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# DRAFT ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENT MANAGEMENT PLAN

FOR OBTAINING

Environmental Clearance under EIA Notification – 2006  
Schedule Sl. No. 1 (a) (i): Mining Project

“B1” CATEGORY/ MINOR MINERAL / TENDER QUARRY-GOVERNMENT LAND/CLUSTER

**PANAMARATHUPATTI ROUGH STