.

Reserves have been calculated based on the cross section method. The strike length of the deposit is 250m with an average width of 134meter.

Based on the above data geological reserves and mineable reserves has been calculated for a depth of 35 meter. The reserves have been computed for depth of 0 to 5m in topsoil (earth) and weathered rock (gravel) from 5 to 35meter in Rough stone The details of reserves are shown in annexure I and in Geological Plan & Section Plate No IV.

SL NO	TYPE OF RESERVES	Topsoil (Earth) Cub.m	Weathered rock (Gravel) Cub.m	Charnockite (Rough stone) Cub.m
1	Geological reserves	58,488	87,732	10,00,744
2	Mineable reserves	47,418	71,127	5,08,494
3	Bench locked & 7.5m	11,070	16,605	4,92,250

4. MINING

The area is under working by **Semi-Mechanised open cast method**. The bench height of the quarry is maintained to the height of boom of the machine used for digging and excavation. In the area applied for ML a boundary barrier of 7.5 meters has been left all direction safety distance.

During first three years the mining operation will be commenced from the south to north of the applied lease area to a strike length of 65m, 60m, 80m respectively and a width 119m. The topsoil (earth) and weathered rock (gravel) formation will be removed up to 5m, and below 5m depth three benches of each 5m depth will be made in rough stone to achieve the planned production quantity. During fourth year the quarry advancement will be made further northern direction up to a safety barrier for a strike length of 30m, width 119m. The topsoil (earth) and weathered rock (gravel) formation will be removed up to 5m and below 5m depth four benches of each 5m depth will be made in rough stone to achieve the planned production quantity.

During fifth year the quarry advancement will be made below the working area of the previous year's workings 2 benches of each 5m depth to be made on the roughstone area to achieve the planned production quantity. During every year working the bench with will be maintained more than the height of the bench with a bench slope of 60° for safe reversal and working of machinery and movement of trucks.

During 5 years working the following quantity of rough stone & weathered rock (gravel) and topsoil (earth) will be removed and the details are given below.

YEAR WISE PRODUCTION SCHEDULE

YEAR	Topsoil (earth) Cub.m	Weathered rock (Gravel) Cub.m	Charnockite (Rough stone) Cub.m
I	15470	23205	82175
II	14280	21420	89100
III	10528	15792	114544
IV	7140	10710	107225
V	----	----	115450
Total	47,418	71,127	5,08,494

Machineries used

The blasted ROM will be excavated by TATA HITACHI EX200. For drilling tractor mounted compressor of 175 cfm will be used matching with jackhammers. For drilling two Tc drill rods of 32 mm dia will be used and the drill rod depends upon the depth of drilling. Normally drill rods of .9m length and 1.5m length will be used in the quarry. For transportation 10 tons tippers will be used for transporting ROM and reject from the quarry. The ground water table in this area is ranging from 40 to 45 meter. A diesel pump will be kept for dewatering rain water during rainy season. For manual production the labours will be provided with pick Axe, Spaded, crowbar, iron basket and hammer.

DETAILS OF MACHINERIES TO BE USED IN QUARRY

SL NO	NAME OF THE EQUIPMENT	CAPACITY	REQUIRED
1	Excavator	TATA HITACHI EX200	1
2	Tipper	10 Tonnes	6
3	Tractor compressor for drilling	175 CFM	2
4	Dewatering pump	5 Hp Diesel pump	1

MARKETING OF ROUGH STONE AND GRAVEL

The boulders will be marketed to the nearby crushers for producing crusher aggregates. The Gravel & reject hard boulders will be marketed to filling and foundation works for construction works. The crusher aggregate will be marketed to nearby areas,

CONCEPTUAL MINING PLAN

Conceptual mining plan is prepared in a scale of 1:2000 in an object of long-term systematic development of bench layouts. In addition to consider the above factors, to avoid rehandling, setting roads, to determine ultimate pit limit depth of mining and ultimate pit slope, selection of sites for construction of infrastructures etc.,

Ultimate pit limit dimension:

The ultimate pit size is designed based on certain practical factor such as the economical depth of mining safety zones permissible area etc.

The ultimate pit of the mine is given as under
235meter Length, 119 meter Width, 35.0 meter Depth

However during extraction of ROM bench will be 5m height with a slope of 60° for proper quarrying.

The topsoil (earth) and weathered rock (gravel) will be marketed. After quarrying the mined out area will be used as water reservoir for making artificial recharge factor to the nearby areas.

The Conceptual Plan and Sections is shown in Plate No. VI. The mineable reserves calculated for a depth of 35meter a total Roughstone of 5,08,494m³, Weathered rock (Gravel) 71,127m³ & Topsoil (Earth) 47,418m³. Based on an average production of maximum quantity of 1,25,000 m³ to 1,30,000 m³/year. The life of the mine will be 6,27,039/1,25,000 m³ = 5 years. The available reserve below 35m can be mined in the next quarry renewal period after 5 years. The next five years period more quantity of Rough stone can be quarried. Since the entire topsoil (earth) & weathered rock (gravel) which occurs to a depth of 0 to 5meter is planned for excavation during the present five year working.

5. BLASTING

5.1 BLASTING PATTERN

The massive formation shall be broken in to pieces of portable size by drilling and blasting using jack hammers and shot holes blasting. Powder factor of explosives for breaking such hard rock shall be in the order of 1.8 to 2.0 per cub.m. Explosives. Blasting parameter proposed to be adopted for shot holes shall be



Spacing of 0.9 m, burden 0.60m and depth 1.5m
Output per hole = 0.9 m X 0.60m X 1.5m = 0.810 cub.m
Output per hole will be 0.810 cub.m with 90% blasting efficiency
Quantity of explosive required to blast one hole with a powder factor
Explosive required will be .810 / 1.8 = 0.450 kg per hole
In the above quantity booster Cap sensitive explosives will be one third 0.150 kg per hole
Daily conception of explosive will depend upon the number of shot holes drilled.

5.2 TYPES OF EXPLOSIVES

Following explosives are recommended for efficient blasting with safe practice

Sl.No	Description	Class/ Division	Type	Size
1	Slurry Explosive	Class - 3	Nitro compound mixer	25mm X 0.125 kg
2	Delay Detonators	Class - 6	Ordinary and elect. (OD & ED)	Standard size of IDL
3	Safety Fuse	Class - 6 Div - 1	Blue sump fuse coil of 10 meter each	

5.3 MEASURES PROPOSED TO MINIMISE GROUND VIBRATION DUE TO BLASTING

There are no villages near by the area applied for mining lease. To control ground vibration delay electric detonator will be used.

5.4 STORAGES AND SAFETY MEASURES

The proposal rate of production is about 338m³ or 85loads / day of 10tonnes capacity of ROM boulder in one day with average working days of 25 in a month.

The applicant has made an agreement with explosive M/S Prince Explosives, 7/72, Middle street, Elayirampennai, Vembakottai Taluk, Virudhunagar District-626 201 who is having explosive licence bearing no: E/SC/TN/22/719 (E99261) received from chief controller of explosive, Chennai The owner of the Firm made agreement with Sri, J.Saipreetham to make necessary safety practice to blast in his licence and supply of explosives will be made in Form 22 as specified by Indian Explosives Act 1884. (enclosed in the Annexures)

After blasting no explosives will be kept in the mine area and the unused explosives will be taken up by the explosive dealer. Before blasting the explosives will be carried by the dealer in his own explosive van and the unused quantity will be returned to the explosive van for keeping the explosive in his Magazine. Before blasting men and animals will be cleared in a surrounding distance of 500m and three sirens will be made before blast and after completing blasting a long siren will be given. Safety guards with red flags will be posted on all the four side direction.



6. MINE DRAINAGE

From the local enquire the ground water table in this area is ranging from 40 to 45m. There is no open dug wells are noted around the applied lease area. There are also no joints or fractures in the hard rock. There are also seasonal odai on the east side at a distance of 150m. These seasonal odai only and mostly dry in all seasons. The area attains rain fall during northeast monsoon. Hence there will be no adverse affect by the mining to the nearby areas.

Sl. No.	Details	Direction	Distance (m)	Depth(m)	Water level
1.	Seasonalodai	West	230	0.5	Dry
2.	Seasonalodai	East	150	0.5	Dry
3.	Sevalkulam	South	450	1.5	Dry

7. OTHER PERMANENT STRUCTURES

There is no hospital or Primary school, village temples and primary health centres within 500m radius of the quarry. There is no river, lake nearby this area. There are also no historical monuments nearby this area. There are also no worship places, reserve forest, social forest, and wild life sanctuaries near this area. The water bodies are dry in all the season.

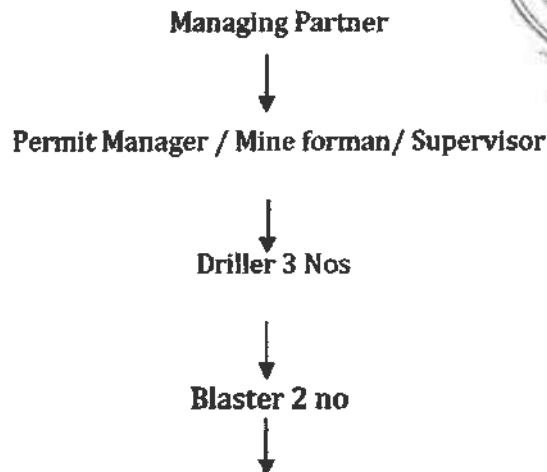
SL. NO	DIRECTION	VILLAGE	HABITATION	DISTANCE
1	North	Mayathevanpatti	150	2.5 km
2	South	Paraipatti	100	2.0 km
3	East	Ammapatti	60	3.5 km
4	West	Achamthavilthan	300	4.0 km

Nearest infrastructures

Sl. No	Name of infrastructure	Name of village	Distance from area applied for M.L
1	Post office	Duraisampuram	2 Km
2	Police station	Maraneri	7Km
3	Town	Srivilliputhur	15Km
4	DSP office	Sivakasi	15Km
5	Register office	Keelarajakularaman	7Km
6	Hospital	Nallammanaickenpatti	7Km
7	School	Mamsapuram	3Km
8	Railway station	Sivakasi	15Km
9	Airport	Madurai	80km
10	Sea Port	Thoothukudi	90km

8. EMPLOYMENT POTENTIAL & WELFARE MEASURES

ORGANISATION CHART



Unskilled persons for segregation loading of boulders and helpers 8 nos

The workers will be provided with drinking water facility, sanitation facility in the proposed office building. A bore well will be drilled near the office building.

First aid and labour health facility will be arranged from the nearby hospital at Nallammaickenpatti. All safety equipments will be provided for the persons employed in the mine. The supervisor will be provided with mobile phone to contact the owner or any officials during emergency time.

SAFETY AND SOCIAL SECURITY MEASURES

Safety equipments to be provided for the persons employed in the mines.

1. Safety helmet approved by Director General of mines Safety
2. Nose Mask
3. Ear Plug for machine operators and drillers
4. Safety shoes as specified by Director General of Mines Safety
5. Safety Goggles for drillers
6. Safety Belt and safety rope approved by Director General Mines of Safety - for labourers, working in the mine for removing danger over hang and undercut boulders. Employment of child labour will be strictly prohibited in the mines. All persons employed in the mines will be provided with Group Insurance System from a Govt. Recognised insurance Agency.

The applicant has given Notary Affidavit for Non employment of child labour directly or indirectly while operating the mine. The Affidavit is enclosed in Annexure.

PART - B



9. ENVIRONMENT MANAGEMENT PLAN

9.1 Existing land use pattern

The area applied for mining lease is a gentle plain terrain and having dry lands with no. vegetation available nearby this area. From the study of the nearby well the ground water table is ranging from 40 to 45m.

The area will obtain rain fall during NE monsoon in summer the climate will be very hot and the temp will be up to 90°

Present land use planning (break up along with green belt etc).-

S.No.	Land Use Category	At the end of life of mine
1.	Mining \Excavation	2-89.5 hectares
2.	Storage of Top Soil	0.00.0 hectares
3.	Sorting and Mineral Dressing Yard	0.00.0 hectares
4.	Infrastructure & Road	0.08.0 hectares
5.	Afforestation(Greenbelt& Plantation)	0-27.0 hectares
6.	Rain Water Storage	2-89.5 - (After closure of mine)
7.	Undisturbed Area	0.00.0 hectares
8.	Fencing	0.09.0 hectares
	TOTAL	3-33.50 hectares

The area applied for mining lease is a plain terrain and having dry lands. The patta land is used for quarrying Rough Stone blue metal. Infra structure will be provided in the patta land. First aid, sanitation facilities is also provided in the office building. The Patta Land with Surface right.

9.2 Water regime:

Ground water occurrence in this area is 40 to 45m depth. The quarrying is restricted up to 35m below Ground Level. Hence the quarry operation will not be affected by the ground water.

9.3 Flora and Funna:

There are no trees observed in the area. Thorny bushes, neem and palm are found in around the area, No plants of botanical interest or animals of zoological interest are noticed. There is no cultivation, plantation or agriculture found within the vicinity of the area.



9.4 Climatic condition

The area receives rainfall of about 850/per annum and the rainy season is mainly from Oct - Jan during North East monsoon. The summer is hot with maximum temperature of 42°C and winter encounters a minimum temperature of 23°C.

9.5 Human settlement

There is no hospital or Primary school, villages, temples and primary health centres within 500m radius of the quarry. There is no river, lake nearby this area. There are also no historical monuments nearby this area. There are also no worship places, reserve forest, social forest, and wild life sanctuaries near this area. The water bodies are dry in all the season.

SL. NO	DIRECTION	VILLAGE	HABITATION	DISTANCE
1	North	Mayathevanpatti	150	2.5 km
2	South	Paraipatti	100	2.0 km
3	East	Ammapatti	60	3.5 km
4	West	Achamthavilthan	300	4.0 km

Basic human welfare Amenities such as Health centre, schools, communication facilities, and commercial centres etc., are available at Duraisampuram located at a distance of 2Km.

9.6 Plan for Air, Dust suppression

The air quality will be affected by the Suspended Particle Matter (SPM) generated by the blasting, Jack hammer drilling, Loading and unloading during the Roughstone quarry operation.

The following Mitigations measures will be carried out:

- Mist Water spraying will be carried out by means of water sprinklers to suppress the dust emission in the Haul roads.
- Vegetations will be formed around the quarry to trap the dust.
- Avoiding spillages during the transportation.

AMBIENT AIR QUALITY (AAQ):

The ambient air quality depends upon the emission sources, meteorological conditions and the background concentration of specific contaminants. The principal objective of the Ambient Air Quality Monitoring (AAQM) is to assess the existing levels of ambient air quality in and around the lease area for assessing the impact on air quality due to future mining activity in the region.

With the above objective, the following parameters were analysed at the sampling locations established in the study area.

J. Sai Prithvi
1/6



- ❖ Particulate Matter (PM₁₀)
- ❖ Particulate Matter (PM_{2.5})
- ❖ Sulphur Dioxide
- ❖ Oxides of Nitrogen
- ❖ Carbon Monoxide

DESIGN CRITERIA FOR AMBIENT AIR QUALITY MONITORING STUDY NETWORK:

Ambient Air quality has been assessed through a net-work of 3 ambient air quality stations. The following methodology has been considered for design of ambient air quality monitoring network in the area.

- ❖ Topography / terrain of study area.
- ❖ Populated areas within study area
- ❖ Residential /sensitive areas within study area
- ❖ Predominant wind direction and wind pattern

9.7 Plan for noise level control:

Shallow holes of 32mm diameter and 1.5m depth will be drilled and to control ground vibration conventional low power explosives such as slurry explosives, delay electric detonator will be used for rough stone. Hence ground vibration and noise pollution will be minimal and restricted within the quarry workings. There are no villages near by the area applied for mining lease.

The drivers will be strictly inducted to move the vehicle during the transportation not exceed 40km per hour. Sentries with flags & whistle will posted in village junction and populated area to control and regulate traffic.

9.8 Environment impact assessment statement

The mining plan proposed is for a production of Roughstone with involving deep hole drilling and heavy blasting permission as per MMR1961 Regulation 106 (2b) against Director General of Mines Safety, Chennai Region. Such limited mining activity is not likely to cause any impact adversely on environment as for as pollution of air, water and noise is concentrated, anyhow environmental impact studies will be conducted as per EIA botification issued by MOEF. It is B2 category mine. For the average production of 1,25,000 m³ to 1,30,000 m³/year is planned. Besides **three working Quarries** and No villages in the surrounding radius of 500 metres.

Details of quarries around 500m radius of proposed quarry

Quarries	Sn	Name	Village	s.f.no.	Extent (Ha)	Dist. (m)
Existing	1	Jeyaraman	Nathikudi	916/4C1,7A&920/1A1,1A3	2-97.5	15
	2	Vishnuprasad	Nathikudi	886/1A1,4,10,etc.,	3-47.0	300
	3	Sudharmasadana	Nathikudi	807/4C	1-62.5	155
Abandoned	4	Vairam	Nathikudi	919/2B	Prior-2018	15
	5	Thavamani	Nathikudi	808/1	Prior-2012	127
	6	Murugan	Nathikudi	807/2	Prior-2012	165
	7	Soundarrajan	Nathikudi	922/2,3,4	Prior-2020	305
	8	Soundarrajan	Nathikudi	915,916,etc.,	Prior-2020	230
	9	M.Pandi	Nathikudi	922/1	Prior-2021	335
Present proposed	10	Radhakrishnan	Nathikudi	886/2,7,9	3-16.4	15
	11	P.Jeyaraman	Nathikudi	920/1B1 & 921/1,2	4.74.0	15
	12	J.Saipreetham	Nathikudi	919/1,2A(P)	3-33.5	applied
Total extent in Hectares					19-30.9 Ha.	

To avoid environmental pollution during transport of Charnockite (Roughstone) to various destinations the loaded truck will maintain a speed of 40 km / hour. The loaded truck will be covered with tarpaulin cover to avoid dust generation during vehicle movement on the roads. Hence there will not be any environment impact to the mining area are to the nearby villagers.

9.10 Proposal for reclamation of land affected during mining activities and at the end of mining (refilling / fencing)

In the proposed mining plan only a maximum depth of 35m has been envisaged as workable depth for safe & economic mining during the lease period. Hence after quarry reaches ultimate pit limit (for this lease period of 35m depth) fencing will be constructed around the quarries pits to prevent inherent entry of the public and cattle. There is no proposal for reclamation and rehabilitation.

9.11 Proposal of Afforestation

The proposal of afforestation and land use is shown in Plate No: VI & VIII. The detail of proposed afforestation is given below.

Plantation	Type	No. of Trees	Spacing	Area (Ha)	Survival
I YEAR	Neem	15	6m x 6m	0-05.4	80%
II YEAR	Neem	15	6m x 6m	0-05.4	80%
III YEAR	Neem	15	6m x 6m	0-05.4	80%
IV YEAR	Neem	15	6m x 6m	0-05.4	80%
V YEAR	Neem	15	6m x 6m	0-05.4	80%
	TOTAL	75		0-27.0 Ha	

The applicant will arrange for watering the plants for effective survival of the plant. The afforestation will be properly monitored by the persons employed in the mines. The applicant has also given Notary Affidavit to make afforestation as specified with mining plan to make the area as green belt and to protect the environment.

9.12 Proposal for water management

	DETAILS	SOURCE	QUANTITY/DAY
A	Drinking water & Domestic	From existing bore well & water vendor	0.500 KLD
B	Dust Suppression-water sprinkling	From existing bore well	1.300 KLD
C	Green belt	From the water tanker and the bore well	0.600 KLD
		TOTAL	2.400KLD

9.13 PROPOSED FINANCIAL ESTIMATE BUDGET FOR (EMP) ENVIRONMENT MANAGEMENT

Sl.no.	Details	All Figures are in Rs.
1.	<u>LAND INVESTMENT COST</u> Total Applied SF Nos. 919/1,2A(P) = 3-33.50 Ha. Source (as per document) TOTAL	Rs.4,46,716
2.	<u>FIXED INVESTMENT COST</u> i) Labour shed ii) First aid room and accessories iii) Toilet room with septic tank Facility construction & sanitary facility (for five years) iv) Drinking water for staffs & Labour from water vendors (for five years) TOTAL FIXED INVESTMENT COST =	Rs. 50,000 Rs. 40,000 Rs. 25,000 <u>Rs. 60,000</u> Rs. 1,75,000
3.	<u>OPERATIONAL COST</u> (Siegnorage fee per unit for transport permit to be paid to state government Rs.26/m ³ at the time of marketing will be paid by Purchaser only.) i) <u>Machinery to be used for Quarrying & Cost</u> Total Number of Excavator = 1No Total operational cost = 10450Ex.hours x Rs.1000 = (The Hired vehicle charges per hour inclusive of diesel around Rupees 1000/hour) (The Excavators of 0.90cu.m. bucket capacity and tippers of 10/20Ts capacity will be used. The quantity of Diesel consumption is based on the working hours of excavators {filling factor and loading cycling}. In the open cast quarry project excavators are proposed to quarry). (One excavators will be excavate = 60cu.m/Hr. For five years Project = 6,27,039cu.m./60cu.m. = 10450excavator hours)	Rs. 1,04,50,000

Sl.no.	Details	All Figures are in Rs.
ii)	<p>Compressor with Drilling Cost</p> <p>Total Number of compressor with Drilling Machine used for quarrying = 1No (One Compressor with Drilling Machine will be Drilling = 100Cu.m./Hr.)</p> <p>The Hired vehicle charges per hour inclusive of diesel around Rs 750/Hour = 5085 hours x Rs.750 = (For Five year project Roughstone = 508494cu.m./100cu.m. = 5085 Running Hours)</p>	Rs. 38,13,750
iii)	<p>Explosives Cost</p> <p>Total cost for the Five year Roughstone = (508494Cu.m./100Cu.m.) x Rs. 700 = (For five year project explosives-charging and blasting used for Rs.700/100Cu.m. Total drilling material for quarrying = 508494Cu.m. of Roughstone.)</p>	Rs. 35,59,458
	TOTAL OPERATIONAL COST = (Machinery operational +Drilling with Compressor + Explosives)	Rs. 1,78,23,208

4. EMP COST

Sl.no.	Details	Cost per Month (Rs.)	Total Cost per Year (Rs.)	Total cost for 5 years lease period (Rs.)
i)	Greenbelt development (plantation & maintenance)	1,000	12,000	60,000
ii)	Fencing arrangements & wind net arrester	-	-	75,000
iii)	Occupational health safety kits (mask, helmet, sanitizer, gloves, etc.,)	1,000	12,000	60,000
iv)	Water sprinkling using own tractor for the area (Control of Dust suppression)	1,000	12,000	60,000
v)	<p>Environmental parameters testing expenses fees for every six months</p> <p>a. Ambient Air monitoring b. Water analysis c. Noise Monitoring d. Soil testing e. Ground Vibration Monitoring</p>	12,000 (bi-annual)	24,000	1,20,000
Total EMP Cost=				Rs. 3,75,000

1.	Land Investment Cost	Rs. 4,46,716
2.	Fixed Investment Cost	Rs. 1,78,000
3.	Operational Cost	Rs. 1,78,23,208
4.	EMP Cost	Rs. 8,75,000
TOTAL PROJECT COST		Rs.1,88,19,924
CER @ 2% Project cost Carrying out provisions of Drinking water with dispenserations Toilet/sanitary especially for girls students in Thammanayakkanpatti Government School, Aruppukottai Taluk, Virudhunagar District.		Rs. 3,76,400

10. MINE CLOSURE PLAN

- The mined out area will be suitably fenced to avoid inadvertent entry of men and animal to the quarry area.
- After closure of mine the applicant will adhered the rules and regulations governed by state and central government
- All safety measures and mitigations will be maintained properly in the mined out area. Security persons will be engaged in all three shifts to ensure safety in the quarry.

The progressive mine closure plan is enclosed in Plate No. VIII.

11. ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT

- Permission will be obtained from the District Mines Office to extract the Rough Stone from the Boundary barriers and for slopes.
- Care and precautionary measures will be taken for the safety of workers as per Mines Rules-1955 and Mines Acts-1952.
- The applicant will endeavor every attempt to quarry the Rough Stone economically without any wastage and to improve the environment and ecology.
- Any violation pointed out by the inspecting authorities shall be rectified as per the guidelines of the Department.


PLACE: TRICHY

DATE: .11.2022



Signature of the RQP

G.RAVICHANDRAN, M.Sc. PGD.M.E.N.
MINING GEOLOGIST
RQP / MAS / 197 / 2005 / A
VALID UPTO: 12.12.2025



ASSISTANT DIRECTOR
GEOLOGY AND MINING
VIRUDHUNAGAR DISTRICT
VIRUDHUNAGAR

ANNEXURE- I

GEOLOGICAL RESERVES



MINERAL	SECTION	LENGTH (M)	WIDTH (M)	DEPT H (M)	VOLUME IN CUM	TOTAL VOLUME IN CU.M.
TOPSOIL (earth)	PQ-AB	250	134	2.0	67000	58488
	Deduct old pit = $76 \times 56 \times 2 =$				-8512	
Weathered (gravel)	PQ-AB	250	134	3.0	100500	87732
	Deduct old pit = $76 \times 56 \times 3 =$				-12768	
Charnockite Roughstone	PQ-AB	250	134	30.0	1005000	1000744
	Deduct old pit = $76 \times 56 \times 1 =$				-4256	
TOTAL GEOLOGICAL RESERVES					11,46,964 Cu.M.	


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RQP / MAS / 197 / 2005 / A
VALID UPTO: 12.12.2025

ANNEXURE- II

MINEABLE RESERVES



MINERAL	SECTION	BENCH	LENGTH (M)	WIDTH (M)	DEPTH (M)	VOLUME IN CUM	MINEABLE RESERVES IN CUM
Topsoil (earth)	PQ-AB	I	235	119	2.0	55930	47418
	Deduct old pit = 76 x 56 x 2 =					- 8512	
Weathered (gravel)	PQ-AB	I	235	119	3.0	83895	71127
	Deduct old pit = 76 x 56 x 3 =					-12768	
Charnockite Roughstone	PQ-AB	II	225	109	5.0	122625	508494
	PQ-AB	III	215	99	5.0	106425	
	PQ-AB	IV	205	89	5.0	91225	
	PQ-AB	V	195	79	5.0	77025	
	PQ-AB	VI	185	69	5.0	63825	
	PQ-AB	VII	175	59	5.0	51625	
	Deduct old pit = 76 x 56 x 1 =					-4256	
TOTAL MINEABLE RESERVES						6,27,039 Cu.M.	


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RQP / MAS / 197 / 2005 / A
VALID UPTO: 12.12.2025


J. Sai Prithan
123

ANNEXURE - III

PRODUCTION SCHEDULE FOR 5 YEARS PERIOD



Year	Section	Bench	Length (M)	Width (M)	Depth (M)	VOLUME IN CU.M.			Total Production in Cu.m.
						Topsoil Earth	Weathered rock Gravel	Chert/Quartzite Roughstone	
I	PQ-AB	I	65	119	2.0	15470	----	----	120850
	PQ-AB	I	65	119	3.0	----	23205	----	
	PQ-AB	II	60	109	5.0	----	----	32700	
	PQ-AB	III	55	99	5.0	----	----	27225	
	PQ-AB	IV	50	89	5.0	----	----	22250	
II	PQ-AB	I	60	119	2.0	14280	----	----	124800
	PQ-AB	I	60	119	3.0	----	21420	----	
	PQ-AB	II	60	109	5.0	----	----	32700	
	PQ-AB	III	60	99	5.0	----	----	29700	
	PQ-AB	IV	60	89	5.0	----	----	26700	
III	PQ-AB	I	80	119	2.0	10528	----	----	140864
	Deduct pit = 76 x 56 x 2 = -8512			80	119				
	PQ-AB	I	80	119	3.0	----	15792	----	
	Deduct pit = 76 x 56 x 3 = -12768			80	109				
	PQ-AB	II	80	109	5.0	----	----	114544	
	PQ-AB	III	80	99	5.0				
	PQ-AB	IV	80	89	5.0				
Deduct pit = 76 x 56 x 1 = -4256			----	----	----	----	----		
IV	PQ-AB	I	30	119	2.0	7140	----	----	125075
	PQ-AB	I	30	119	3.0	----	10710	----	
	PQ-AB	II	25	109	5.0	----	----	107225	
	PQ-AB	III	20	99	5.0				
	PQ-AB	IV	15	89	5.0				
	PQ-AB	V	195	79	5.0				
V	PQ-AB	VI	185	69	5.0	----	----	115450	
	PQ-AB	VII	175	79	5.0				
TOTAL PRODUCTION						47418	71127	508494	6,27,039


G. RAVICHANDRAN, M.Sc., P.G.D.M.E.M.,
 MINING GEOLOGIST
 RQP / MAS / 197 / 2005 / A
 VALID UPTO: 12.12.2025

J. Sai Pritham

ANNEXURE - IV

Base Line Studies

The base line studies is prepared for Rough stone, Jelly & Gravel quarry Nathikudi Village, Vembakottai Taluk, Virudhunagar District, over an extent of 3.33.50 hectares in SF Nos. 919/1,2A(P). The proposed quarry lease will be granted for a period of 5 years. The total planned production quantity for 5 years in rough stone (rough stone) 5,08,494cum, weathered rock (gravel) 71,127cum & topsoil (earth) 47,418 cum.

The project in the area will provide a quit considerable employment to nearby village which in turn enhance the earring source of the nearby village. The comprehensive base line studies and standards constitute of collecting data on ambient air quality, dust fall rate, water quality, soil analyze, noise level and ground vibration study in the area proposed for quarrying along with flora and fauna statistics.

General approach to Environment:

The environment studies besides data comprise of the features present of the site area its includes environmental features such as forest area, conservation area, water bodies, industries, wild life and fauna place of historic and importance etc.,

1. Air environment
2. Noise environment
3. Water environment
4. Ecology (biological and cultural environment)
5. Physical environment

Air Environment

The rough stone quarry is non toxic which does not emit any undesirable pollution in the form of solid, liquid and gas. The dust emitted during the transportation of vehicles and the drilling will be carried out in wet condition to prevent dust into air and the haul roads will be periodically sprinkled with mist water spray to prevent dust into the atmosphere. The area in and around is quit fresh and the impact on air environment will always be under controlled and will be monitored. No processing or beneficiation is proposed except quarrying hence the impact on air will be controlled monitored and mitigated.

Noise Environment

The noise will be only during blasting. For controlling noise prepare and adequate explosives will be charged to the short holes. The machineries will be properly made preventive maintains to avoid much noise during machinery working. Except these features there are no possibilities of producing much noise during quarry working.

J. Sairathan

Ground vibration studies

The vibration source only through the movement of vehicles where the frequency is also very less. Hence the vibration is well below the standard permissible by MOEF. Displacement, velocity and acceleration of the three kinematics descriptions which are to be studied to describe ground motion. The peak particle velocity is the more referred since the area is virgin there is no significant measured velocity found in the area. During blasting delay electric detonators will be used to minimize vibration during blasting.

Water Environment

Geo - physical investigation was carried out by adopting schlumberger method. To find out the lateral variation and vertical in homogeneity's. The hydro - geological report is enclosed.

Soil analysis

The area applied for mining lease is flat terrain with little undulations covered by topsoil (earth) for a depth of 2.0 meter followed by weathered rock (gravel) and massive rock (roughstone). The gravel is loose and natural growths to trees or plants are negligible except small bushes.

Climate The area receives annual average rain fall of 825mm during southwest monsoon (June - Sep) and northeast monsoon (Oct - Dec). Temperature falls between 42°C - 23° C. Rainy season is three months in a year from October to December during monsoon. Temperature is maximum during May - June in a year.

Flora and fauna in and around the area

In small quarrying projects like this which involves very limited operations like secondary drilling and blasting. Conservation of flora and fauna along with ecology does not have significant impact of the overall eco system. A detail survey related to flora and fauna was observed physically. The in and around area was seasonal dry cultivation, predominantly maize, cotton and millet and naturally grown trees like neem tree, karuvelam (juliflora) etc. The fauna is goat, rat, crow, cat, ant, cow and squirrel etc.

Conclusion The base line studies relents no hazardous levels of dust and noise and prevailing at the project area. A well implemented environment management plan as discussed in the mining plan will help in mitigation the adverse effects due to quarry activities.

The flora in the area is only small thorny bushes as much of the area exhibits flat terrain. No trees are proposed to uproot for the project and new trees will be planted on boundary barrier which will act as acoustic sound barriers. Environment care and attitude preventing environment is instructed to the proponent and advice to carry out and mitigate the minor impacts due to quarrying.

J. Sai Pritham

HYDROGEOLOGICAL SURVEY REPORT



1. Name of the Applicant : Thiru. J. Saipreetham
2. Major/ minor mineral : Roughstone, Jelly and gravel (minor mineral)
3. Location :
- i). Survey nos : 919/1,2A(P)
- ii). Village : Nathikudi
- iii). Taluk : Vembakottai
- iv). District : Virudhunagar
4. Total Extent : 3-33.50 Hectares
5. Category of ground water : safe category (over all district)
6. Geomorphology : plain terrain covered with topsoil
thorny bushes and no vegetations and the
slope of the land is very gentle towards south.
7. Geology : topsoil, weathered & massive charnockite.
8. Climate : Tropical
9. Average annual rainfall : 825mm
10. Nearby recharging sources : There are water recharging source of
Seasonal odai on eastern side. These water
courses are mostly dry in all seasons and will
have water flow only during heavy rainy
season. Due to monsoon failure the
seasonal odai cannot be taken as a recharge
source.
11. Water level in near area : 40 to 45 meters from the local enquire.
12. Quality of the ground water : Not potable CaCl, NaCl, & CaCo₃.
13. Hydro- geological conditions: The hard rock area allows rain water seepage
Only in weathered, fissured and fracture
zones And the ground water storage and
Movement is very poor in the study area.
14. Geophysical study : Geophysical Electrical Resistivity survey
conducted in schlumberger configuration
(VES) method using IPI2win software for a
depth of 45m. The VES-Interpreted curve and
Layers by using IPI2win software shows
occurrence of hard rock formations below 5m
depth.


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RQP / MAS / 197 / 2005 / A
VALID UPTO: 12.12.2025

J. Sai Preetham



1. GEOPHYSICAL ELECTRICAL RESISTIVITY SURVEY: THE SCHLUMBERGER ARRAY

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

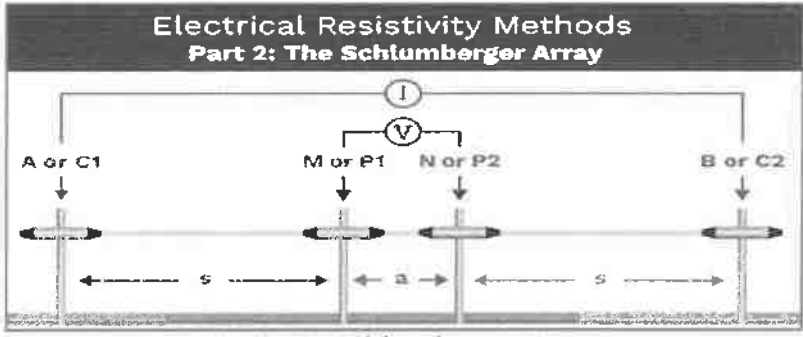


Fig No:1, Schlumberger Array



Fig No: 2. Model DDR-3 Electrical Resistivity Meter

J. Sai Pritham

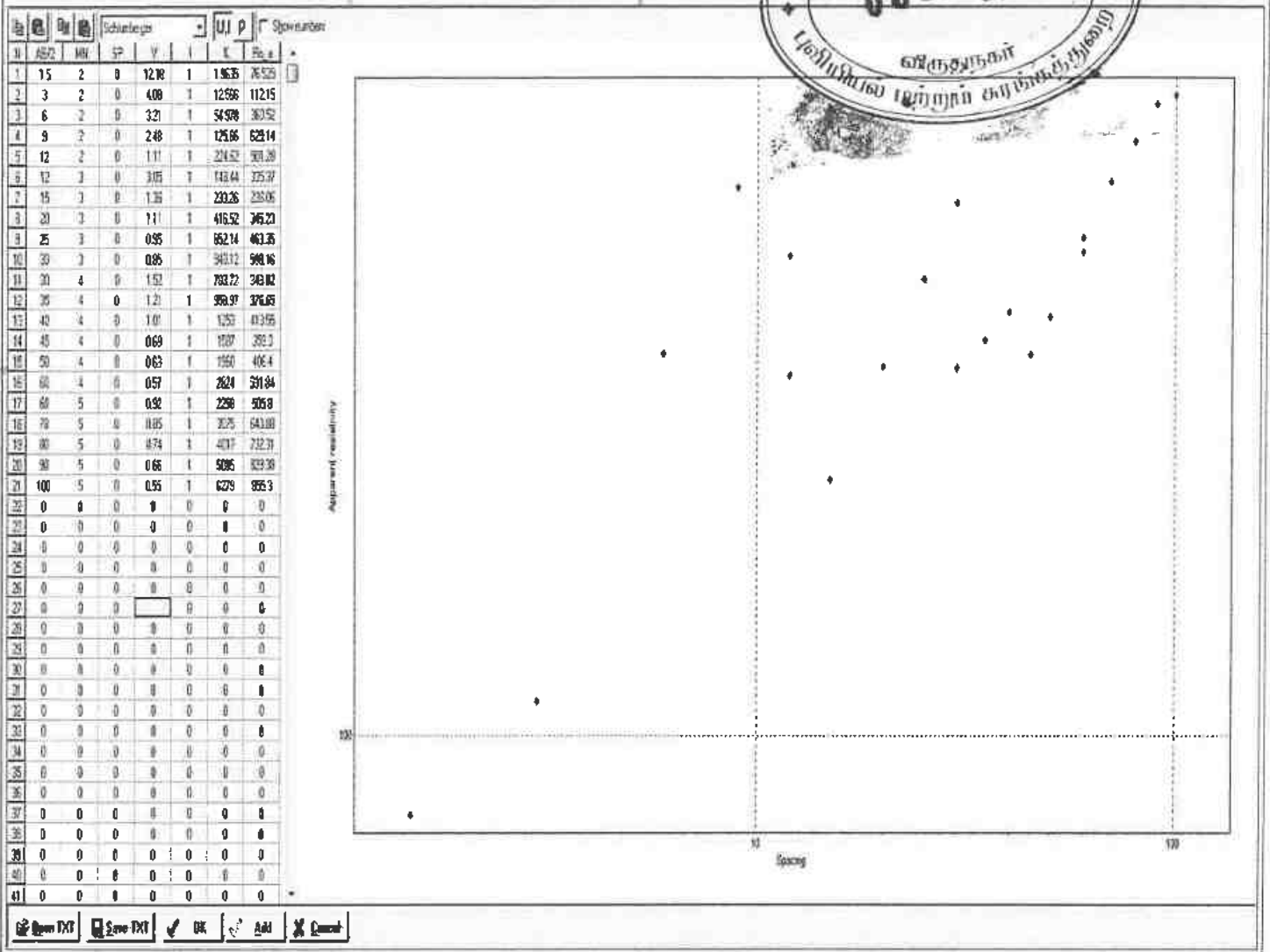


Fig.No:3 Image showing New VES data sheet by using IPI2win software

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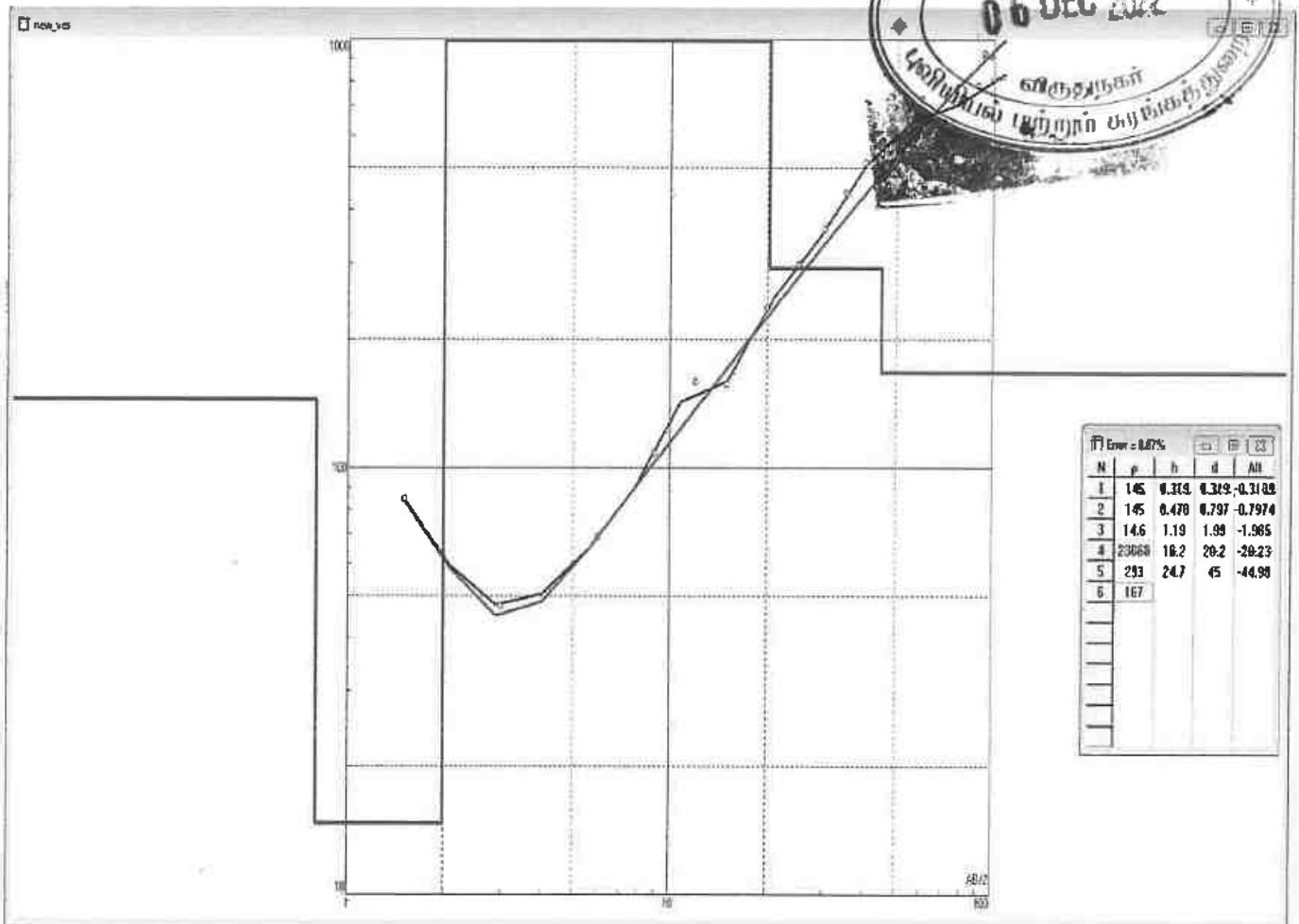



Figure 4 Vertical electrical Sounding Interpreted curve & Layers by using IPI2win software

VES- INFERRED STRATA

- Ground level -0-2 m : Gravel with 77 Ohm. Resistivity
- 2-5m : Weathered formation with 185 Ohm. Resistivity
- 5m-40m : Massive formation on charnockite rock with 2500 Ohm. Resistivity
- 40m -45m : Water level fluctuations with 277hm.m resistivity
- 45m - 100m : Fully massive formation with 2500 Ohm. Resistivity

The presence of soil followed by Charnockite formation with moderate resistivity is indicative of the poor water bearing aquifer. The deeper layer is having curve breaks around 40m to 45m depth with possible potential fractures.


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RQP / MAS / 197 / 2005 / A
VALID UPTO: 12.12.2025

J. Sairaj Kumar

130

भारत सरकार / GOVERNMENT OF INDIA
 खान मंत्रालय / MINISTRY OF MINES
 भारतीय खान ब्यूरो / INDIAN BUREAU OF MINES



G. Ravichandran



अर्हताप्राप्त 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 जी. रविचंद्रन, वेंनिला लिविंग्स, जी-एच, बी ब्लॉक, रेट्टैवयकाल, वयलूर, रोड, तिरुची - 620 102, जिनका फोटो और हस्ताक्षर ऊपर दिया हुआ है, तथा जिनहोंने अपनी अर्हता और अनुभव का सतोषजनक सबूत दिया है, को खनन योजना तैयार करने हेतु खनिज रियायत नियमावली 1960 के नियम 22सी के तहत अर्हताप्राप्त व्यक्ति के रूप में मान्यता प्रदान की जाती है।

Shri. G. Ravichandran, Vennila Livings, G-H, B block, Rettaivaykkal Vayalur Road, Trichy - 620 102, 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.

उनकी पंजीयन संख्या है

His registration number is

RQP / MAS / 197 / 2005 / A

यह मान्यता 10 वर्षों की अवधि के लिए मान्यता है जो दिनांक 11.12.2025 को समाप्त होगी।
 This recognition is valid for a period of 10 years ending on 12.12.2025.

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 : 13.11.2015

क्षेत्रीय खान नियंत्रक/ Regional Controller of Mines
 भारतीय खान ब्यूरो/ Indian Bureau of Mines
 चेन्नई क्षेत्र/ Chennai Region

G. Ravichandran
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RQP / MAS / 197 / 2005 / A
VALID UPTO: 12.12.2025

J. Sai Pritham

புவியியல் மற்றும் சுரங்கத்துறை

ந.க.எண்:கேவி1/33/2021-கனிமம்,

உதவி இயக்குநர் அலுவலகம்,
மாவட்ட ஆட்சியர் அலுவலக வளாகம்,
விருதுநகர்.

நாள்: 19.10.2022.

குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும் - விருதுநகர் மாவட்டம் - வெம்பக்கோட்டை வட்டம் - நதிக்குடி கிராமம் - பட்டா புல எண்கள்: 919/1 (1.63.00 Hects.), & 919/2A(P) (1.70.50 Hects.) மொத்தப்பரப்பு 3.33.50 ஹெக்டேர் - ஐந்து வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கல் - சரியான பரப்பு (Precise Area) தேர்வு செய்யப்பட்டது - திருத்தி சுரங்ககத்திட்டம் மற்றும் மாநில அளவிடான சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் இசைவினைப் பெற்று சமர்ப்பிக்க கோருவது - தொடர்பாக.

- பார்வை:**
1. திரு.ஜெ.சாய்பிரித்தம், த/பெ.பெ.ஜெயராமன், திருவில்லிபுத்தூர் விண்ணப்பம் நாள்: 27.12.2021.
 2. சாத்தூர் வருவாய் கோட்டாட்சியர் கடிதம் எண்: மூ.மு.அ2/7599/2021 நாள்: 31.01.2021.
 3. உதவி இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை அவர்களின் புலத்தணிக்கை அறிக்கை நாள்: 05.02.2022
 4. விருதுநகர், புவியியல் மற்றும் சுரங்கத்துறை உதவி இயக்குநர் குறிப்பாணை எண்:கேவி1/1229/2021 நாள்:31.03.2022.
 5. திரு.ஜெ.சாய்பிரித்தம், த/பெ. பெ.ஜெயராமன், திருவில்லிபுத்தூர் கடிதம் நாள்:இல்லை பெறப்பட்ட நாள்: 07.10.2022.

விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம், நதிக்குடி கிராமம், பட்டா புல எண்கள்: 918/3 (0.81.00), 919/1 (1.63.00) மற்றும் 919/2A (2.17.00) மொத்தப்பரப்பு 4.61.00 ஹெக்டேர் நிலத்தில் 10 வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கக்கோரி விருதுநகர் மாவட்டம், திருவில்லிபுத்தூர் வட்டம், என்.ஜி.ஜி.ஓ காலனி, கதவு எண்:81 என்ற முகவரியில் குடியிருந்து வரும் திரு.ஜெ.சாய்பிரித்தம், த/பெ. பெ.ஜெயராமன் என்பவரின் விண்ணப்பத்தினை ஏற்று மேற்படி புலங்கள் கற்குவாரி உரிமம் வழங்க ஏதுவான புலங்களாக (Precise Area) பார்வை 4-ல் கண்ட குறிப்பாணையின் வாயிலாக

J. Sai Ram

அறிவிக்கப்பட்டு விதி எண்.41-ன் படி சுரங்கத்திட்ட வரைபடம் தயார் செய்து அளிக்கவும், விதி எண்.42-ன் படி மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் இசைவினை பெற்று சமர்ப்பிக்கவும் விண்ணப்பதாரர் கேட்டுக்கொள்ளப்பட்டார். மேற்படி குறிப்பாணையின் படி மனுதாரரால் சமர்ப்பிக்கப்பட்ட சுரங்கத்திட்ட வரைபடம் உதவி இயக்குநரால் 31.03.2022 - ல் ஒப்புதல் செய்யப்பட்டு மனுதாரரிடம் அளிக்கப்பட்டது.

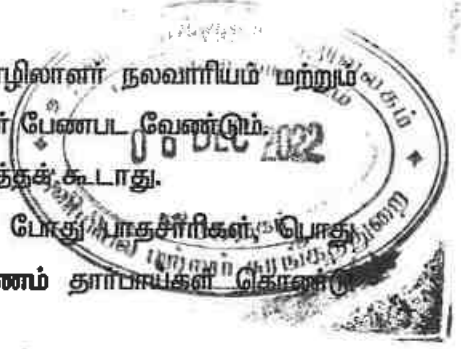
இந்நிலையில் பார்வை 5-ல் கண்ட விண்ணப்பதாரரின் கடிதத்தில் நிதி சுமை மற்றும் சுற்றுச்சூழல் பாதுகாப்பு கருதி புல எண்கள்: 919/1 (1.63.00 Hects.), & 919/2A (P) (1.70.50 Hects.) மொத்தப்பரப்பு 3.33.50 ஹெக்டேரில் மட்டும் கற்குவாரி குத்தகை உரிமம் வழங்கிட நடவடிக்கை எடுக்குமாறு கேட்டுக்கொண்டுள்ளார்.

மனுதாரரின் கோரிக்கை மற்றும் விண்ணப்ப புலங்களுக்கு அருகிலுள்ள நிரந்தர அமைப்புகளை ஆய்வு செய்ததில் மனுதாரரின் கோரிக்கை நியாயமாக இருப்பதால் கற்குவாரி குத்தகை உரிமம் வழங்க கோரிய வெம்பக்கோட்டை வட்டம், நதிக்குடி கிராமம், புஞ்சை புல எண்கள்: 919/1 (1.63.00 Hects.), & 919/2A (P) (1.70.50 Hects.) மொத்தப்பரப்பு 3.33.50 ஹெக்டேர் ஐந்து ஆண்டுகளுக்கு குவாரி உரிமம் வழங்க உகந்த பரப்பாக (Precise Area) அறிவிக்கப்படுகிறது. மேற்படி பரப்பிற்கு உரிய திருத்திய சுரங்கத்திட்ட வரைபடம் அங்கீகரிக்கப்பட்ட நபரால் தயார் செய்து பெற்று சமர்ப்பிக்க விண்ணப்பதாரர் திரு.ஜெ.சாய்பிரித்தம், த/பெ. பெ.ஜெயராமன் என்பவரை கேட்டுக்கொள்ளப்படுகிறது.

நிபந்தனைகள்:

- 1) அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5 மீ பாதுகாப்பு இடைவெளி விடுத்து குவாரி செய்தல் வேண்டும்.
- 2) புல எண்கள்: 919/1 மற்றும் 919/2A -ன் வழியே செல்லும் வண்டிப்பாதையினை மனுதாரருக்கு சொந்தமான புல எல்லையின் வழியாக மாற்றி அமைத்துக்கொள்ள உரிய நடவடிக்கைகளை மேற்கொள்ள வேண்டும்.
- 3) நீர்நிலைகள், ஓடைகள் பாதிக்கா வண்ணம் உரிய பாதுகாப்பு வழிமுறைகளை கடைபிடித்தல் வேண்டும்.
- 4) பொதுமக்கள் / விவசாய நிலங்களுக்கு பாதிப்பு ஏற்படாத வகையில் தகுதி வாய்ந்த அங்கீகரிக்கப்பட்ட நபர்கள் மூலம் வெடிமருந்துகள் சேமிக்கப்பட்டு குவாரியில் வெடித்தல் வேண்டும். குவாரியில் குறைந்த சக்தி கொண்ட வெடி மருந்துகளை பயன்படுத்தல் வேண்டும்.
- 5) சுரங்கத்திட்டம் மற்றும் சுற்றுச்சூழல் தடையில்லாச் சான்று குத்தகை உரிமம் வழங்குவதற்கு முன் சமர்ப்பிக்க வேண்டும்.

- 6) குவாரியில் வேலை செய்யும் தொழிலாளர்கள் தொழிலாளர் நலவாரியம் மற்றும் காப்பீடு திட்டத்தில் பதிவு செய்து தொழிலாளர் நலன் பேண்பட வேண்டும்.
- 7) குழந்தை தொழிலாளர்களை குவாரி பணியில் அமர்த்தக் கூடாது.
- 8) கனிமங்களை வாகனங்களில் கொண்டு செல்லும் போது பாதுகாப்பாளர்கள் பொது மக்கள் மற்றும் பிற வாகனங்கள் பாதிக்காதவண்ணம் தார்பாய்கள் கொண்டு மூடி எடுத்துச் செல்ல வேண்டும்.



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உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
விருதுநகர்

பெற்றநர்
திரு.ஜெ.சாய்பிரித்தம்,
த/பெ. பெ.ஜெயராமன்,
கதவு எண்: 81,
என்.ஜி.ஜி.ஓ காலனி,
திருவில்லிபுத்தூர் வட்டம்,
விருதுநகர் மாவட்டம்.

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19/12/2022

[Handwritten Signature]
J. Sain Pritham

இட ஆய்வறிக்கை

(நாள்: 05.02.2022)



விருதுநகர் மாவட்டம், திருவில்லிபுத்தூர் வட்டம், என்.ஆர்.ஆர். காலனி, குஞ்சு எண்: 81 என்ற முகவரியில் குடியிருந்து வரும் திரு.ஜெ.சாய்பிரித்தம், த/பெ.பெ.ஜெயராமன் என்பவர் விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம், நதிக்குடி கிராமம், பட்டா புல எண்கள்: 918/3 (0.81.00), 919/2A (2.17.00) மற்றும் 919/1 (1.63.00) மொத்தப்பரப்பு 4.61.00 ஹெக்டேரில் பத்து வருட காலத்திற்கு உடைகல் மற்றும் கிராவல் குவாரி குத்தகை உரியம் வேண்டி 1959-ம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகள் விதி எண்.19-ன் படி, விண்ணப்பம் செய்திருந்தார். விண்ணப்ப புலங்கள் 05.02.2022 தினத்தன்று ஆய்வு செய்யப்பட்டது.

விண்ணப்பிக்கப்பட்ட புல எண்கள்: 918/3 (0.81.00), 919/1 (1.63.00) மற்றும் 919/2A (2.17.00) பட்டா எண்: 3906 -ன் படி திரு.ஜெ.சாய்பிரித்தம், த/பெ.பெ.ஜெயராமன் பெயரில் நதிக்குடி கிராம ஆவணங்களில் பதிவாகியுள்ளது. இவ்வாறாக மேற்கண்ட புலங்களுக்கு விண்ணப்பதாரர் முழு உரிமையுடையவராகிறார்.

விண்ணப்பிக்கப்பட்ட புலங்களை சுற்றிலும் 300 மீட்டர் சுற்றளவில் குடியிருப்புகள், பள்ளிகள், கோயில்கள், மசூதிகள், சடுகாடு ஏதும் இல்லை. 50 மீட்டர் சுற்றளவில் தேசிய / மாநில நெடுஞ்சாலைகள், ஆறுகள், கட்டிடங்கள், உயர் அழுத்த மின்கம்பிகள் இல்லை. உயர்வகை மரங்கள் ஏதுவும் இல்லை. புலங்களுக்கு சென்று வர பாதை வசதி உள்ளது.

விண்ணப்பிக்கப்பட்ட புலங்கள் புஞ்சை வகைப்பாடுடைய தரிசு நிலங்களாகும். புலங்களின் மேற்பரப்பு சமதளமாகவும், மண் நிறைந்தும், விவசாய பணிகள் ஏதுமின்றி உள்ளது. புலங்களில் முதல் முறையாக உடைகல், கிராவல் குவாரி உரிமம் வழங்க கேட்டு விண்ணப்பிக்கப்பட்டுள்ளது (Virgin area). புலங்களில் குழிகள் ஏதும் இல்லை. மேற்பரப்பில் காணப்படும் மண் கனிமத்தை தொடர்ந்து சிதைந்த பாறைகளும் (Weathered Rock), சார்னகைட் (Charnockite) எனப்படும் கடின பாறைகளும் (Hard rock) உள்ளது. கடின பாறைகளில் காணப்படும் வேறுபட்ட நிறங்கள் (Different in colours), இணைப்புகள் (Joints), பிளவுகள், கீரல்கள் (Cracks) வெடிப்புகள் மற்றும் மாறுபட்ட அளவு கொண்ட கனிமங்கள் காரணமாக இப்பாறைகளில் மெருகேற்றக் கூடிய வண்ண கற்களை (Polished Granite / Blocks) உற்பத்தி செய்ய இயலாது. இவ்வகை பாறைகளில் இருந்து கட்டிடப்பணிகள் மற்றும்

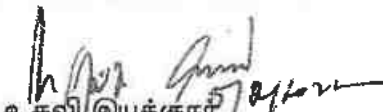
J. Sai Raveen

சாலை / இரயில்வே பணிகளுக்கு தேவைப்படும் கற்கள், ஜல்லிகள் மற்றும் எம்-சாண்ட் ஆகியவற்றை உற்பத்தி செய்ய இயலும்.

எனவே திரு.ஜெ.சாய்பிரித்தம் என்பவரின் கோரிக்கையினை ஏற்று விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம், நதிக்குடி கிராமம், பட்டா புல எண்கள்: 918/3 (0.81.00), 919/1 (1.63.00) மற்றும் 919/2A (2.17.00) மொத்தப்பரப்பு 4.61.00 ஹெக்டேரில் உடைகல் மற்றும் கிராவல் குவாரி உரிமம் அரசாணை எண்.208, தொழில் (எம்.எம்.சி.1) துறை, நாள்: 21.09.2020 -ன் படி பத்தாண்டுகளுக்கு (10) தமிழ்நாடு சிறுகனிம சலுகை விதிகள் விதிஎண்.19 மற்றும் 20-ன் படி பின்வரும் நிபந்தனைகளுக்குட்பட்டு வழங்க பரிந்துரை செய்கிறேன்.

நிபந்தனைகள் :

- 1) அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5 மீ பாதுகாப்பு இடைவெளி விடுத்து குவாரி செய்தல் வேண்டும்.
- 2) புல எண்கள்: 919/1 மற்றும் 919/2A -ன் வழியே செல்லும் வண்டிப்பாதையினை மனுதாரருக்கு சொந்தமான புல எல்லையின் வழியாக மாற்றி அமைத்துக்கொள்ள உரிய நடவடிக்கைகளை மேற்கொள்ள வேண்டும்.
- 3) நீர்நிலைகள், ஓடைகள் பாதிக்கா வண்ணம் உரிய பாதுகாப்பு வழிமுறைகளை கடைபிடித்தல் வேண்டும்.
- 4) பொதுமக்கள் / விவசாய நிலங்களுக்கு பாதிப்பு ஏற்படாத வகையில் தகுதி வாய்ந்த அங்கீகரிக்கப்பட்ட நபர்கள் மூலம் வெடிமருந்துகள் சேமிக்கப்பட்டு குவாரியில் வெடித்தல் வேண்டும். குவாரியில் குறைந்த சக்தி கொண்ட வெடி மருந்துகளை பயன்படுத்தல் வேண்டும்.
- 5) சுரங்கத்திட்டம் மற்றும் சுற்றுச்சூழல் தடையில்லாச் சான்று குத்தகை உரிமம் வழங்குவதற்கு முன் சமர்ப்பிக்க வேண்டும்.
- 6) குவாரியில் வேலை செய்யும் தொழிலாளர்கள் தொழிலாளர் நலவாரியம் மற்றும் காப்பீடு திட்டத்தில் பதிவு செய்து தொழிலாளர் நலன் பேண்பட வேண்டும்.
- 7) குழந்தை தொழிலாளர்களை குவாரி பணியில் அமர்த்தக் கூடாது.
- 8) கனிமங்களை வாகனங்களில் கொண்டு செல்லும் போது பாதசாரிகள், பொது மக்கள் மற்றும் பிற வாகனங்கள் பாதிக்காதவண்ணம் தார்பாய்கள் கொண்டு மூடி எடுத்துச் செல்ல வேண்டும்.


உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
விருதுநகர்.




భారత ప్రభుత్వం
Unique Identification Authority of India
Government of India


సంఖ్య/Enrolment No.: 2017/78019/60209

To
జయరామ్ సాయి ప్రకాశ్
Jeyaraman Sai Pritham
S/O Jeyaraman
7-5-1/55/95 Flat No-801 Block-C
Clover Majestic Towers
pandurangapuram
RK Beach
Visakhapatnam (Urbans)
Visakhapatnam Andhra University
Andhra Pradesh - 530003
7702423885


భారత ప్రభుత్వం
Government of India



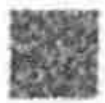
మీ ఆధార్ సంఖ్య / Your Aadhaar No. :
8595 9569 1565
నా ఆధార్, నా గుర్తింపు





భారత ప్రభుత్వం
Government of India



జయరామ్ సాయి ప్రకాశ్
Jeyaraman Sai Pritham
సంఖ్య/DOB 2402/1996
పాత్ర / MALE



8595 9569 1565
నా ఆధార్, నా గుర్తింపు

ఆధార్ సంఖ్యను ప్రకటించడం
సంఖ్యను ప్రకటించడానికి ఆన్లైన్ పేజీ
ఆధార్ సంఖ్యను ప్రకటించడానికి

INFORMATION

- Aadhaar is a proof of identity, not of citizenship.
- To establish identity, authenticate online.
- This is electronically generated letter.

- ఆధార్ దేశమంతటా అనుమతించబడుతుంది.
- ఆధార్ ఐడింటిఫికేషన్ ప్రమాణ్య విధియు ప్రమాణ్యము చేయు అనుమతించుచుండు ప్రాధాన్య విధులు ఉన్నాయి.
- Aadhaar is valid throughout the country.
- Aadhaar will be helpful in availing Government and Non-Government services in future.

తరువాయి:
S/O జయరామ్, 7-5-1/55/95 ఫ్లాట్ నెం-801 బ్లాక్-సి, క్లోవర్ మజెస్టిక్ టౌవర్స్, రిక్ బీచ్, పాండూరంగపురం, విశాఖపట్నం (అర్బన్), విశాఖపట్నం, ఆంధ్ర ప్రదేశ్ - 530003

Address:
S/O Jeyaraman, 7-5-1/55/95 Flat No-801 Block-C, Clover Majestic Towers, RK Beach, pandurangapuram, Visakhapatnam (Urban), Visakhapatnam, Andhra Pradesh - 530003

8595 9569 1565

J. Sai Pritham

வட்டம். காமராசர்

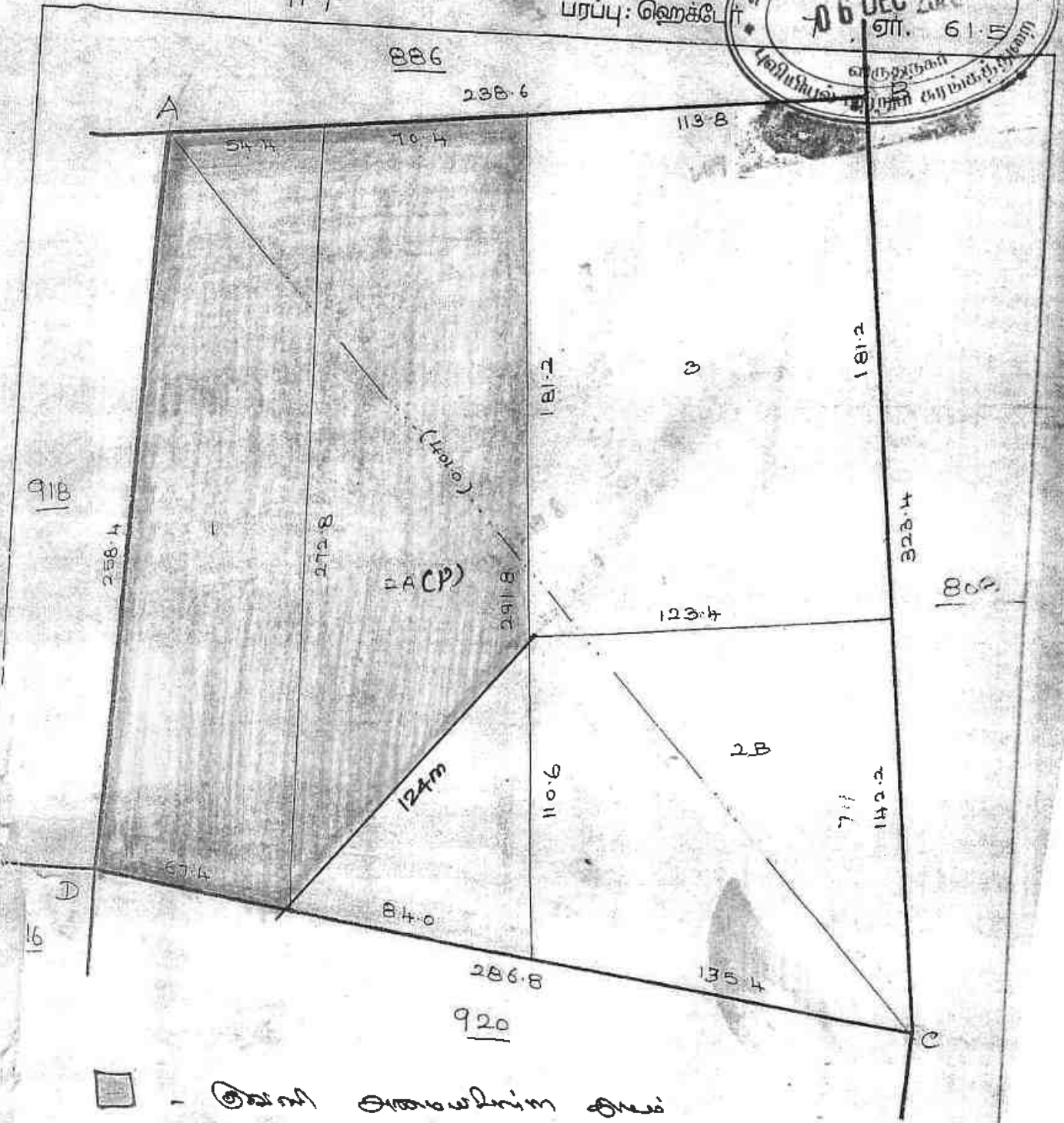
வட்டம். சீர்திருத்தர்

40 எண். 919

எண். 3

கிராமம்

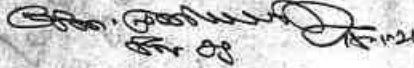
பரப்பு: ஹெக்டேர்



- இவ்வி அமைப்பின் கீழ்
 LEASE AREA.


G. RAVICHANDRAN, M.Sc., P.G.D.M.E.M.,
 MINING GEOLOGIST

RGP/MAS/197/2005/A
 VALID UP TO: 12.12.2025


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15.12.2005 5% Checked

J. Saravanan

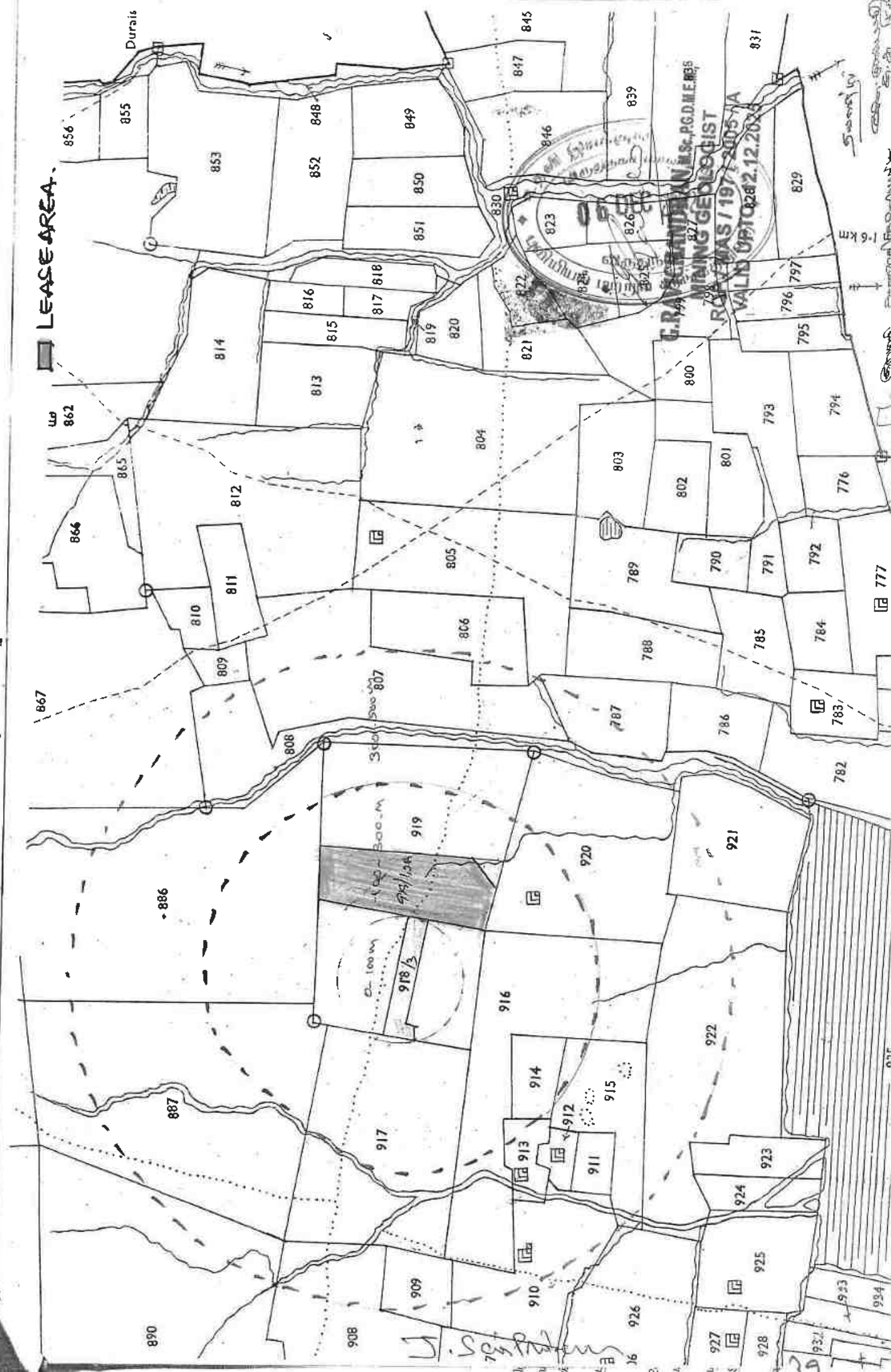
செதிப்பு: 4.12.2005
 12.5.25

138

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Handwritten notes in Malayalam script on the left side of the map.

Handwritten notes in Malayalam script at the top right of the page.





தமிழக அரசு

வருவாய்த் துறை

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



ாவட்டம் : விருதுநகர்

வட்டம் : வெம்பக்கோட்டை

ருவாய் கிராமம் : நதிக்குடி

பட்டா எண் : 3906

உரிமையாளர்கள் பெயர்

ஜெயராமன்

மகன்

சாய் பிரித்தம்



புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்டர் - ஏர்	ரூ - பை	ஹெக்டர் - ஏர்	ரூ - பை	ஹெக்டர் - ஏர்	ரூ - பை	
916	4A	1 - 1.00	2.03	--	--	--	--	2022/0103/26/141645- -- -- 03-01-2022
918	2	1 - 57.00	3.14	--	--	--	--	2022/0103/26/141645- -- -- 03-01-2022
919	1	1 - 63.00	3.26	7	--	--	--	2022/0103/26/141645- -- -- 03-01-2022
918	4	0 - 22.50	0.45	--	--	--	--	2022/0103/26/141645- -- -- 03-01-2022
918	3	0 - 81.00	1.62	7	--	--	--	2022/0103/26/141645- -- -- 03-01-2022
919	2A	2 - 17.00	4.35	--	--	--	--	2022/0103/26/141645- -- -- 03-01-2022
916	8	1 - 1.00	2.03	--	--	--	--	2022/0103/26/141645- -- -- 03-01-2022
918	1	2 - 2.50	4.05	--	--	--	--	2022/0103/26/141645- -- -- 03-01-2022
		10 - 45.00	20.93					

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 26/09/001/03906/110158 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

2. இத் தகவல்கள் 22-01-2022 அன்று 04:16:56 PM நேரத்தில் அச்சடிக்கப்பட்டது.

3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

J. Sain Bastan



MINES LAND PHOTO



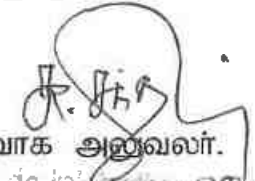
விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம், நதிக்குடி கிராமம் பட்டா புலனண்கள். 919/1,2A(P) ஆக மொத்தம் 3-33.50 ஹெக்டேரில் மட்டும் 5 வருடங்களுக்கு உதவிஇயக்குனர், புவியியல் மற்றும் சுரங்கத்துறை, விருதுநகர் மாவட்ட ஆட்சியர் அலுவலக வளாகம், விருதுநகர் அவர்களின் செயல்முறை ஆணை எண். கே.வி.1/33/2021-கனிமம் நாள் 19.10.2022ன் படி திரு. ஜெ. சாய்பிரீத்தம், த/பெ. ஜெயராமன் அவர்கள் முன் செய்துள்ளார்கள். மேற்படி இடம் உடைகல், ஜல்லி மற்றும் கிராவல் வெட்டி எடுப்பதற்கு அங்கீகரிக்கப்பட்ட இடம் என்பதை இதன் முலம் சான்றளிக்கிறேன்.

மேற்படி இடத்திற்கு செல்வதற்கு அணுகுபாதை வசதி உள்ளது என்றும் சான்றளிக்கிறேன்.

இடம்:

நாள்:

மனுதாரர் கையெப்பம்


 கிராம நிர்வாக அலுவலர்.
 Village Administration Officer
 Nathikuldi Angakulam Village
 Venuakottai Taluk

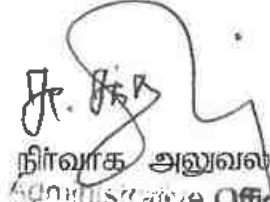
J. Sai Pritham



கிராம நிர்வாக அலுவலரின் சான்று

விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம், நதிகுடி கிராமம் பட்டா புலஎண்கள். 919/1,2A(P) ஆக மொத்தம் 3-33.50 ஹெக்டேரில் மட்டும் 5 வருடங்களுக்கு உதவிஇயக்குனர், புவியியல் மற்றும் சுரங்கத்துறை, விருதுநகர் மாவட்ட ஆட்சியர் அலுவலக வளாகம், விருதுநகர் அவர்களின் செயல்முறை ஆணை எண். கே.வி.1/33/2021-கனிமம் நாள் 19.10.2022ன் படி திரு. ஜெ. சாய்பிரீத்தம், த/பெ. ஜெயராமன் அவர்கள் மனு செய்துள்ளார்கள். இவர்கள் ஆரம்பிக்க உள்ள உடைகல், ஜல்லி மற்றும் கிராவல் குவாரி இடத்திற்கு செல்ல போதிய அணுகுபாதை வசதி உள்ளது மேலும் நிலத்தை சுற்றி 300மீட்டர் சுற்றளவில் குடியிருப்புகள், கோயில்கள், பள்ளிக்கூடம் ஏதும் இல்லை.

மேற்படி புல எண்கள். மேற்படி கிராம கணக்கு தடை ஆணை புத்தகத்தில் இடம் பெறவில்லை. மேலும் 10கி.மீ. சுற்றளவில் பிற மாவட்ட எல்லையோ, மாநில எல்லையோ இடம்பெறவில்லை. மேற்படி சான்று கனிமவளத்துறைக்கு அளிக்கும் வகைக்காக வழங்கப்படுகிறது.


கிராம நிர்வாக அலுவலர்.
Village Administrative Officer
Nathikudi-Kongankulam Village
Vembakottai Taluk

J. Sai Srikumar

Kv3/33/2022
123

அனுப்பநர்:

திருமதி. ரா.புஷ்பா, பி.எஸ்.சி.,
வருவாய் கோட்டாட்சியர்,
சாத்தூர்.

பெறுநர்:

மாவட்ட ஆட்சியர்,
விருதுநகர்.

ம.மு.அ2 / 0335 / 2022, நாள்: 31.01.2022

ஐயா,

பொருள் : கனிமம் மற்றும் சுரங்கம் - விருதுநகர் மாவட்டம் - வெம்பக்கோட்டை வட்டம் - நதிக்குடி கிராமம் - புல எண்கள். 918/3 (0.81.0), 919/1 (1.63.0), 919/21A (2.17.0) மொத்தம் 4.61.0 ஹெக்டேர் நிலங்களில் 10 வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கக் கோரியது - கருத்துரு அனுப்புதல் - தொடர்பாக.

- பார்வை: 1. விருதுநகர் மாவட்ட ஆட்சித்தலைவர் அவர்களின் கடிதம் எண் ந.க கேவி3/33/2022, நாள்: 10.01.2022.
2. வெம்பக்கோட்டை, வருவாய் வட்டாட்சியர் கடிதம் எண். ந.க. அ6/86/2022, நாள்: 19.01.2022.

விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம், நதிக்குடி கிராமம், புல எண்கள். 918/3 (0.81.0), 919/1 (1.63.0), 919/2A (2.17.0) மொத்தம் 4.61.0 ஹெக்டேர் பரப்பு நிலத்தில் 10 வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கக் கோரி திரு.சாய்பிரித்தம், த/பெ. ஜெயராமன் என்பவர் மனு செய்துள்ளது தொடர்பாக, எனதறிக்கையினை கீழ்க்கண்டவாறு சமர்ப்பிக்கிறேன்.

1. நில உரிமை:-

மனுதாரர் குவாரி செய்ய உரிமம் வழங்கக் கோரும் இடம் வெம்பக்கோட்டை வட்டம், நதிக்குடி கிராமம், புல எண்கள். 918/3 (0.81.0), 919/1 (1.63.0), 919/2A (2.17.0) மொத்தம் 4.61.0 ஹெக்டேர் நிலங்கள் மட்டா எண். 3906 இல் ஜெயராமன் மகன் சாய்பிரித்தம் பெயரில் கிராமக் கணக்கில் தாக்கலாகியுள்ளது.

2. ஆட்சேபணை:-

மேற்படி குவாரி அமைவது குறித்து நதிக்குடி கிராமப் பொது மக்களிடம் "அ1" நோட்டீஸ் 31.12.2021 அன்று பிரசுரம் செய்யப்பட்டதில் ஆட்சேபணை ஏதும் வரப்பெறவில்லை என கிராம நிர்வாக அலுவலர் அறிக்கை செய்துள்ளார்.

3. நான்குமால் விபரம்:-புல எண். 918/3 (0.81.0):-

வடக்கு - புல எண். 918/1 - மனுதாரருக்கு சொந்தமான நிலம்,

J. Sairathan

தெற்கு - புல எண். 918/4, 2 - மனுதாரருக்கு சொந்தமான நிலம்,
கிழக்கு - புல எண். 919/1 - மனுதாரருக்கு சொந்தமான நிலம்,
மேற்கு - புல எண். 917/2 - தவமணி நிலம், 917/4 - யோகேஷ் நிலம்,

புல எண். 919/1 (1.60.0):-

வடக்கு - புல எண். 886/9, 3 - ராதாகிருஷ்ணன் என்பவருக்கு சொந்தமான குவாரி,
தெற்கு - புல எண். 920/1A1, 1A2, 1A3 - மனுதாரரின் தந்தைக்குச் சொந்தமான குவாரி
கிழக்கு - புல எண். 919/2A - மனுதாரரின் நிலம்,
மேற்கு - புல எண். 918/1,2 - மனுதாரருக்கு சொந்தமான நிலம், 918/3-மனுதாரரின் செயல்படாத குவாரி,

புல எண். 919/2A (2.17.0):-

வடக்கு - புல எண். 886/9,3 - ராதாகிருஷ்ணன் என்பவருக்கு சொந்தமான குவாரி,
தெற்கு - புல எண். 920/1B1, 1B2, 3 - மனுதாரரின் தந்தைக்குச் சொந்தமான குவாரி
கிழக்கு - புல எண். 919/3, 2B- மனுதாரருக்கு சொந்தமான நிலம்,
மேற்கு - புல எண். 919/1 - மனுதாரருக்கு சொந்தமான நிலம்,

மனுதாரர் குவாரி உரிமம் வழங்கக் கோரும் புலத்திற்கு 300 மீ சுற்றளவில் குடியிருப்பு பகுதிகள், பள்ளி மற்றும் கல்லூரிகள் எதுவும் இல்லை. 50 மீ தொலைவில் சாலைகள், இரயில் இருப்பு பாதைகள், கோவில்கள் மற்றும் புராதானச் சின்னங்கள், நீர்நிலை ஆதாரங்கள், வேறு நிரந்தர அமைப்புகள் எதுமில்லை. மேலும் 500 மீட்டர் சுற்றளவிற்குள் மனுதாரர் உரிமம் கோரியுள்ள கூட்டுப்புலத்திற்கு வடக்கே சங்கமநாயக்கர் மகன் ராதாகிருஷ்ணன் என்பவருக்கு சொந்தமான செயல்படும் குவாரியும், மேற்கே மனுதாரருக்கு சொந்தமான செயல்படாத குவாரியும், தெற்கே மனுதாரரின் தந்தையார் திரு.ஜெயராமன், த/பெ. பெருமாள்சாமி என்பவருக்கு சொந்தமான செயல்படும் குவாரியும் உள்ளது.

மேற்படி நிலத்தில் உடைகல் மற்றும் கிராவல் குவாரி செய்வதால் அருகிலுள்ள விவசாய மற்றும் பட்டா நிலங்களுக்கு பாதிப்பு இல்லை. மேலும் மனுதாரர் குவாரி உரிமம் வழங்கக் கோரும் கூட்டுப்புலத்திற்கு அருகில் புறம்போக்கு, பட்டா ஓடைகள் எதுமில்லை. மனுதாரர் குவாரி வழங்க உரிமம் கோரும் புல எண்கள் அனைத்தும் நதிக்குடி பஞ்சாயத்திற்கும், வெம்பக்கோட்டை ஊராட்சி ஒன்றியத்திற்கும் உட்பட்டது.

எனவே, வெம்பக்கோட்டை வட்டம், நதிக்குடி கிராமம், புல எண்கள். 918/3 (0.81.0), 919/1 (1.63.0), 919/21A (2.17.0) மொத்தம் 4.61.0 ஹெக்டேர் பரப்பு நிலத்தில் மனுதாரர் திரு.சாய்பிரித்தம், த/பெ. ஜெயராமன் என்பவருக்கு பத்து வருடங்களுக்கு தமிழ்நாடு சிறுகனிம டயன்பாட்டு விதிகளுக்கு உட்பட்டு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்க புல எண்.919/1, 2A இன் குறுக்கே ஒரு நடைபாதையினை மறிக்காது மாற்று ஏற்பாடு செய்ய வேண்டும் என்ற நிபந்தனையுடன் பரிந்துரை

செய்கிறேன். இத்தடன் புலத்தணிக்கை ஆழிக்கை, கிராம கணக்கு ஆவணங்களின் நகல், 10(1), புலப்படச்சுவடி நகல், கிராம வரைபடம், "அ1" நோட்டீஸ் ஆகியவைகளை இணைத்து அனுப்பியுள்ளேன் என்பதைப் பணிவுடன் தெரிவித்துக்கொள்கிறேன்.



இணைப்பு: மேற்கண்டவாறு.

ஓம்/ரா.புஷ்பா,
வருவாய் கோட்டாட்சியர்,
சாத்தூர்.

/உத்தரவுபடி/


31/1/2022
நேர்முக உதவியாளர்



J. Sairaj

புலத்தணிக்கைக்குறிப்பு



புலத்தணிக்கை அலுவலர் பெயர் மற்றும் பதவி	திருமதி.ரா.புஷ்பா, வருவாய் கோட்டாட்சியர், சாத்தூர்.
தணிக்கை செய்த இடம்	வெம்பக்கோட்டை வட்டம், நதிக்குடி கிராமம்
புல எண்கள்	புல எண்கள். 918/3 (0.81.0), 919/1 (1.63.0), 919/21A (2.17.0) மொத்தம் 4.61.0 ஹெக்டேர்ஸ்
தணிக்கை நாள்	29.01.2022
புலத்தணிக்கையின் நோக்கம்	10 வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கக் கோரியது - தொடர்பாக.

விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம், நதிக்குடி கிராமம், புல எண்கள். 918/3 (0.81.0), 919/1 (1.63.0), 919/21A (2.17.0) மொத்தம் 4.61.0 ஹெக்டேர் பரப்பு நிலத்தில் 10 வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கக் கோரி திரு.சாய்பிரித்தம், த/பெ. ஜெயராமன் என்பவர் மனு செய்துள்ளது தொடர்பாக, இன்று (29.01.2022) புலத்தணிக்கை செய்யப்பட்டது. புலத்தணிக்கையின்போது வருவாய் வட்டாட்சியர், மண்டல துணை வட்டாட்சியர், குறுவட்ட ஆய்வாளர், குறுவட்ட அளவீர் மற்றும் கிராம நிர்வாக அலுவலர் ஆகியோர் உடனிருந்தனர்.

1. நில உரிமை:-

மனுதாரர் குவாரி செய்ய உரிமம் வழங்கக் கோரும் இடம் வெம்பக்கோட்டை வட்டம், நதிக்குடி கிராமம், புல எண்கள். 918/3 (0.81.0), 919/1 (1.63.0), 919/2A (2.17.0) மொத்தம் 4.61.0 ஹெக்டேர் நிலங்கள் மட்டா எண். 3906 இல் ஜெயராமன் மகன் சாய்பிரித்தம் பெயரில் கிராமக் கணக்கில் தாக்கலாகியுள்ளது.

2. ஆட்சேபணை:-

மேற்படி குவாரி அமைவது குறித்து நதிக்குடி கிராமப் பொது மக்களிடம் "அ1" நோட்டீஸ் 31.12.2021 அன்று பிரசுரம் செய்யப்பட்டதில் ஆட்சேபணை ஏதும் வரப்பெறவில்லை என கிராம நிர்வாக அலுவலர் அறிக்கை செய்துள்ளார்.

3. நான்குமால் விபரம்:-

புல எண். 918/3 (0.81.0):-

- வடக்கு - புல எண். 918/1 - மனுதாரருக்கு சொந்தமான நிலம்,
- தெற்கு - புல எண். 918/4, 2 - மனுதாரருக்கு சொந்தமான நிலம்,
- கிழக்கு - புல எண். 919/1 - மனுதாரருக்கு சொந்தமான நிலம்,

J. Sai Ramesh

மேற்கு - புல எண். 917/2 - தவமணி நிலம், 917/4 - யோகேஷ் நிலம்,

புல எண். 919/1 (1.60.0):-

வடக்கு - புல எண். 886/9, 3 - ராதாகிருஷ்ணன் என்பவருக்கு சொந்தமான குவாரி,

தெற்கு - புல எண். 920/1A1, 1A2, 1A3 - மனுதாரரின் தந்தைக்குச் சொந்தமான குவாரி

கிழக்கு - புல எண். 919/2A - மனுதாரரின் நிலம்;

மேற்கு - புல எண். 918/1,2 - மனுதாரருக்கு சொந்தமான நிலம், 918/3 - மனுதாரரின் செயல்படாத குவாரி,

புல எண். 919/2A (2.17.0):-

வடக்கு - புல எண். 886/9,3 - ராதாகிருஷ்ணன் என்பவருக்கு சொந்தமான குவாரி,

தெற்கு - புல எண். 920/1B1, 1B2, 3 - மனுதாரரின் தந்தைக்குச் சொந்தமான குவாரி

கிழக்கு - புல எண். 919/3, 2B - மனுதாரருக்கு சொந்தமான நிலம்,

மேற்கு - புல எண். 919/1 - மனுதாரருக்கு சொந்தமான நிலம்,

மனுதாரர் குவாரி உரிமம் புலத்திற்கு 300 மீ சுற்றளவில் குடியிருப்பு பகுதிகள், பள்ளி மற்றும் கல்லூரிகள் ஏதுவும் இல்லை. 50 மீ சாலைகள், இரயில் இருப்பு பாதைகள், கோவில்கள் மற்றும் புராதானச் சின்னங்கள், நீர்நிலை ஆதாரங்கள், வேறு நிரந்தர அமைப்புகள் ஏதுமில்லை. மேலும் 500 மீட்டர் சுற்றளவிற்குள் மனுதாரர் உரிமம் கோரியுள்ள கூட்டுப்புலத்திற்கு வடக்கே சங்கமநாயக்கர் மகள் ராதாகிருஷ்ணன் என்பவருக்கு சொந்தமான செயல்படும் குவாரியும், மேற்கே மனுதாரருக்கு சொந்தமான செயல்படாத குவாரியும், தெற்கே மனுதாரரின் தந்தையார் ஜெயராமன், த/பெ. பெருமாள்சாமி என்பவருக்கு சொந்தமான செயல்படும் குவாரியும் உள்ளது.

மேற்படி நிலத்தில் உடைகல் மற்றும் கிராவல் குவாரி செய்வதால் அருகிலுள்ள விவசாய மற்றும் பட்டா நிலங்களுக்கு பாதிப்பு இல்லை. மேலும் மனுதாரர் குவாரி உரிமம் கோரும் கூட்டுப்புலத்தில் அருகில் புறம்போக்கு, பட்டா ஓடைகள் ஏதுமில்லை. மனுதாரர் குவாரி உரிமம் கோரும் புல எண்கள் அனைத்தும் நதிக்குடி பஞ்சாயத்திற்கும், வெம்பக்கோட்டை ஊராட்சி ஒன்றியத்திற்கும் உட்பட்டது.

எனவே, வெம்பக்கோட்டை வட்டம், நதிக்குடி கிராமம், புல எண்கள். 918/3 (0.81.0), 919/1 (1.63.0), 919/21A (2.17.0) மொத்தம் 4.61.0 ஹெக்டேர் பரப்பு நிலத்தில் மனுதாரர் திரு.சாய்யிரித்தம், த/பெ. ஜெயராமன் என்பவருக்கு 10 வருடங்களுக்கு தமிழ்நாடு சிறுகணிம பயன்பாட்டு விதிகளுக்கு உட்பட்டு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்க மாவட்ட ஆட்சியர் அவர்களுக்கு கடித வரைவு அனுப்பலாம்.


வருவாய் கோட்டாட்சியர்,
வருவாய் கோட்டாட்சியர்,
சாத்தூர்.
சாத்தூர்.

பெறுநர்

திரு.ச.தனராஜ்,
வருவாய் வட்டாட்சியர்,
வெம்பக்கோட்டை.

000590

ச/11/22

பெறுநர்

மாவட்ட அட்சியர்
விருதுநகர் மாவட்டம்
விருதுநகர்

06 DEC 2022

உரிய வழிமுறைப்பாக விருதுநகர்
வருவாய் கோட்டாட்சியர் அலுவலகம்
சாத்தூர்.

ந.க.அ6/86/2022, நாள்:19.01.2021



கனிமம் மற்றும் சுரங்கம் - விருதுநகர் மாவட்டம் - வெம்பக்கோட்டை வட்டம் - நதிக்குடி கிராமம் - புல எண்கள்.918/3 (0.81.0), 919/1 (1.63.0), 919/2A (2.17.0) மொத்தம் 4.61.0 ஹெக்டர் பரப்பு நிலத்தில் 10 வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கக் கோரியுள்ளது - கருத்துரு அனுப்பதல் - தொடர்பாக.

பார்வை-

1. உதவி இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, விருதுநகர் கடிதம் ந.க.கே.வி1/33/2022, நாள்:10.01.2022.
2. உதவி இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, விருதுநகர் கடிதம் ந.க.கே.வி1/1228/2021, நாள்:10.01.2022.
3. சாத்தூர் வருவாய் கோட்டாட்சியர் அவர்களின் கடிதம் எண்.ந.க.அ2/335/2022, நாள்:11.01.2022.
4. நதிக்குடி கிராம நிர்வாக அலுவலர் அறிக்கை நாள்:15.01.2022
5. ஆலங்குளம் வருவாய் ஆய்வாளர் அறிக்கை. நாள்: 15.01.2022.
6. வெம்பக்கோட்டை சார் ஆய்வாளர் அறிக்கை நாள்: 15.01.2022.
7. மண்டல துணை வட்டாட்சியர் அறிக்கை. நாள்:17.01.2022.

விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம், நதிக்குடி கிராமம் புல எண்கள்.918/3 (0.81.0), 919/1 (1.63.0), 919/2A (2.17.0) மொத்தம் 4.61.0 ஹெக்டர் பரப்பு நிலத்தில் 10 வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கக் கோரி திருவில்லிபுத்தூர் வட்டம் மற்றும் கிராமத்தைச் சேர்ந்த திரு.சாய்மீரித்தம் த/பெ.ஜெயராமன் என்பவர் விண்ணப்பம் செய்துள்ளது தொடர்பாக 17.12.2022 அன்று புலத்தணிக்கை செய்து ஊதறிக்கையினை கீழ்க்கண்டவாறு சமர்ப்பிக்கிறேன்.

J. Sairam

1.நில உரிமை:

மனுதாரர் குவாரி செய்ய உரிமம் வழங்கக் கோரும் இடம் வெம்பக்கோட்டை வட்டம், நதிக்குடி கிராமம், புல எண்கள். 918/3 (0.81.0), 919/1 (1.63.0), 919/2A (2.17.0) மொத்தம் 4.61.0 ஹெக் நிலங்கள் மட்டா எண்.3906-ல் ஜெயராமன் மகன் சாய்பிரித்தம் என்ற பெயரில் கிராமக் கணக்கில் தாக்கலாகியுள்ளது.

2. நில அமைப்பு:

மனுதாரர் குவாரி உரிமம் கோரும் கூட்டுப்புலத்திற்கு 300 மீ சுற்றளவில் குடியிருப்பு பகுதிகள், பள்ளி மற்றும் கல்லூரிகள் ஏதுமில்லை. 50 மீட்டர் சுற்றளவில் சாலைகள், இரயில் இருப்பு பாதைகள், கோவில்கள் மற்றும் புராணச் சின்னங்கள், மின்கம்பிகள், நீர் நிலை ஆதாரங்கள், வேறு நிரந்தர அமைப்புகள் ஏதுமில்லை.

மேலும் 500 மீ சுற்றளவிற்குள் மனுதாரர் உரிமம் கோரியுள்ள கூட்டுப்புலத்திற்கு வடக்கே சங்கம நாயக்கர் மகன் ராதாகிருஷ்ணன் என்பவருக்குச் சொந்தமான என்பவருக்குச் சொந்தமான செயல்படும் குவாரியும், மேற்கே மனுதாரருக்குச் சொந்தமான செயல்படாத குவாரியும், தெற்கே மனுதாரரின் தந்தையார் ஜெயராமன் த/பெ.பெருமாள்சாமி என்பவருக்குச் சொந்தமான செயல்படும் குவாரியும் உள்ளது.

மேற்படி நிலத்தில் உடைகல் மற்றும் கிராவல் குவாரி செய்வதால் அருகிலுள்ள விவசாய மற்றும் மட்டா நிலங்களுக்கு பாதிப்பு இல்லை. மேலும் மனுதாரர் குவாரி உரிமம் கோரும் கூட்டுப்புலத்தில் அருகில் புறம்போக்கு, மட்டா ஓடைகள் ஏதுமில்லை

மனுதாரர் குவாரி உரிமம் கோரும் புல எண்கள் அனைத்தும் நதிக்குடி பஞ்சாயத்திற்கும் வெம்பக்கோட்டை ஊராட்சி ஒன்றியத்திற்கும் உட்பட்டது.

4.ஆட்சேபனை:

மேற்படி குவாரி அமைவது குறித்து பொது மக்களிடம் கடந்த 31.12.2021 அன்று "A1" நோட்டீஸ் பிரச்சாரம் செய்யப்பட்டதில் ஆட்சேபனை ஏதும் வரப்பெறவில்லை. பார்வை(2)-ல் காணும் கடிதத்தில், ஏற்கெனவே இதே புல எண்களுக்கு மனுதாரரின் தாயார் பெயரில் விண்ணப்பம் செய்ததன் அடிப்படையில் "A1" நோட்டீஸ் விளம்பரப்படுத்தப்பட்டுள்ளது.

5. நான்குமால் விபரம்:

1. மேற்படி புலங்களுக்கு நான்குமால் விபரம்:

1.புல எண். 918/3 (0.81.0)-க்கு நான்கு மால் விபரம்:

வடக்கு : புல எண்:918/1 மனுதாரருக்கு சொந்தமான நிலம்
தெற்கு : புல எண்:918,4,2 மனுதாரருக்கு சொந்தமான நிலம்
கிழக்கு : புல எண்:919/1 மனுதாரருக்கு சொந்தமான நிலம்
மேற்கு : புல எண்.917/2, தவமணி நிலம்,
புல எண்.917/4, யோகேஷ் நிலம்.

2.புல எண். 919/1 (1.63.0)-க்கு நான்கு மால் விபரம்:

வடக்கு : புல எண்:886/9, 3 ராதா கிருஷ்ணன் என்பவருக்கு
சொந்தமான குவாரி.

தெற்கு : புல எண்:920/1A1,1A2,1A3 மனுதாரரின் தந்தைக்குச்
சொந்தமான குவாரி/

கிழக்கு : புல எண்:919/2A மனுதாரரின் நிலம்

மேற்கு : புல எண்:918/1,2 மனுதாரருக்கு சொந்தமான நிலம்,
புல எண்:918/3 மனுதாரரின் செயல்படாத குவாரி



3.புல எண். 919/2A (2.17.0)-க்கு நான்கு மால் விபரம்:

வடக்கு : புல எண்:886/9,3 ராதா கிருஷ்ணன் என்பவருக்கு
சொந்தமான குவாரி.

தெற்கு : புல எண்:920/1B1,1B2, 3 மனுதாரரின் தந்தைக்குச்
சொந்தமான நிலம்

கிழக்கு : புல எண்:919/3, 2B மனுதாரருக்கு சொந்தமான நிலம்

மேற்கு : புல எண்:919/1 மனுதாரருக்கு சொந்தமான நிலம்,

பரிந்துரை:

மனுதாரர் சமர்ப்பித்துள்ள ஆவணங்களின்படியும், சம்பந்தப்பட்ட கிராம நிர்வாக அலுவலர், வருவாய் ஆய்வாளர், சார் ஆய்வாளர் மற்றும் வெம்பக்கோட்டை மண்டல துணை வட்டாட்சியரின் பரிந்துரையின்பேரிலும், புலத்தணிக்கையின் அடிப்படையிலும், திரு.சாய்மிரித்தம் த/பெ.ஜெயராமன் என்பவருக்கு புல எண்கள்:918/3 (0.81.0), 919/1 (1.63.0), 919/2A (2.17.0) மொத்தம் 4.61.0 ஹெக்டர் பரப்பு நிலத்தில் 10 வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்க பரிந்துரை செய்கிறேன் என்பதை பணிவுடன் தெரிவித்துக்கொள்கிறேன்.
இணைப்பு : தொடர்புடைய ஆவணங்கள்.

-/உத்தரவுப்படி/-

ஓம்/-ச.துளராஜ்,
வட்டாட்சியர்,
வெம்பக்கோட்டை.
19/11/22
வட்டாட்சியருக்காக.

19/11/22

J. Sai Pritham



**விருதுநகர் மாவட்டம் வெம்பக்கோட்டை வருவாய் வட்டாரத்தினால்
புலத்தணிக்கை அறிக்கை**



1.	குத்தகை உரிமம் கோரிய விண்ணப்பம் பெறப்பட்ட தேதி	:	10.01.2022.															
2.	அ) புலத்தணிக்கை செய்த நாள்	:	17.01.2022.															
	ஆ) புலத்தணிக்கையின் போது உடனிருந்த அலுவலர்கள் பற்றிய விவரம்	:	நதிக்குடி கிராம நிர்வாக அலுவலர் மற்றும் ஆலங்குளம் வருவாய் ஆய்வாளர்.															
3.	குத்தகை உரிமம் கோரும் விண்ணப்பதாரரின் பெயர் மற்றும் முகவரி	:	திரு.சாய்பிரித்தம், த/பெ.ஜெயராமன், எண்.81, N.G.O.காலனி, திருவில்லிபுத்தூர் வட்டம்.															
4.	குத்தகை உரிமம் கோரும் கனிமங்களின் பெயர்	:	உடைகல், கிராவல்															
5.	குத்தகை உரிமம் கோரும் கால அளவு	:	10 (பத்து ஆண்டுகள்)															
6.	குத்தகை உரிமம் கோரும் இடம் அமைந்துள்ளது பற்றிய விவரம்	:																
வ. எண்	வட்டம்	கிராமம்	புல எண்கள்	மொத்த பரப்பு (ஹெக்ட)	குத்தகை உரிமம் கோரும் பரப்பு (ஹெக்ட)	வகைப்பாடு												
1	வெம்பக்கோட்டை	நதிக்குடி	918/3 919/1 919/2A	(0.81.0) (1.63.0) (2.17.0)	4.61.0	பட்டா நிலம்												
			மொத்தம்	4.61.0	4.61.0													
7.	அ) குத்தகை உரிமம் கோரும் புல எண்கள், விண்ணப்பதாரரின் பெயரில் பட்டா நிலங்களாக இருப்பின் அது பற்றிய விவரம்	:	நதிக்குடி கிராமம் பட்டா எண். 3906 ஆனது ஜெயராமன் மகன் சாய்பிரித்தம் என்பவர் பெயரில் கிராமக் கணக்கில் தாக்கலாகியுள்ளது.															
	ஆ) பட்டாதாரர்/டமிருந்து குத்தகை ஒப்பந்தம் பெறப்பட்டிருப்பின் அதுபற்றிய விவரம்	:	இல்லை.															
	இ) குத்தகை கோரும் புல எண்கள் தாழ்த்தப்பட்டோர் / பழங்குடியினருக்கு ஒதுக்கீட்டின் அடிப்படையில் பட்டா வழங்கப்பட்டிருப்பின் அதுபற்றிய விவரம்	:	இல்லை.															
8.	குத்தகை உரிமம் கோரும் புல எண்களின் நான்கு எல்லைகள்.	:	<table border="1"> <thead> <tr> <th>புல எண்</th> <th>வடக்கு</th> <th>தெற்கு</th> <th>கிழக்கு</th> <th>மேற்கு</th> </tr> </thead> <tbody> <tr> <td>918/3 919/1</td> <td>918/1 886/9,3</td> <td>918/4,2 920/1A1, 920/1A2, 920/1A3</td> <td>919/1 919/2A</td> <td>917/2,4 918/1,2 918/3</td> </tr> <tr> <td>919/2A</td> <td>886/9,3</td> <td>920/1B1, 920/1B2, 3</td> <td>919/3,2B</td> <td>919/1</td> </tr> </tbody> </table>	புல எண்	வடக்கு	தெற்கு	கிழக்கு	மேற்கு	918/3 919/1	918/1 886/9,3	918/4,2 920/1A1, 920/1A2, 920/1A3	919/1 919/2A	917/2,4 918/1,2 918/3	919/2A	886/9,3	920/1B1, 920/1B2, 3	919/3,2B	919/1
புல எண்	வடக்கு	தெற்கு	கிழக்கு	மேற்கு														
918/3 919/1	918/1 886/9,3	918/4,2 920/1A1, 920/1A2, 920/1A3	919/1 919/2A	917/2,4 918/1,2 918/3														
919/2A	886/9,3	920/1B1, 920/1B2, 3	919/3,2B	919/1														

J. Sairaj

9.	குத்தகை உரிமம் கோரும் புல எண்களுக்கு ஏற்கனவே குத்தகை உரிமம் வழங்கப்பட்டிருப்பின் அது பற்றிய விவரம்.	: இல்லை.
10.	குத்தகை உரிமம் கோரும் புல எண்களுக்கு அருகில் பாதுகாப்பு இடைவெளிக்குள் அமைந்துள்ள நிரந்தர அமைப்புகள் ஒதுக்கப்பட்ட வேண்டிய பாதுகாப்பு இடைவெளி பற்றிய விவரம்	: மேற்படி புல எண்களுக்கு அருகில் உள்ள பட்டா நிலங்களுக்கு, ஓடைகளுக்கு போதிய பாதுகாப்பு இடைவெளி விட வேண்டும்.
11.	அ) குத்தகை உரிமம் கோரும் புல எண்களிலிருந்து 300 மீட்டர் சுற்றளவுக்குள் குடியிருப்பு பகுதிகள்/ அங்கீகரிக்கப்பட்ட வீட்டுமனைப்பிரிவுகள் மற்றும் புராதனச் சின்னங்கள் அமைந்துள்ள விவரம்	: 300 மீட்டர் சுற்றளவுக்குள் குடியிருப்பு பகுதிகள் / அங்கீகரிக்கப்பட்ட வீட்டுமனைப் பிரிவுகள் மற்றும் புராதனச் சின்னங்கள் ஏதும் இல்லை.
	ஆ) குத்தகை உரிமம் கோரும் பகுதிக்கு பாதை வசதி உள்ளது பற்றிய விவரம்	: பாதை வசதி உள்ளது.
12.	குத்தகை உரிமம் கோரும் புல எண்கள் அமைந்துள்ள கிராமம், மலையிடை பாதுகாப்பு குழுமத்தின் கீழ் வருவது மற்றும் தடையில்லா சான்று பெற வேண்டியது பற்றிய விவரம்	: -இல்லை-
13.	குத்தகை உரிமம் கோரும் பகுதி வனவிலங்கு சரணாலயத்திலிருந்து அமைந்துள்ள தூரம், பெறப்பட வேண்டிய தடையில்லா சான்று பற்றிய விவரம்.	: -இல்லை-
14.	குத்தகை கோரும் புலஎண்களில் தகுந்த அனுமதியின்றி ஏற்கனவே கனிமங்கள் எடுக்கப்பட்டு அபராதம் விதிக்கப்பட்டிருப்பின் அது பற்றிய விவரம்.	: -இல்லை-
15.	அ) குத்தகை உரிமம் கோரும் புலங்களின் பேரில் நிலம் கையகப்படுத்தும் நடவடிக்கைகள் இருப்பின் அது பற்றிய விவரம்.	: -இல்லை-
	ஆ) குத்தகை உரிமம் கோரும் புல எண்களின் பேரில் நீதிமன்றத்தில் வழக்குகள் இருப்பின் அதுபற்றிய விவரம்.	: -இல்லை-

J. Sani Paulson



16.	கிராம நிர்வாக அலுவலரின் வாக்குமூலம் பெறப்பட்டுள்ளதா?	: கிராம நிர்வாக அலுவலர் வாக்குமூலம் அளித்துள்ளார்.
17.	குத்தகை உரிமம் வழங்குவது தொடர்பாக "அ1" நோட்டீஸ் விளம்பரம் செய்யப்பட்டு பொது மக்களிடமிருந்து ஆட்சேபனை ஏதும் பெறப்பட்டுள்ளதா?	: "அ1" நோட்டீஸ் விளம்பரம் பிரசுரம் செய்யப்பட்டு பொது மக்களிடமிருந்து ஆட்சேபனை ஏதும் பெறப்படவில்லை.
18.	குத்தகை உரிமம் கோரும் புல எண்களின் பேரில் வருவாய்துறை பரிந்துரை செய்கின்றதா?	: ஆம்

19) குத்தகை உரிமம் கோரும் விண்ணப்பத்தின் பேரில் வெம்பக்கோட்டை வருவாய் வட்டாட்சியரின் அறிக்கையும் பரிந்துரையும்.

திரு.சாய்விசித்தம் த/பெ.ஜெயராமன் என்பவர் விண்ணப்பித்துள்ள புல எண்கள் பட்டா நிலங்கள் என்ற அடிப்படையிலும் நதிக்குடி கிராம நிர்வாக அலுவலர் மற்றும் ஆலங்குளம் குறுவட்ட வருவாய் ஆய்வாளர் ஆகியோர் மனுதாரர் நிறுவனத்திற்கு குத்தகை உரிமம் வழங்க பரிந்துரை செய்துள்ளதன் அடிப்படையிலும், மனுதாரர் நிறுவனத்தாருக்கு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959, விதி 19 மற்றும் 20-ன் கீழ் கீழ்க்கண்ட நிபந்தனைகளுக்கு உட்பட்டு பத்தாண்டுகளுக்கு குத்தகை உரிமம் வழங்கலாம்.

- 1) அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5மீ பாதுகாப்பு இடைவெளி விட வேண்டும்.
- 2) EB Line மற்றும் கிணற்றுக்கு 50மீ பாதுகாப்பு இடைவெளி விட வேண்டும்.
- 3) புல எண்களுக்கு அருகில் உள்ள குவாரிகளுக்கு போதிய பாதுகாப்பு தூரம் விட வேண்டும்.
- 4) குவாரி கழிவுகளை குத்தகை உரிமம் வழங்கப்படும் பகுதிக்கு உள்ளேயே இருப்பு வைக்க வேண்டும்.
- 5) வெடிமருந்தினை விதிகளின் படி பாதிப்பு ஏற்படா வண்ணம் பயன்படுத்த வேண்டும்.
- 6) சுரங்கத்திட்டம் மற்றும் சுற்றுச்சூழல் தடையில்லாச் சான்று குத்தகை உரிமம் வழங்குவதற்கு முன் சமர்ப்பிக்க வேண்டும்.

வருவாய் வட்டாட்சியர்,
வெம்பக்கோட்டை

J. Sai Pritham.

வெம்பக்கோட்டை வருவாய் வட்டாட்சியர் அவர்களுக்கு மண்டல துணை வட்டாட்சியரின் அறிக்கை பணிநிறுத்தப்படுகிறது.

17 JAN 2022

06 DEC 2022

விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம், நதிக்குடி புல எண்கள் 918/3 (0.81.0), 919/1 (1.63.0), 919/2A (2.17.0) மொத்தம் 4.61.0 ஹெக்டர் பரப்பு நிலத்தில் 10 வருடங்களுக்கு உடைகல் மற்றும் கிராமக் குவாரி உரிமம் வழங்கக் கோரி திருவில்லிபுத்தூர் வட்டம் மற்றும் கிராமத்தைச் சேர்ந்த திரு.சாய்பிரித்தம் த/பெ.ஜெயராமன் என்பவர் விண்ணப்பம் செய்துள்ளார். மனுதாரர் கோரிக்கை தொடர்பாக 17.01.2022 அன்று புலத்தணிக்கை செய்து னாதறிக்கையினை கீழ்க்கண்டவாறு சமர்ப்பிக்கிறேன்.

வெம்பக்கோட்டை வட்டம், நதிக்குடி கிராமம் புல எண்கள். புல எண்கள். 918/3 (0.81.0), 919/1 (1.63.0), 919/2A (2.17.0) ஆனது மட்டா எண்.3906-ல் ஜெயராமன் மகன் சாய்பிரித்தம் என நதிக்குடி கிராம கணக்கில் தாக்கலாகியுள்ளது

மேற்கண்ட புல எண்களுக்கு நான்குமால் விபரம்:

மேற்படி புலங்களுக்கு நான்குமால் விபரம்:

1.புல எண். 918/3 (0.81.0)-க்கு நான்கு மால் விபரம்:

- வடக்கு : புல எண்:918/1 மனுதாரருக்கு சொந்தமான நிலம்
- தெற்கு : புல எண்:918,4,2 மனுதாரருக்கு சொந்தமான நிலம்
- கிழக்கு : புல எண்:919/1 மனுதாரருக்கு சொந்தமான நிலம்
- மேற்கு : புல எண்:917/2, தலமணி நிலம்,
புல எண்:917/4, யோகேஷ் நிலம்.

2.புல எண். 919/1 (1.63.0)-க்கு நான்கு மால் விபரம்:

- வடக்கு : புல எண்:386/9, 3 ராதா கிருஷ்ணன் என்பவருக்கு சொந்தமான குவாரி.
- தெற்கு : புல எண்:920/1A1,1A2,1A3 மனுதாரரின் தந்தைக்குச் சொந்தமான குவாரி
- கிழக்கு : புல எண்:919/2A மனுதாரரின் நிலம்
- மேற்கு : புல எண்:918/1,2 மனுதாரருக்கு சொந்தமான நிலம்,
புல எண்:918/3 மனுதாரரின் செயல்படாத குவாரி

J. Sai Pritham.

3.புல எண். 919/2A (2.17.0)-க்கு நான்கு மால் விபரம்:

வடக்கு : புல எண்:886/9,3 ராதா கிருஷ்ணன் என்பவருக்கு
சொந்தமான குவாரி.

தெற்கு : புல எண்:920/1B1,1B2, 3 மனுதாரரின் தந்தைக்குச்
சொந்தமான நிலம்

கிழக்கு : புல எண்:919/3, 2B மனுதாரருக்கு சொந்தமான நிலம்

மேற்கு : புல எண்:919/1 மனுதாரருக்கு சொந்தமான நிலம்,

மனுதாரர் குவாரி உரிமம் கோரும் கூட்டுப்புலத்திற்கு 300 மீ சுற்றளவில் குடியிருப்பு பகுதிகள், பள்ளி மற்றும் கல்லூரிகள் ஏதுமில்லை. 50 மீட்டர் சுற்றளவில் சாலைகள், இரயில் இருப்பு பாதைகள், கோவில்கள் மற்றும் புராதனச் சின்னங்கள், மின்கம்பிகள், நீர் நிலை ஆதாரங்கள், வேறு நிரந்தர அமைப்புகள் ஏதுமில்லை.

மேலும் 500 மீ சுற்றளவிற்குள் மனுதாரர் உரிமம் கோரியுள்ள கூட்டுப்புலத்திற்கு வடக்கே சங்கம நாயக்கர் மகன் ராதாகிருஷ்ணன் என்பவருக்குச் சொந்தமான என்பவருக்குச் சொந்தமான செயல்படும் குவாரியும், மேற்கே மனுதாரருக்குச் சொந்தமான செயல்படாத குவாரியும், தெற்கே மனுதாரரின் தந்தையார் ஜெயராமன் த/பெ.பெருமாள்சாமி என்பவருக்குச் சொந்தமான செயல்படும் குவாரியும் உள்ளது.

மேற்படி நிலத்தில் உடைகல் மற்றும் கிராவல் குவாரி செய்வதால் அருகிலுள்ள விவசாய மற்றும் மட்டா நிலங்களுக்கு பாதிப்பு இல்லை. மேலும் மனுதாரர் குவாரி உரிமம் கோரும் கூட்டுப்புலத்திற்கு அருகில் புறம்போக்கு, மட்டா ஓடைகள் ஏதுமில்லை மனுதாரர் குவாரி உரிமம் கோரும் புல எண்கள் அனைத்தும் நதிக்குடி பஞ்சாயத்திற்கும், வெம்பக்கோட்டை ஊராட்சி ஒன்றியத்திற்கும் உட்பட்டது என்ற விபரத்தினை பணிவுடன் தெரிவித்துக் கொள்கிறேன்.

மண்டலத்துணைவட்டாட்சியர்,
வெம்பக்கோட்டை.

J. Sai Prasad

மண்தீர்வு அலுவலகம்:

கோள் அலுவலகம்



919/1, 919/2A உள்ள கடன் தீர்வு நடைமுறை

- டிபாசரி தீர்வுகளைச் சார்ந்தான கோள் (எண்ணம் - 920/1A1, 1A3) உட்கியல்,
- ராஜாங்கத்தின் கோள் (886/2, 9) உட்கியல்,
- டிபாசரி தீர்வுகளை (918/1, 2),
நிலை அலுவலகம் கீழ்க் கீழ்க்கியல்,
- டிபாசரி தீர்வுகளை உட்கியல்

உட்கியல் கோள் கடன் தீர்வு அலுவலகம் உள்ளது.

407 எண் - 918/3 உட்கியல் - 2.02.5 உட்கியல் நடைமுறை

- டிபாசரி தீர்வுகளைச் சார்ந்தான தீர்வுகளை உட்கியல்
(407 எண் - 918/1)
- டிபாசரி தீர்வுகளை (918/4, 2) உட்கியல்
- நிலை அலுவலகம் (917/2),
கோள் தீர்வுகளை கீழ்க்கியல்
(917/4)
- டிபாசரி தீர்வுகளை (919/1) உட்கியல்

J. Sai Pritham

4வ் எண் - 919/1 உபவீரணம் - 1-63-0



- ஸ்தாபகத்தினால் எம்.பி.யிடமிருந்து
உசாந்தலாக (886/9, 3) கோரிக்கை உதந்தியும்
- டீயூட்டர்ஸ் திட்டத்திற்கு உசாந்தலாக
உபவீரணம் கோரிக்கை உட்கரியும்
(920/1A1, 1A2, 1A3)
- டீயூட்டர்ஸ் திட்டத்திற்கு (919/2A) உட்கரியும்
- டீயூட்டர்ஸ் திட்டத்திற்கும் (918/1, 2)
டீயூட்டர்ஸ் உபவீரணம் கோரிக்கை உட்கரியும்
(918/3)

4வ் எண் - 919/2A உபவீரணம் - 2,17-0 உதந்தியிடம்
நாதிக்குடி

- டீயூட்டர்ஸ் திட்டத்திற்கு உசாந்தலாக
திட்டத்திற்கு (920/1B1, 1B2, 3) உட்கரியும்
- ஸ்தாபகத்தினால் எம்.பி.யிடமிருந்து உசாந்தலாக
கோரிக்கை (886/9, 3) உதந்தியும்
- டீயூட்டர்ஸ் திட்டத்திற்கு (919/1) உட்கரியும்
- டீயூட்டர்ஸ் திட்டத்திற்கு (919/3, 2B) உட்கரியும்

J. S. Prasad
15/01/2022

Village Administrative Officer
Nathikudi-Kongankulam Village
Vembakottai Taluk

J. S. Prasad

A.1. நோட்டீஸ்

தனியார் / அரசு புறம்போக்கு நிலத்தில் கல்குவாரி
செய்து கொள்ளும் விண்ணப்பம் குறித்த அறிக்கை



இதனால் அறிக்கையிட்டுவது என்னவென்றால்,

(கோலத்தூர் 210-925701)

கோலத்தூர் வட்டம்

இருக்கிற கோலத்தூர் மகன்/கணைவி சாம்பிரத்தல்

என்பவர் 444 எண்ணம் 910/1A1, 1A3 - கோலத்தூர் -க்கு வாக்கிலும்,

444 எண்ணம் 825/9, 2B - ராஜகங்குலம் -க்கு

தெற்கிலும், 444 எண்ணம் 913/1 - 913/2 - சாம்பிரத்தல் துவத்தல்

917/2 - கோலத்தூர் -க்கு கிழக்கிலும்,

444 எண்ணம் 919/2, 2B - சாம்பிரத்தல் துவத்தல் -க்கு மேற்கிலும்,

ஏக்கர் அல்லது 4.61.0 ஹெக்டேர்ஸ்

உள்ளதுமான பட்டா புஞ்சை நிலத்தில் கல்குவாரி செய்வதற்காக விண்ணப்பம் செய்துள்ளார். அந்த நிலங்களில் குவாரி செய்வது விஷயமாய் ஆட்சேபையுடைய நபர்கள் அது சங்கதியை இந்த அறிக்கை பிரசுரிக்கும் செய்யப்படும் தேதியிலிருந்து பதினைந்து தினங்கள் கொண்ட ஒரு கால அள்விற்குள் லைசென்சு கிராமத்தில் கிராம நிர்வாக அலுவலருக்கோ / வட்டாட்சியருக்கோ / கனிமவள உதவி இயக்குநருக்கோ தெரிவிக்க வேண்டும்.

2022 -ம் வருடம் 12/12/22 மாதம் 21 தேதி

J. Sain
கிராம நிர்வாக அதிகாரி
Village Administrative Officer
Nathikudi-Kongankulam Village
Vembakottai Taluk

என்ப அறிக்கையானது மேலே குறிப்பிடப்பட்ட தேதியில் கோலத்தூர் (மாவட்டம்) பிரசுரித்தும் செய்யப்பட்டு, கிராமச் சாஸ்டியில், பிரஸ்தாப நிலத்திலும் ஒட்டப்பட்டதென உறுதிமொழி கூறப்படுகிறது.

- 1) எழுதப்படக்கூடாதெரிந்த குறைந்தது இரண்டு கிராமக்குடிகளின் கையெழுத்துக்கள்.
- ① ச. கோலத்தூர் S/o சாம்பிரத்தல் 23/12/22
 - ② Dhanu S/o கோலத்தூர் 23/12/22
 - ③ G. Karthikeyan

A. சிவசுந்தரன் S/o சத்தியமயன்
P. தலைமங்கலம்
P. தலைமங்கலம்
S/o. ராஜ் P. தலைமங்கலம்

மேற்கண்ட மனவழி நடைமுறை செய்து கொடுக்க
கொடுக்க வேண்டுகிறேன்.

A. சிவசுந்தரன்
15/01/2012

Village Administrative Officer
Nathikulam-Kongankulam Village
Vembakottai Taluk

J. Sai Ram



தமிழ்நாடு தமில்நாடு TAMILNADU

CV 474842

04-11-2022

Sai pratham
nathikudi

S. சந்திரகாமர்
சுப்தலக்ஷ்மி அற்புதலக்ஷ்மி
பிள்ளை தமிழ்நாடு
L.No 1922/D/90



AGREEMENT

This Agreement made on the day of Licence to be granted Mr. J. SAIPRITHAM S/O JEYARAMAN , D/O 81 NGO Colony Srivilliputhur , Srivilliputhur (Taluk) , Virudhunagar (Dist)Tamilnadu (herein after called the owner of quarry) and Licensee Mr. G. Vikramathith poopathi S/O . Gunasekaran , M/S NEW PRINCE EXPLOSIVES 7/72, MIDDLE , STREET, Elayirampannai (Post) VEMBAKOTTAI (TALUK) VIRUDHUNAGAR (DISTRICT) Licence No E/SC/TN/22/719 (E99261) from 22 (Herein after called as Dealer of Explosives)

For New Prince Explosives

Partner

J. Sai Pritham



Where as the owner of the quarry having Licence to be granted for survey No. 919/1 (1.63.00 Hects) & 919/2A (1.70.50 Hects) , Total Hectares 3.33.50 Hects the survey number are within Village, Nathikudi village Vembakottai (Taluk) Virudhunagar (District) KV1/33/2021 Date:19.10.2022


And where as the dealer of Explosives have agree to carry our the blasting operation in skillful scientific shot firer till the valid date

Where as the party of the second part has decided to entrust the work of conduction blasting operation in his/her quarry work to the party of the first part on contract basic as per mutually agreed terms and condition.

Where as the part of the first part is responsible or blasting operation and also making his own agreement for the explosives and exploding machines/equipments required for the work.the entire blasting in the above quarry and the possession of blasting equipments will be handle by the party of the first part having valid Licence and short firer permit under the explosives Rules, 2008 issued by the Department of Explosives and hereby undertake the responsibility for the work entrusted.

Where as payments will be made periodically by the party of the second part for the Explosives used and hours and time of the exploding equipments put into use calculations will be made and elements will be arrived at on the completion of blasting operations.

For New Prince Explosives

 Partner

J. Santhosh

अनुज्ञापित प्ररूप एल. ई.-3 | LICENCE FORM LE-3

(विस्फोटक नियम, 2008 का अनुसूची 4 के भाग 1 के अनुच्छेद 3(क) से (घ) (दोहराए।)

(See article 3(a) to (d) of Part I of Schedule IV of Explosives Rules, 2008)

(ग) उपयोग के लिए एक समय पर वर्ग 1, 2, 3, 4, 5 या वर्ग 7 के विस्फोटक या किसी मैगजीन में वर्ग 6 के विस्फोटक रखने के लिए अनुज्ञापित

Licence to possess: (c) for use, explosives of class 1, 2, 3, 4, 5, 6 or 7 in a magazine

अनुज्ञापित सं. (Licence No.): E/SC/TN/22/719(E99261)

वार्षिक फीस रूपए (Annual Fee Rs): 9200/-



1. Licence is hereby granted to

M/s. New Prince Explosives (अधिभोगी / Occupier : G. VIKRAMATHITHABOOPATHY), 7/71, Middle Street,
Elayirampennai, Vembakottai Tq., Town/Village - Elayirampennai, District-VIRUDHUNAGAR, State-Tamil Nadu,
Pincode - 626201



को अनुज्ञापित अनुदत्त की जाती है।

2. अनुज्ञापितधारी की प्रास्थिति | Status of licensee : **Company**

3. अनुज्ञापित निम्नलिखित प्रयोजनों के लिए विधिमाम्य है।

Licence is valid only for the following purpose.

4. अनुज्ञापित विस्फोटकों के निम्नलिखित किसमें, प्रकार और मात्रा के लिए विधिमाम्य है।

Licence is valid for the following kinds and quantity of explosives: - (क) (a)

क्र. सं. (Sr. No.)	नाम और विवरण (Name and Description)	वर्ग और प्रभाग (Class & Division)	उप-प्रभाग (Sub-division)	मात्रा किसी एक समय में (Quantity at any one time)
1.	Nitrate Mixture	2, 0	0	4000 Kg
2.	Safety Fuse	6, 1	0	5490 Mtrs
3.	Electric and/or Ordinary Detonators	6, 3	0	44000 Nos.
4.	Detonating Fuse	6, 2	0	30000 Mtrs

(ख) किसी एक कलेंडर मास में खरीदे जाने वाले विस्फोटक की मात्रा (अनुच्छेद 3(ख) और (ग) के अधीन अनुज्ञापित के लिए)

(b) Quantity of explosives to be purchased in a calendar month/applicable for licence under article 3(b) and (c).

15 times
as above.

5. निम्नलिखित रेखाचित्र (रेखाचित्रों) से अनुज्ञापित परिसर की पुष्टि होती है।

The licensed premises shall conform to the following drawing(s):

रेखाचित्र क्र. (Drawing No.) E/SC/TN/22/719(E99261)

दिनांक (Dated) 02/11/2021

6. अनुज्ञापित परिसर निम्नलिखित पते पर स्थित है। The licensed premises are situated at following address:

Survey No. 1759/2, ग्राम (Town/Village) : Daraisampuram village,

जिला (District) : VIRUDHUNAGAR

दूरभाष (Phone)

राज्य (State) : Tamil Nadu

ई मेल (E-Mail) : princenmasloss@gmail.com

Tamil Nadu

princenmasloss@gmail.com

RCC Building

पुलिस थाना (Police Station) : Maraneri

पिनकोड (Pincode) : 626201

फैक्स (Fax)

7. अनुज्ञापित परिसर में निम्नलिखित सुविधाएं अंतर्विष्ट हैं।

The licensed premises consist of following facilities:

8. अनुज्ञापित समय - समय पर यथासंशोधित विस्फोटक अधिनियम, 1884 और उनके अधीन विरचित विस्फोटक नियम, 2004 के उपबंधों, शर्तों और अतिरिक्त शर्तों और निम्नलिखित उपबंधों के अधीन रहते हुए अनुदत्त की जाती है।

The licence is granted subject to the provision of Explosives Act 1884 as amended from time to time and the Explosives Rules, 2004 framed there under and the conditions, additional conditions and the following Annexures

- उपर्युक्त क्रम सं. 5 में यथा कथित रेखाचित्र (स्थान, संरचनात्मक संबंधी और अन्य विवरण दर्शित करते हुए) Drawings (showing site, constructional and other details) as stated in serial No. 5 above
- अनुज्ञापित प्राधिकारी द्वारा हस्ताक्षरित इस अनुज्ञापित की शर्तों और अतिरिक्त शर्तों। Conditions and Additional Conditions of this licence signed by the licensing authority
- दूरी प्ररूप DE-2 | Distance Form DE-2.

9. यह अनुज्ञापित तारीख 31 मार्च 2023 तक विधिमाम्य रहेगी। This licence shall remain valid till 31st day of March 2023.

यह अनुज्ञापित, अधिनियम या उसके अधीन विरचित नियमों या अनुसूची V के भाग 4 के प्रति निर्दिष्ट सेट-VII के अधीन तथा उपवर्णित इस अनुज्ञापित की शर्तों का अधिकरण करने या यदि अनुज्ञापित परिसर योजना या उससे संलग्न उपबंध में दर्शित विवरण के अनुरूप नहीं पाए जाने पर निलंबित या प्रतिसंशोधित की जा सकती है, जहां यह लागू हो।

This licence is liable to be suspended or revoked for any violation of the Act or Rules framed there under or the conditions of this licence as set forth under Set VIII, wherever applicable, referred to in Part 4 of Schedule V or if the licensed premises are not found conforming to the description shown in the plans and Annexure attached hereto.

तारीख | The Date - 05/04/2018

संयुक्त मुख्य विस्फोटक नियंत्रक

Joint Chief Controller of Explosives
South Circle, Chennai

Amendments :

- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 02/11/2021

नवीनीकरण के पृष्ठांकन के लिए स्थान
Space for Endorsement of Renewalनवीनीकरण की तारीख
Date of Renewalसमाप्ति की तारीख
Date of Expiryअनुज्ञापन प्राधिकारी के हस्ताक्षर और स्टाम्प
Signature of licensing authority and stamp

कानूनी चेतावनी : विस्फोटकों को गलत ढंग से बताने या उनका दुरुपयोग विधि के अधीन गंभीर दंडिक अपराध होगा।
Statutory Warning : Mishandling and misuse of explosives shall constitute serious criminal offence under the law.

Note :- This is system generated document does not require physical signature. Applicant may take printout for their records.

Ashok Kumar 30/07/2018

अनुमति फॉर्म एनई - 7 | LICENCE FORM LE-7
(विस्फोटक नियम 2008 की अनुसूची 4 के भाग 1 का अनुच्छेद 7 देखें)
(See article no 7 of Part 1 of Schedule IV of Explosives Rules, 2008)

अनुमति: सड़क वैन में विस्फोटकों के परिवहन के लिए
Licence to: transport explosives in a road van



अनुमति संख्या / Licence No.: E/SC/TN/25/1379(E110077)
वार्षिक फीस रूप / Annual Fee Rs: 2500/-

- अनुमति एतदद्वारा जारी की जाती है
Licence is hereby granted to: **J. Prince Nimal Doss (Occupier: J.Prince Nimal Doss)**
771, Middle Street, Elayirampennai, Sattur (Tk),
District-VIRUDHUNAGAR, State-Tamil Nadu, Pincode-626201
- अनुमतिधारी की प्रारिस्थिति / Status of licensee: **Individual**
- सड़क वैन की विशेषितियाँ / Particulars of the road van:

पंजीकरण संख्या / Registration No.	TN-67/BF-4312
वान का मेक एवं मॉडल / Make and model of vehicle	Mahindra and Mahindra Ltd
लदान रहित वजन / Unladen weight	1860 Kg(s)
लदान सहित अधिकतम वजन / Maximum laden weight	2960 Kg(s)
परिवहन के लिए अनुज्ञेय विस्फोटकों की अधिकतम मात्रा Maximum quantity of explosives permitted for transport	1100 Kg(s)
इंजिन संख्या / Engine No.	TBHIK31351
चैसिस संख्या / Chassis No.	MA1ZR2TBKH1K79750
अन्य फिटिंग्स का विवरण / Description of Other Fittings	As per approved plan attached
वाहन के लिए अनुमत्य विस्फोटकों की मात्रा / Quantity of Explosives permitted to carry	1100 Kg(s)

- अनुमति परिसर निम्नलिखित आरेखण (आरेखणों) के अनुरूप होना चाहिए / The licensed premises shall conform to the following drawing(s):
आरेखण संख्या / Drawing No.: E/SC/TN/25/1379(E110077) दिनांक / dated: 30/07/2018
- समय समय पर यथा संशोधित विस्फोटक अधिनियम, 1884 और उसके अधीन बनाए गए विस्फोटक नियम, 2008 के उपबन्धों और शर्तों एवं निम्नलिखित अनुलग्नकों के अधीन अनुमति प्रदान की जाती है।
The licence is granted subject to the provision of Explosives Act 1884 as amended from time to time and the Explosives Rules, 2008 framed thereunder and the conditions and the following annexures...
(क) उपर्युक्त क्रम संख्या 4 में ब्यक्तकथित सड़क वैन का आरेखण / (a) Drawings of the road van as stated in serial no.4 above.
(ख) अनुज्ञापन प्राधिकारी द्वारा हस्ताक्षरित शर्तें / (b) Conditions signed by the licensing authority.
- यह अनुमति तारीख 31 मार्च 2023 तक विद्यमान रहनेगी / This licence shall remain valid till 31st day of March 2023

यह अनुमति, अधिनियम या उसके अधीन विरचित नियमों या इस अनुमति की शर्तों के उल्लंघन, अनुसूची 5 के भाग 4 में सन्दर्भित, जहाँ भी लागू हो, या यदि अनुमति परिसर आरेखण या उससे संलग्न उपाबद्धों में दर्शाए गए विवरण के अनुरूप नहीं पाए जाने पर निलम्बित या प्रतिसंहत की जा सकती है।

This licence is liable to be suspended or revoked for any violation of the Act or rules framed there under or the conditions of this licence as set forth under, wherever applicable, referred to in Part 4 of Schedule V or if the licensed premises are not found conforming to the description shown in the plans and annexure attached hereto.

दिनांक / Date: 30/07/2018

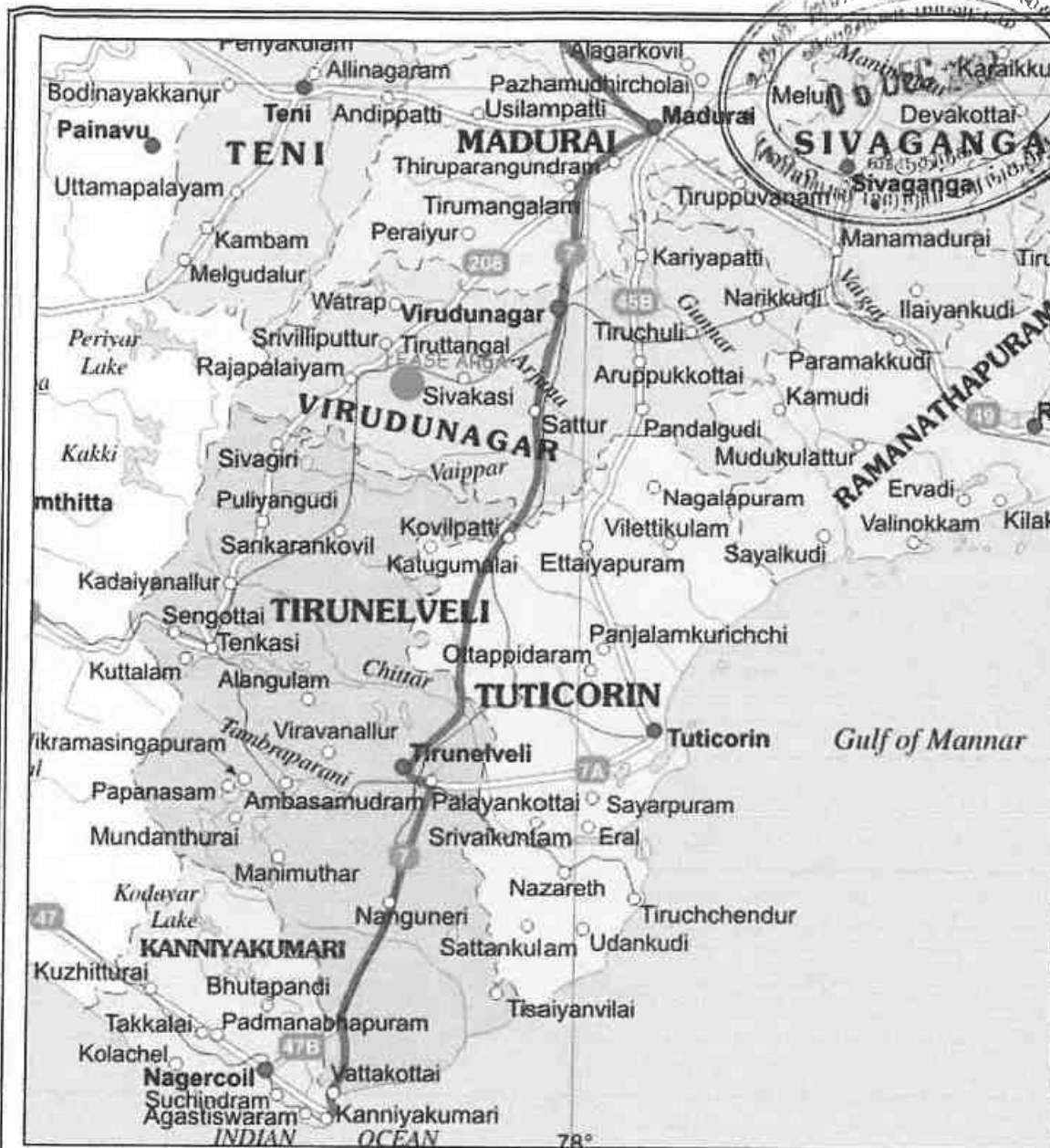
संयुक्त मुख्य विस्फोटक नियंत्रक | Joint Chief Controller of Explosives
दक्षिणवर्ग, चेन्नई | South Circle, Chennai

अनुमति के नवीनीकरण हेतु पंजीकरण / Endorsement for renewal of licence.

नवीनीकरण की तिथि Date of Renewal	वेपत्ता समाप्ति की तिथि Date of Expiry	अनुज्ञापन प्राधिकारी के हस्ताक्षर Signature of licensing authority
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वैधानिक चेतावनी: विस्फोटकों का सावधानी से प्रयोग या दुरुपयोग, विधि के अधीन गंभीर दण्डित अपराध होगा।
Statutory Warning: Mishandling and misuse of explosives shall constitute serious criminal offence under the law.

J. Sai Prithan



NAME OF THE APPLICANT:

J. SAIPREETHAM, S/o. P. JEYARAMAN,
D.NO.81, N.G.G.O. COLONY,
SRIVILLIPUTHUR TOWN & TALUK,
VIRUDHUNAGAR DISTRICT.

PLATE NO. I

ROUGH STONE / JELLY / GRAVEL QUARRY

LOCATION PLAN

SCALE:- 1CM = 12.5KMs

INDEX:-

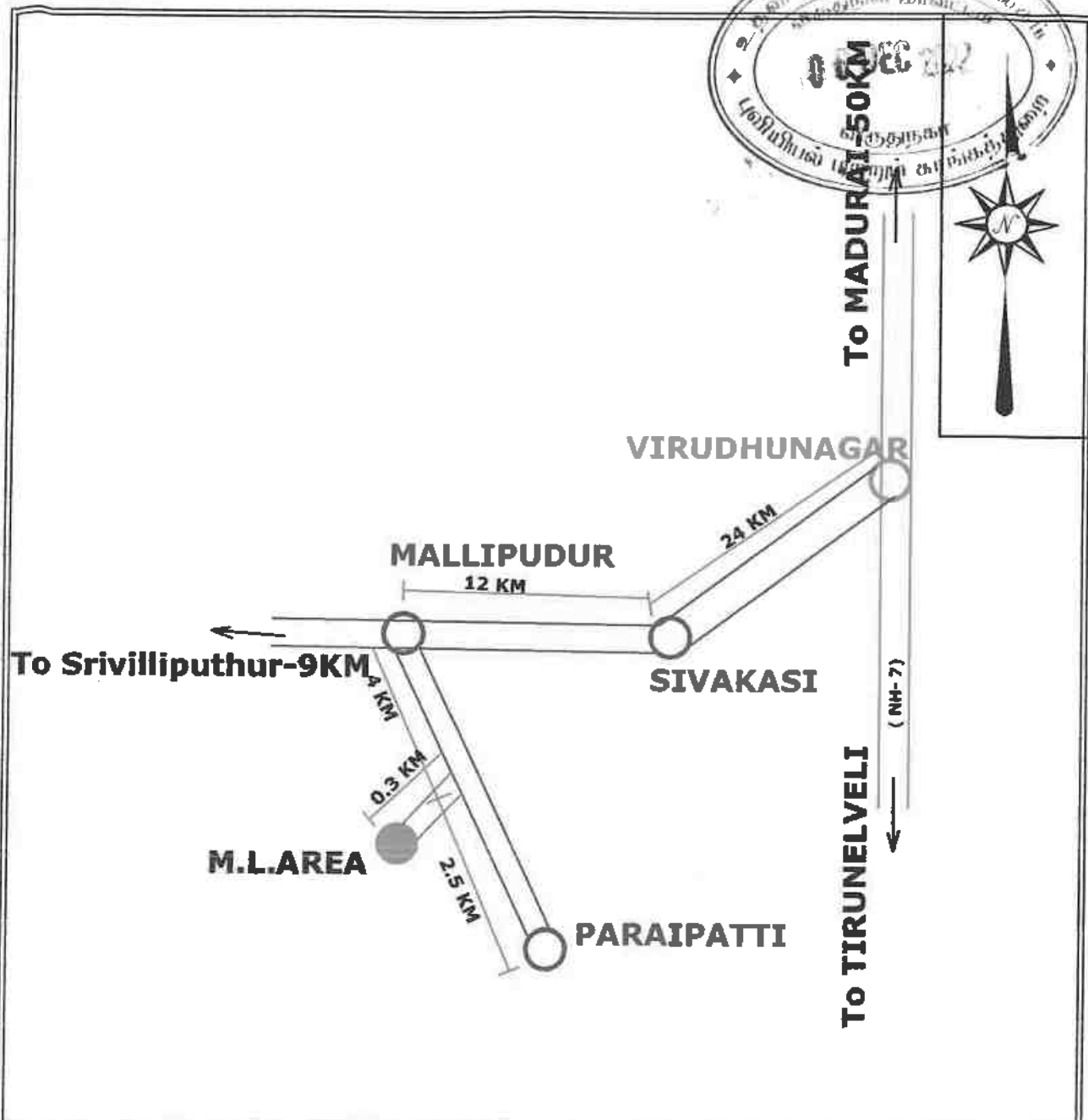
MINING LEASE AREA ●

● State capital	— Golden Quadrilateral
● District headquarters	— North-South & East-West Corridors
○ Other town	— National Highway
45 National Highway number	— Railway

PREPARED BY:-

G. Ravichandran
G.RAVICHANDRAN, M.Sc., P.G.D.M.E.M.,
MINING GEOLOGIST
RQP / MAS / 197 / 2005 / A
VALID UPTO: 12.12.2025

J. Sai Pritham



NAME OF THE APPLICANT:
 J. SAIPREETHAM, S/o. P. JEYARAMAN,
 D.NO.81, N.G.G.O. COLONY,
 SRIVILLIPUTHUR TOWN & TALUK,
 VIRUDHUNAGAR DISTRICT.

PLATE NO. IA
 ROUGH STONE / JELLY / GRAVEL QUARRY
KEY MAP
 SCALE:- NOT TO SCALE

INDEX:-

- MINING LEASE APPLIED AREA
- NATIONAL HIGHWAY
- MAIN ROAD & VILLAGE ROAD
- APPROACH ROAD (PROMBOKE ROAD)

PREPARED BY:- *G. Ravichandran*
G.RAVICHANDRAN M.Sc., P.G.D.M.E.M.,
 MINING GEOLOGIST
 RQP / MAS / 197 / 2005 / A
 VALID UPTO: 12.12.2025

J. Sai Preetham



PLATE NO. II

NAME OF THE APPLICANT:
J. SAIPREETHAM,
D.NO.81, N.G.G.O. COLONY,
SRIVILLIPUTHUR TOWN & TALUK,
VIRUDHUNAGAR DISTRICT.

TOPO SHEET No.58-G/11

LATITUDE : 9° 26' 14.1" To 9° 26' 21.9"
LONGITUDE : 77° 41' 35.8" To 77° 41' 40.4"

- INDEX:-**
- MINING LEASE APPLIED AREA ●
 - WIND DIRECTION
 - 1KM RADIUS
 - 5KM RADIUS
 - 10KM RADIUS

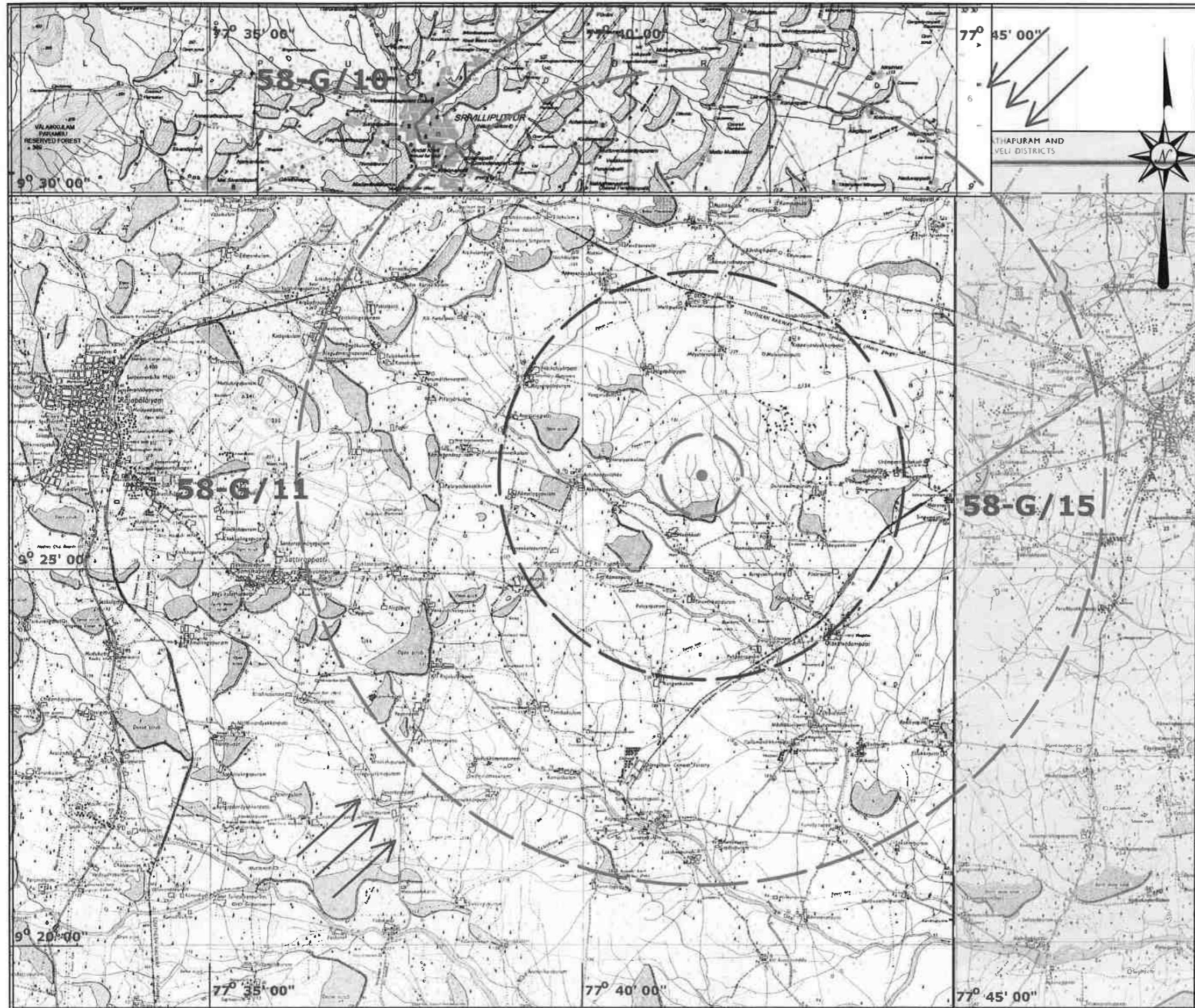
CONVENTIONAL SYMBOLS

Express highway with toll with bridge with distance stone	
Roads, metalled according to importance	
Roads, double carriageway according to importance	
Unmetalled road, Cart track, Path track with pass, Foot path	
Streams with track in bed, undrained Canal	
Dams masonry or rock-filled earthwork Weir	
River, dry with water channel, with island & rocks, Tidal river	
Submerged rocks, Shoal, Swamp, Reeds	
Wells, lined, unlined, Tube-well, Spring, Tanks perennial, dry	
Embankments, road or rail, tank, Broken ground	
Railways, broad gauge, double, single with station, unrel. constr.	
Railways, other gauges, double, single with distance stone, do	
Mineral line or tramway, Kith, Cutting with tunnel	
Contours with sub-features, Rocky slopes, Gills	
Sand features (1) flat (2) sand hills/permanent (3) dunes/shifting	
Towns or Villages, inhabited, deserted, Fort	

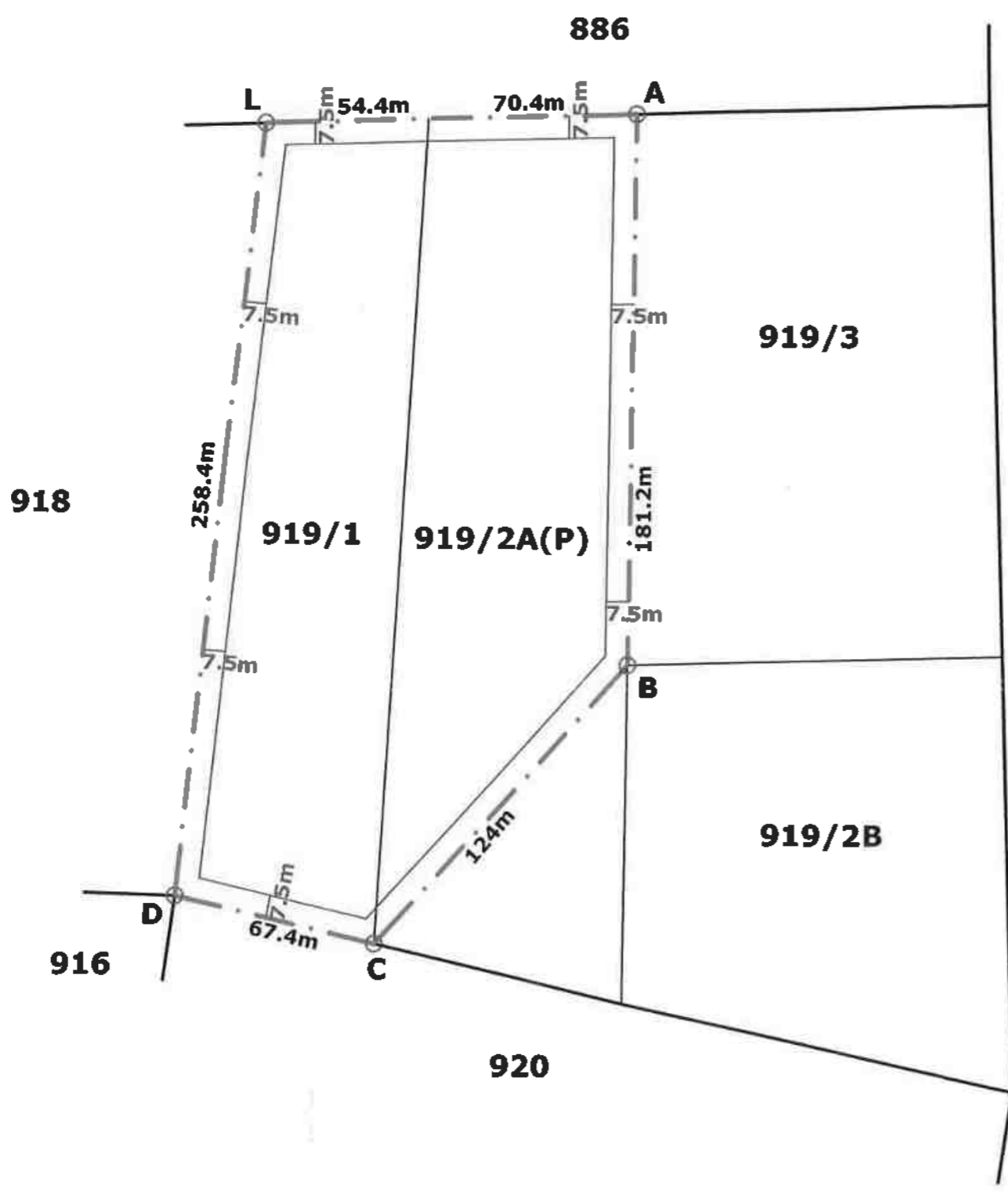
ROUGHSTONE/JELLY/GRAVEL QUARRY
TOPO SKETCH - 10KM RADIUS
SCALE:- 1: 1,00,000

PREPARED BY:-

G.RAVICHANDRAN, M.Sc., P.G.D.M.E.M.,
MINING GEOLOGIST
RQP / MAS / 197 / 2005 / A
VALID UPTO: 12.12.2025



J. Saipreetham
 172



NAME OF THE APPLICANT:
J. SAIPREETHAN, S/O. P. JEMARAMAN,
D.NO.81, N.G.G.O. COLONY,
SRIVILLIPUTHUR TOWN & TALUK,
VIRUDHUNAGAR DISTRICT.

INDEX:-
 LEASE APPLIED BOUNDARY — — —
 SAFETY DISTANCE 7.5M ———
 BOUNDARY PILLARS ○ A B C ..

DISTRICT : VIRUDHUNAGAR
TALUK : VEMBAKOTTAI
VILLAGE : NATHIKUDI
S.F.Nos. : 919/1,2A(P)
EXTENT : 3-33.50 HECTARE.

S.F.Nos	EXTENT (Ha)
919/1	1-63.00
919/2A(P)	1-70.50
TOTAL	3-33.50 Ha.

GPS CO-ORDINATES OF BOUNDARY PILLARS

PILLAR	LATITUDE	LONGITUDE
A	9° 26' 21.9"	77° 41' 40.4"
B	9° 26' 16.4"	77° 41' 40.3"
C	9° 26' 13.6"	77° 41' 40.3"
D	9° 26' 14.1"	77° 41' 35.8"
E	9° 26' 21.8"	77° 41' 36.7"

ROUGH STONE / JELLY / GRAVEL QUARRY

LEASE PLAN
SCALE:- 1: 2000

**ALL PLANS AND SECTIONS ARE PREPARED
 BASED ON THE LEASE MAP AUTHENTICATED
 BY STATE GOVERNMENT.**

G. Ravichandran
G.RAVICHANDRAN, M.Sc., P.G.D.M.E.M.,
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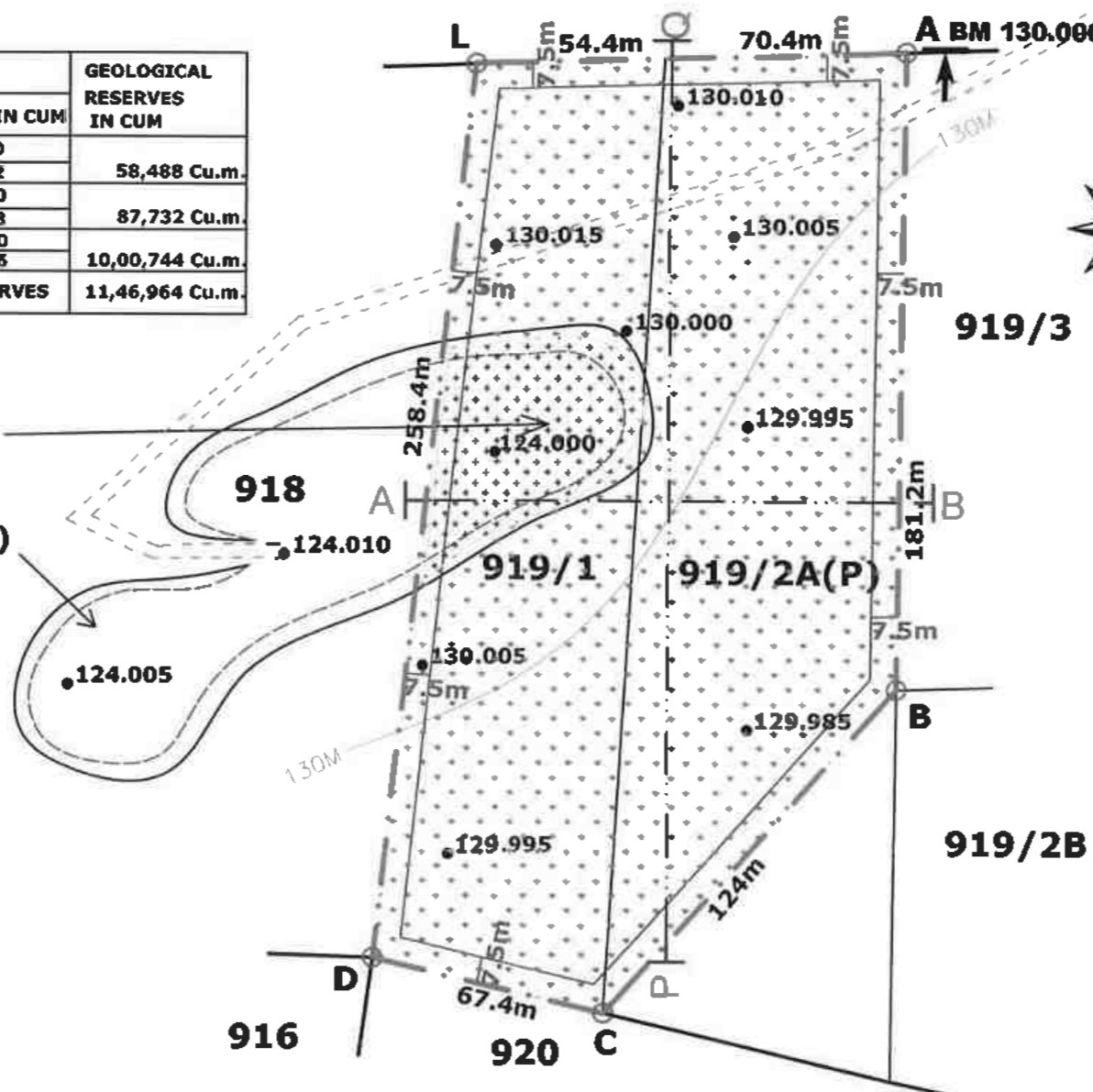
J. Saipreethan

OLD PIT SIZE			
LENGTH [M]	WIDTH [M]	DEPTH [M]	VOLUME IN CUM
In side	76	56	25,536 Cu.m.
out side	103	56	34,608 Cu.m.

GEOLOGICAL RESERVES						
MINERAL	SECTION	LENGTH [M]	WIDTH [M]	DEPTH [M]	VOLUME IN CUM	GEOLOGICAL RESERVES IN CUM
TOPSOIL (EARTH)	P - Q & A - B	250	134	2.0	67000	58,488 Cu.m.
					deduct old pit = 76 x 56 x 2 = - 8512	
WEATHERED (GRAVEL)	P - Q & A - B	250	134	3.0	100500	87,732 Cu.m.
					deduct old pit = 76 x 56 x 3 = -12768	
CHARNOCKITE (ROUGH STONE)	P - Q & A - B	250	134	30.0	1005000	10,00,744 Cu.m.
					deduct old pit = 76 x 56 x 1 = - 4256	
TOTAL GEOLOGICAL RESERVES						11,46,964 Cu.m.

OLD PIT (inside applied area)
76mx 56mx6m

OLD PIT (out side applied area)
103mx 56mx6m



NAME OF THE APPLICANT:

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VIRUDHUNAGAR DISTRICT.

INDEX:-

LEASE APPLIED BOUNDARY	
SAFETY DISTANCE - 7.5M	
BOUNDARY PILLARS	
CONTOURS	
BENCH MARK (M.S.L.)	
OLD PIT	
APPROACH ROAD	
TOPSOIL (EARTH)	
WEATHERED GNEISS (GRAVEL)	
CHARNOCKITE (ROUGH STONE)	

ROUGH STONE / JELLY / GRAVEL QUARRY

SURFACE CUM GEOLOGICAL PLAN & SECTIONS

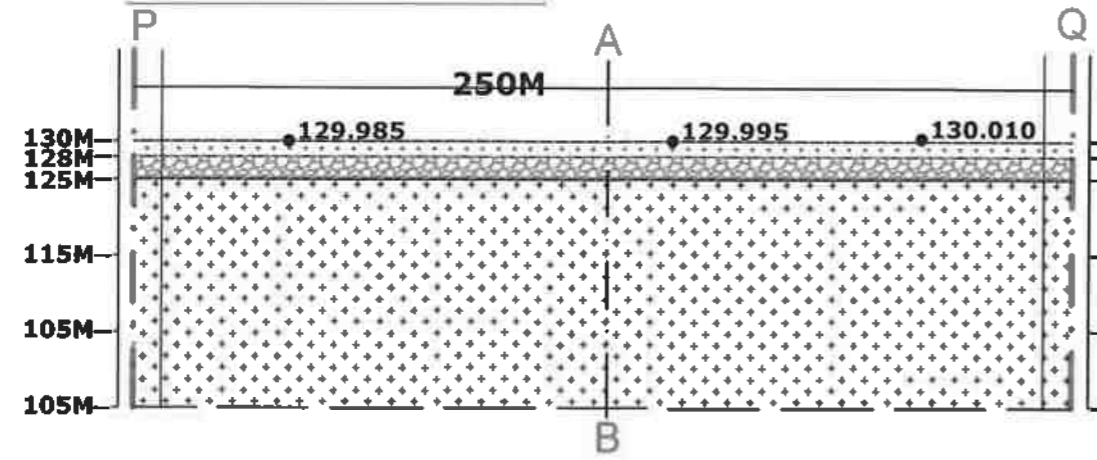
PLAN SCALE:- 1: 2000

SECTION SCALE:- HOR- 1: 2000, VER- 1:1000

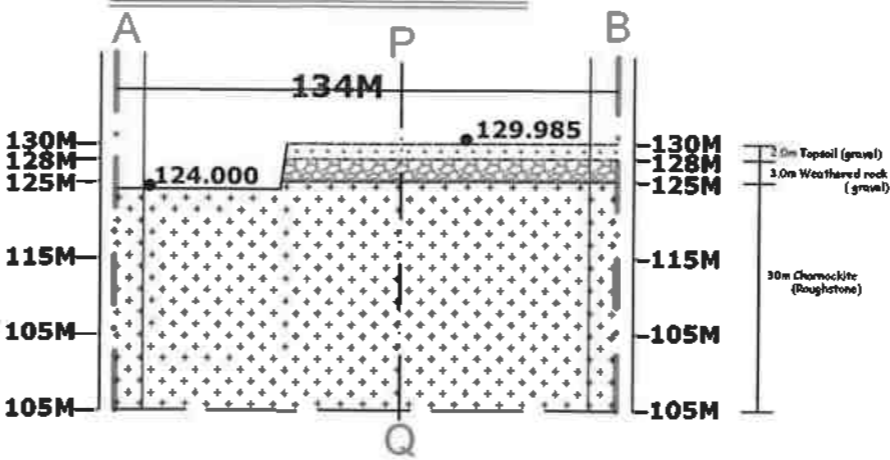
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SECTION ALONG P-Q



SECTION ALONG A-B

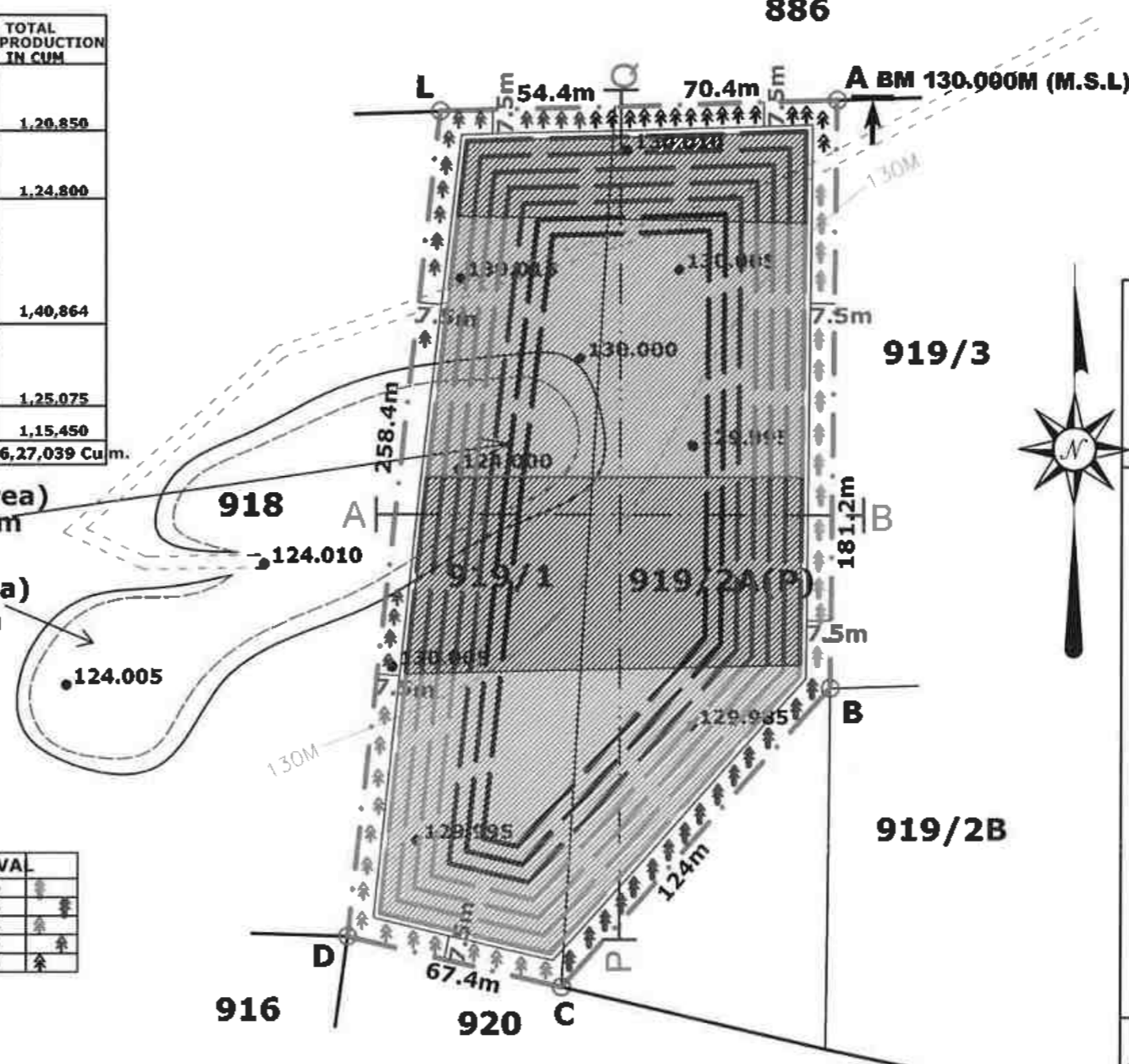




YEAR	SECTION	BENCH	LENGTH (M)	WIDTH (M)	DEPTH (M)	VOLUME IN CUM			TOTAL PRODUCTION IN CUM	
						Topsoil Earth	Weathered Gravel	ROUGHSTONE		
I - YEAR	PO - AB	I	65	119	2.0	15470	---	---	1,20,850	
	PO - AB	II	65	119	3.0	---	23205	---		
	PO - AB	III	55	109	5.0	---	---	32700		
	PO - AB	IV	55	89	5.0	---	---	27225		
II - YEAR	PO - AB	I	60	119	2.0	14280	---	---	1,24,800	
	PO - AB	II	60	119	3.0	---	21420	---		
	PO - AB	III	60	109	5.0	---	---	32700		
	PO - AB	IV	60	89	5.0	---	---	29700		
III - YEAR	PQ - AB	I	80	119	2.0	---	---	---	1,40,864	
	Deduct old pit = 76 x 56 x 2 = -8512						10528	---		---
	PQ - AB	I	80	119	3.0	---	15792	---		
	Deduct old pit = 76 x 56 x 3 = -12768						---	---		---
	PQ - AB	II	80	109	5.0	---	---	114544		
IV - YEAR	PO - AB	I	30	119	2.0	7140	---	---	1,25,075	
	PO - AB	II	30	119	3.0	---	10710	---		
	PO - AB	III	25	109	5.0	---	---	13825		
	PO - AB	IV	15	89	5.0	---	---	9900		
	PO - AB	V	195	79	5.0	---	---	6675		
V - YEAR	PO - AB	VI	185	69	5.0	---	---	63825	1,15,450	
	PO - AB	VII	175	59	5.0	---	---	51625		
TOTAL PRODUCTION						47418	71127	508494	6,27,039 Cu m.	

OLD PIT (inside applied area)
76mx 56mx6m

OLD PIT (out side applied area)
103mx 56mx6m



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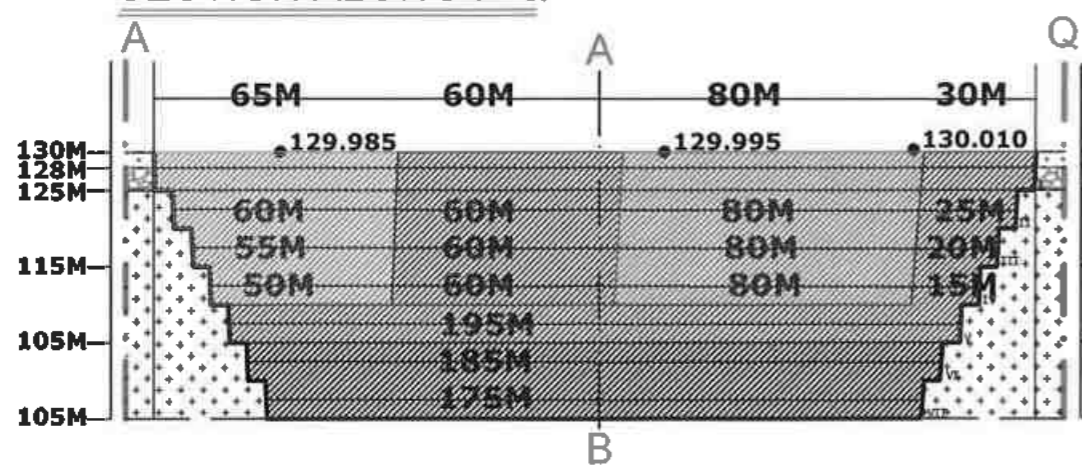
INDEX:-

LEASE APPLIED BOUNDARY	
SAFETY DISTANCE 7.5M	
TOPSOIL (EARTH)	
WEATHERED GNEISS (GRAVEL)	
CHARNOCKITE (ROUGH STONE)	
I - YEAR EXCAVATION	
II - YEAR EXCAVATION	
III - YEAR EXCAVATION	
IV - YEAR EXCAVATION	
V - YEAR EXCAVATION	

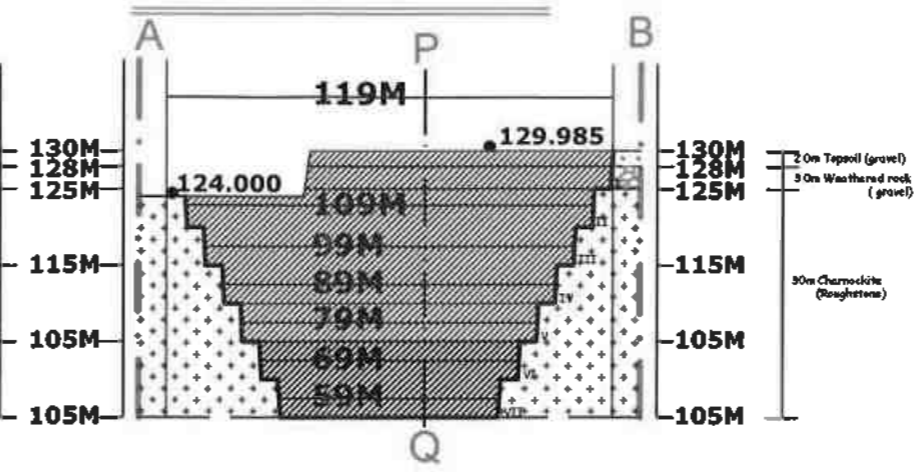
AFFORESTATION PROGRAMME

PLANTATION	TYPE	No of TREES	SPACING	AREA (Ha)	SURVIVAL
I - YEAR	NEEM	15	6m x 6m	0-05.4	80%
II - YEAR	NEEM	15	6m x 6m	0-05.4	80%
III - YEAR	NEEM	15	6m x 6m	0-05.4	80%
IV - YEAR	NEEM	15	6m x 6m	0-05.4	80%
V - YEAR	NEEM	15	6m x 6m	0-05.4	80%
TOTAL PLANTATION		75	6m x 6m	0-27.0Ha	

SECTION ALONG P-Q



SECTION ALONG A-B



ROUGH STONE / JELLY / GRAVEL QUARRY
LAND USE CUM YEARWISE
PLAN & SECTIONS

PLAN SCALE:- 1: 2000
 SECTION SCALE:- HOR- 1: 2000, VER- 1:1000

ALL PLANS AND SECTIONS ARE PREPARED
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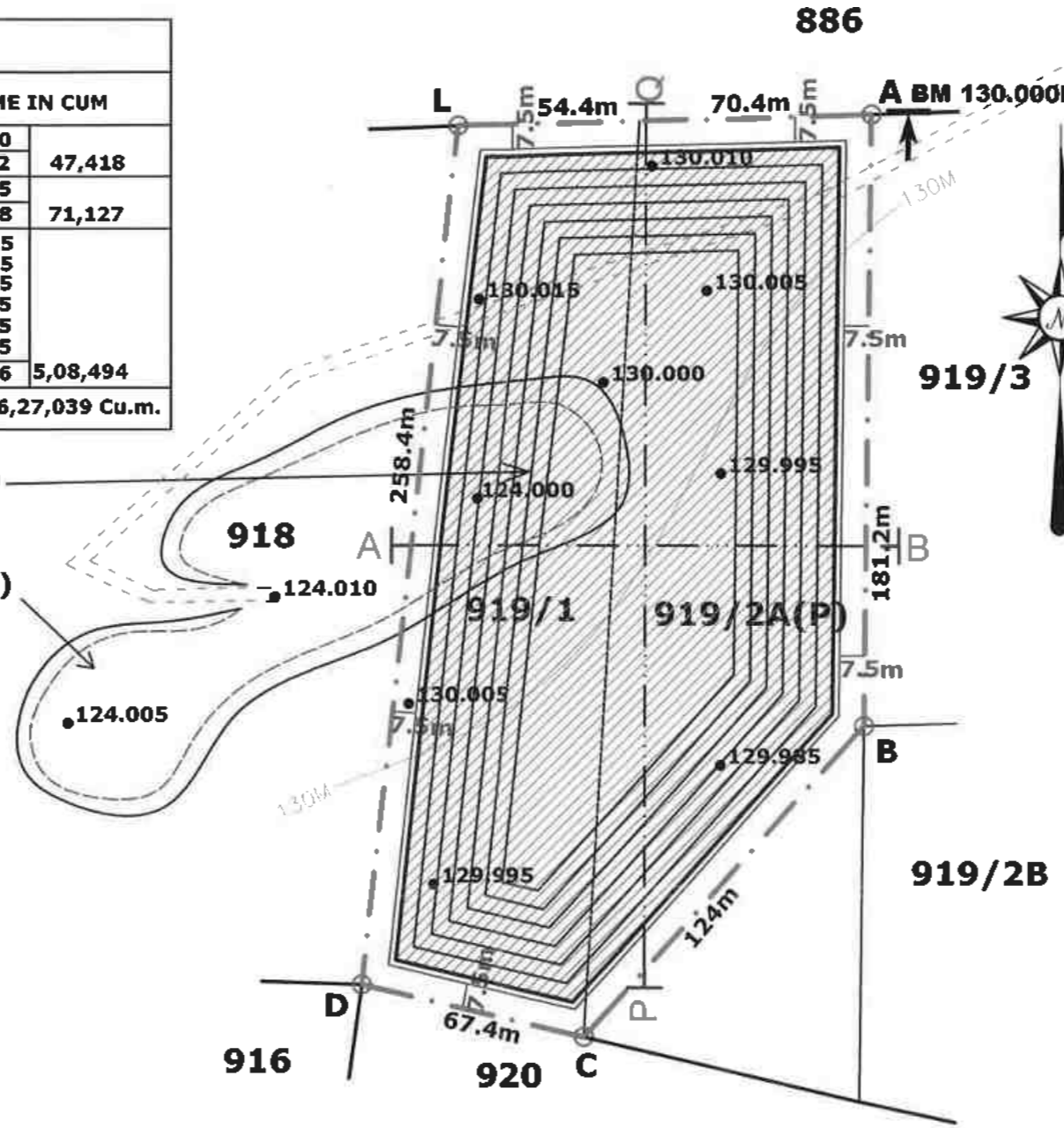


MINEABLE RESERVES						
MINERAL	SECTION	BENCH	LENGTH [M]	WIDTH [M]	DEPTH [M]	VOLUME IN CUM
TOPSOIL (EARTH)	PQ - AB	I	235	119	2.0	55930
						Deduct old pit = 76 x 56 x 2 =
WEATHERED (GRAVEL)	PQ - AB	I	235	119	3.0	83895
						Deduct old pit = 76 x 56 x 3 =
CHARNOCKITE (ROUGH STONE)	PQ - AB	II	225	109	5.0	122625
		III	215	99	5.0	106425
		IV	205	89	5.0	91225
		V	195	79	5.0	77025
		VI	185	69	5.0	63825
		VII	175	59	5.0	51625
		Deduct old pit = 76 x 56 x 1 =	-4256			
TOTAL MINEABLE RESERVES						5,08,494

OLD PIT (inside applied area)
76mx 56mx6m

OLD PIT (out side applied area)
103mx 56mx6m

ULTIMATE PIT SIZE			
SECTION	LENGTH[M]	WIDTH[M]	DEPTH[M]
PQ-AB	235	119	35.0



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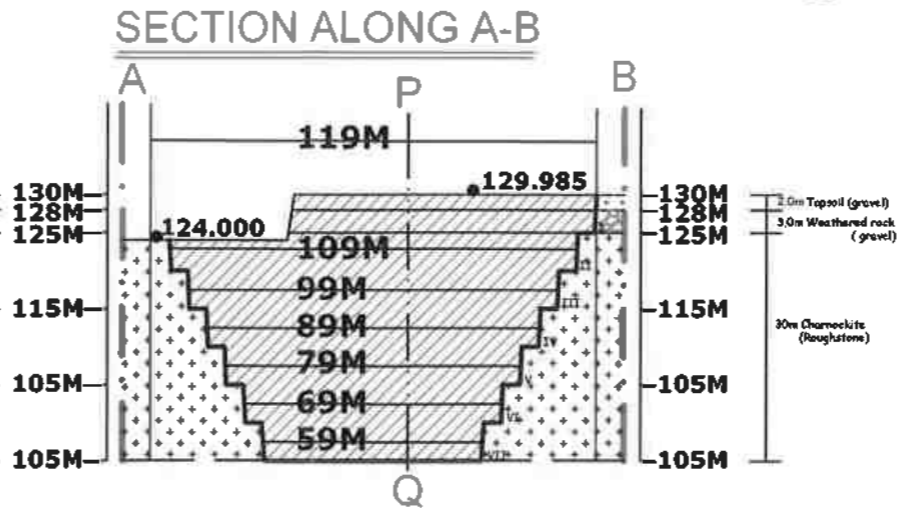
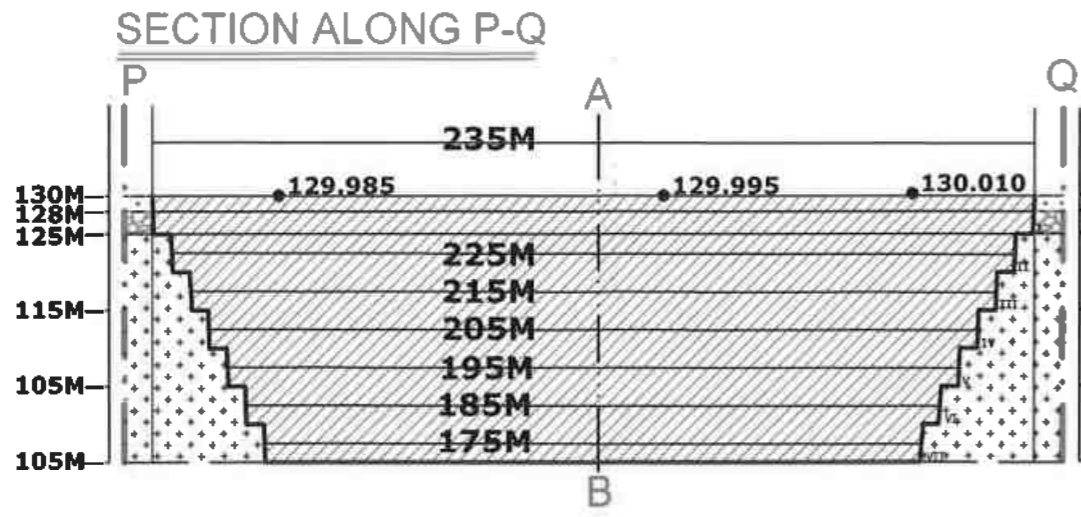
INDEX:-

LEASE APPLIED BOUNDARY	
SAFETY DISTANCE - 7.5M	
BOUNDARY PILLARS	
CONTOURS	
BENCH MARK	
APPROACH ROAD	
LAYOUT OF MINE WORKING	
ULTIMATE PIT SLOPE	

ROUGH STONE / JELLY / GRAVEL QUARRY
CONCEPTUAL MINING PLAN
SECTIONS PLAN SCALE:- 1: 2000
SECTION SCALE:- HOR- 1: 2000, VER- 1:1000

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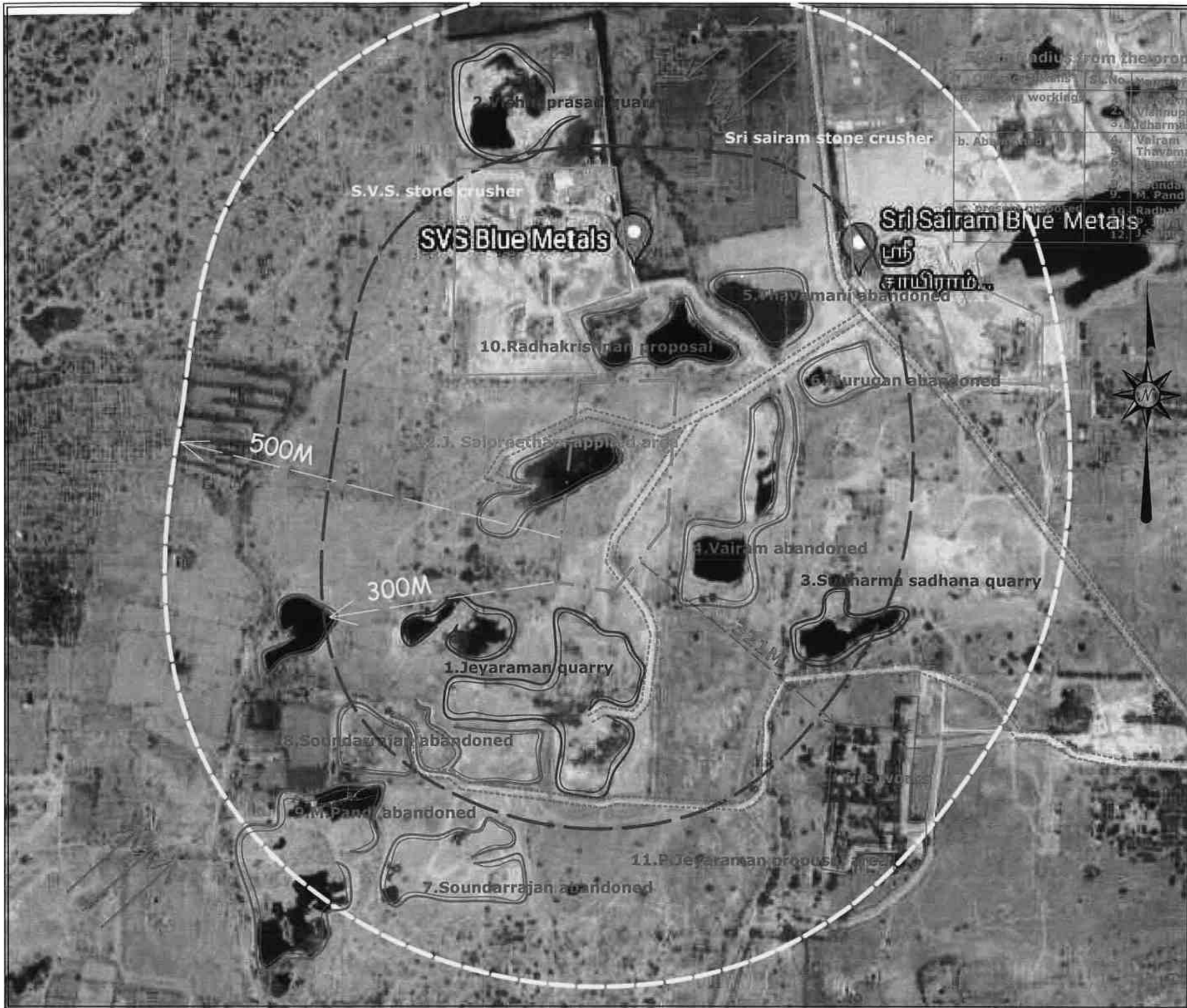
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J. Saipreetham

PLATE NO. VII

DEC 2022



Radius from the proposed quarry (J. Saipreetham proposal area)

S.No	Name of owner	Village name	Survey nos	Extent (Ha)	Distance (m)
1	Vairam	Nathikudi	916/451	3-20.16	150
2	Vairamprasad	Nathikudi	886/1	3-33.50	150
3	Sudharmasadhana	Nathikudi	807/4C	1-63.8	155
4	Vairam	Nathikudi	919/2B	3-16.40	15
5	Thavamani	Nathikudi	808/1	prior-2012	127
6	Thavamani	Nathikudi	807/2	prior-2012	165
7	Soundarajan	Nathikudi	922/2,3,4	prior-2020	305
8	Soundarajan	Nathikudi	915,916,etc.,	prior-2020	230
9	M. Pand	Nathikudi	922/1	prior-2021	335
10	Radhakrishnan	Nathikudi	886/2,7,9	3-16.40	15
11	Radhakrishnan	Nathikudi	920/1B1 & 921/1,2	4-74.00	15
12	J. Saipreetham	Nathikudi	919/1,2A(P)	3-33.50	applied
TOTAL EXTENT (Ha)				19-30.90Ha	

NAME OF THE APPLICANT:
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D.NO.81, N.G.G.O. COLONY,
SRIVILLIPUTHUR TOWN & TALUK,
VIRUDHUNAGAR DISTRICT.

DISTRICT : VIRUDHUNAGAR
TALUK : VEMBAKOTTAI
VILLAGE : NATHIKUDI
S.F.Nos. : 919/1,2A(P)
EXTENT : 3-33.50 HECTARE.

INDEX:-

LEASE APPLIED BOUNDARY	---
SAFETY DISTANCE 7.5M	----
300M RADIUS	====
500M RADIUS	-----
WIND DIRECTION	---
APPROACH ROAD

ROUGH STONE / JELLY / GRAVEL QUARRY
ENVIRONMENTAL PLAN
SCALE:- 1: 5000

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J. Saipreetham
 177

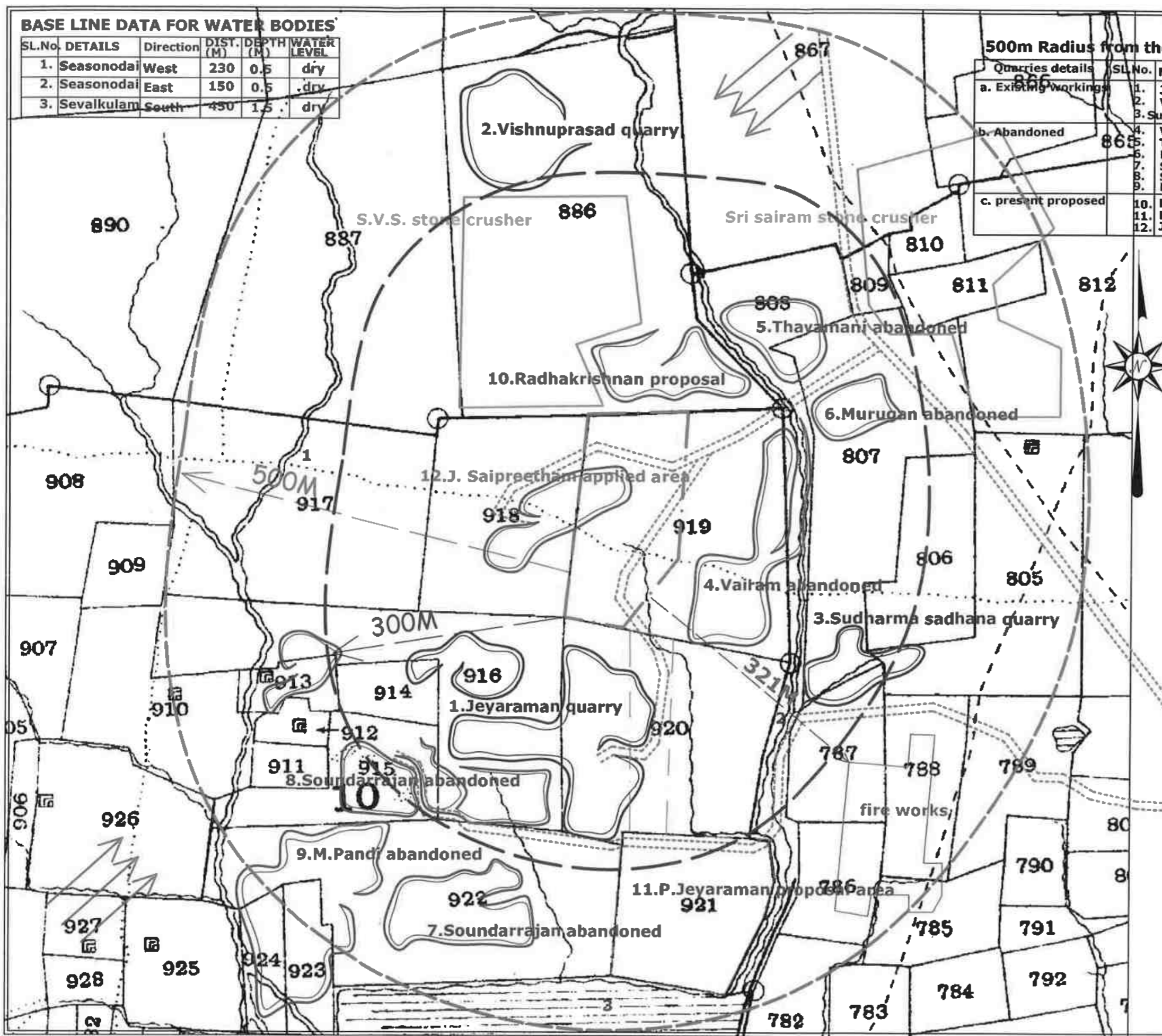
BASE LINE DATA FOR WATER BODIES

SL.No	DETAILS	Direction	DIST. (M)	DEPTH (M)	WATER LEVEL
1.	Seasonodai	West	230	0.5	dry
2.	Seasonodai	East	150	0.5	dry
3.	Sevalkulam	South	450	1.5	dry

PLATE NO. VIIA

500m Radius from the proposed quarry (J. Saipreetham proposal area)

Quarries details	SL.No.	Name of owner	Village name	Survey nos	Extent (Ha)	Distance (mt)
a. Existing workings	1.	Jeyaraman	Nathikudi	916/4C1, 1A & 920/1A1, 1A3	2-97.5	15
	2.	Vishnuprasad	Nathikudi	886/1A1, 9, 10, etc	3-47.0	300
	3.	Sudharmasadana	Nathikudi	807/4C	1-62.5	155
b. Abandoned	4.	Vairam	Nathikudi	919/2B	prior-2018	18
	5.	Thavamani	Nathikudi	808/1	prior-2012	127
	6.	Murugan	Nathikudi	807/2	prior-2012	165
	7.	Soundarrajan	Nathikudi	922/2,3,4	prior-2020	305
	8.	Soundarrajan	Nathikudi	915,916, etc.,	prior-2020	230
	9.	M. Pandi	Nathikudi	922/1	prior-2021	335
c. present proposed	10.	Radhakrishnan	Nathikudi	886/2,7,9	3-16.40	15
	11.	P. Jeyaraman	Nathikudi	920/1B1 & 921/1,2	4-74.00	15
	12.	J.Saipreetham	Nathikudi	919/1,2A(P)	3-33.50	applied
TOTAL EXTENT (Ha)					19-30.90Ha	



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VIRUDHUNAGAR DISTRICT.

DISTRICT : VIRUDHUNAGAR
TALUK : VEMBAKOTTAI
VILLAGE : NATHIKUDI
S.F.Nos. : 919/1,2A(P)
EXTENT : 3-33.50 HECTARE.

- INDEX:-**
- AREA APPLIED FOR QUARRY LEASE
 - APPROACH ROAD
 - 300M RADIUS LINE
(No well, No historical monuments, one seasonal odai is situated in east -150M safety distance)
 - 500M RADIUS LINE
(No habitations, No temples, 3 working quarries with in 500m radius & No other structures like culverts, head works, bridges etc.,)
- Static water table in winter - 40M**
in summer - 45M

ROUGHSTONE/JELLY/GRAVEL QUARRY
VILLAGE MAP
showing environmental features
SCALE:- 1: 5000

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J. Saipreetham

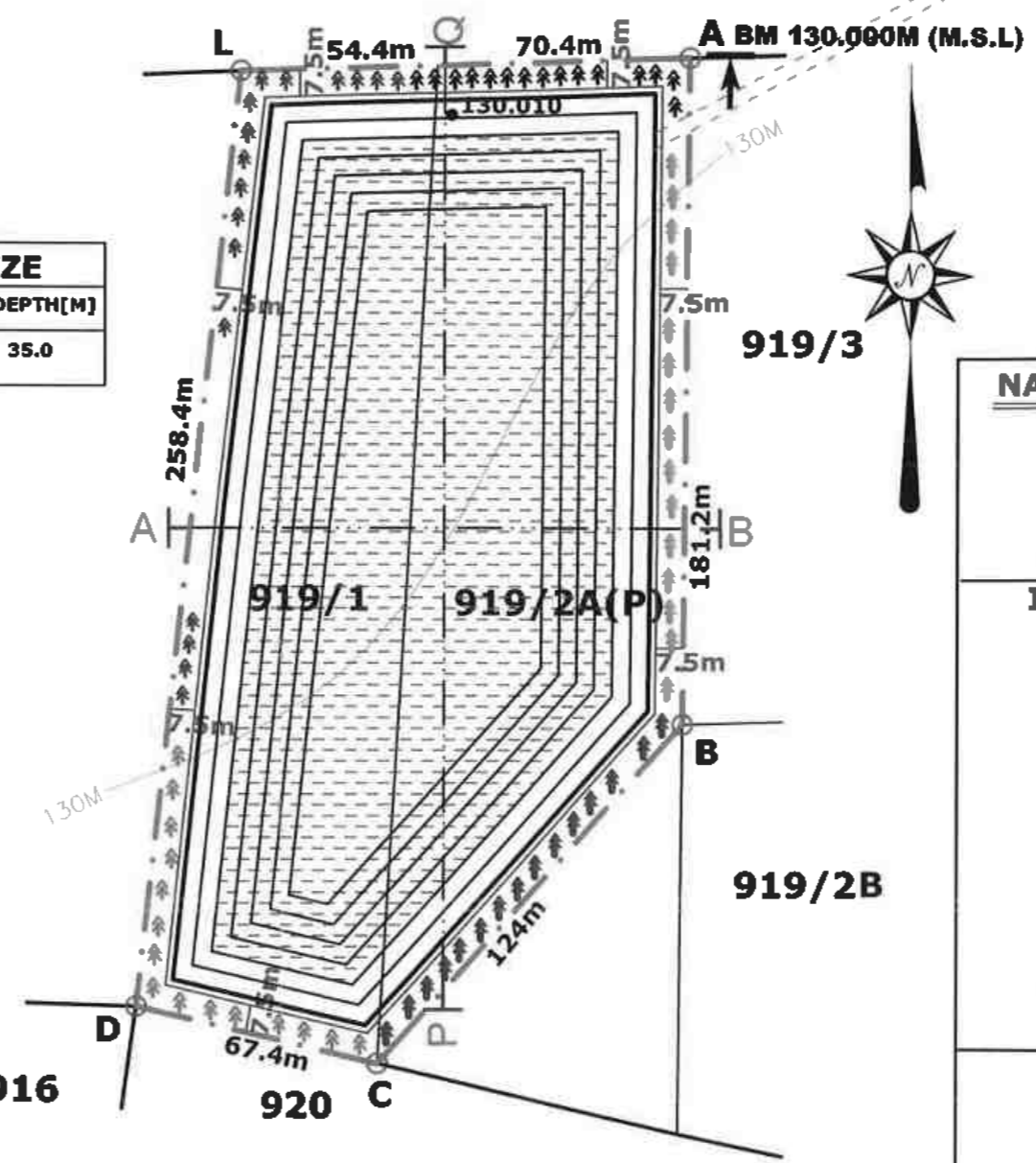


886

PRESENT MINING LAND USE PLANNING
(BREAKUP ALONG WITH GREENBELT ETC.;

SL.No	LAND USE CATEGORY	AT THE END OF LIFE OF MINE
1.	Mining / Excavation	2-89.5 hectare
2.	Storage of Top soil	0-00.0 hectare
3.	Sorting and mineral Dressing yard	0-00.0 hectare
4.	Infrastructure & Road	0-08.0 hectare
5.	Afforestation (greenbelt & plantation)	0-27.0 hectare
6.	Water reservoir	2-89.5 hectare (after closure of mine)
7.	Undisturbed area	0-00.0 hectare
8.	Fencing	0-09.0 hectare
TOTAL		3-33.50 Hectare.

ULTIMATE PIT SIZE			
SECTION	LENGTH[M]	WIDTH[M]	DEPTH[M]
PQ-AB	235	119	35.0



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CONTOURS	
BENCH MARK	
APPROACH ROAD	
LAYOUT OF MINE WORKING (FUTURE WATER RESERVOIR)	

ROUGH STONE / JELLY / GRAVEL QUARRY

PROGRESSIVE MINE CLOSURE PLAN

SCALE:- 1: 2000

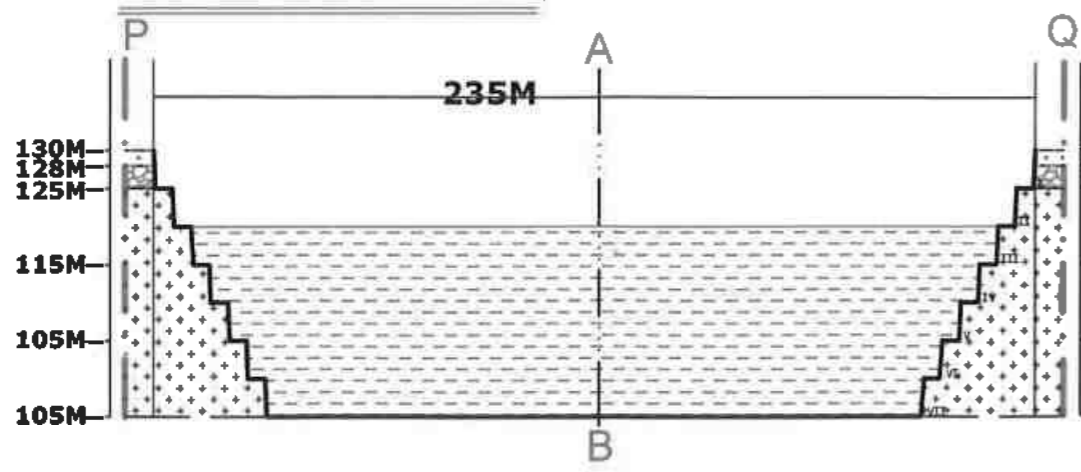
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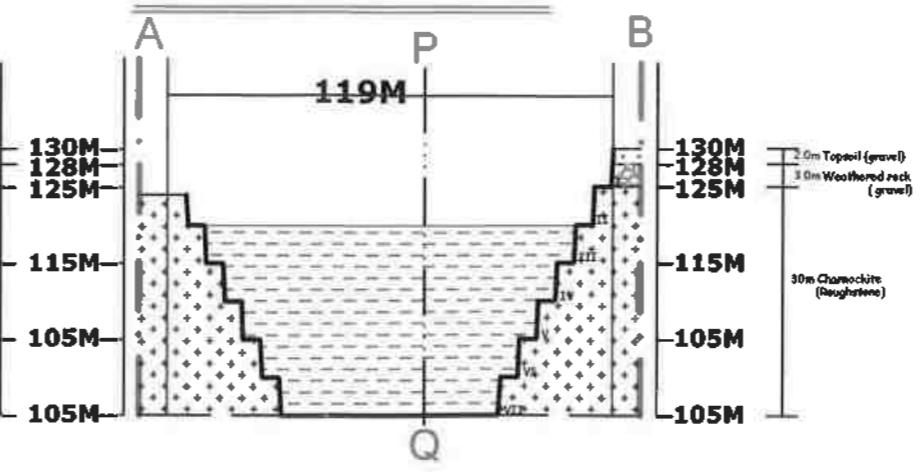
AFFORESTATION PROGRAMME

PLANTATION	TYPE	No of TREES	SPACING	AREA (Ha)	SURVIVAL
I - YEAR	NEEM	15	6m x 6m	0-05.4	80%
II - YEAR	NEEM	15	6m x 6m	0-05.4	80%
III - YEAR	NEEM	15	6m x 6m	0-05.4	80%
IV - YEAR	NEEM	15	6m x 6m	0-05.4	80%
V - YEAR	NEEM	15	6m x 6m	0-05.4	80%
TOTAL PLANTATION		75	6m x 6m	0-27.0Ha	

SECTION ALONG P-Q



SECTION ALONG A-B



J. Sai Pritham
179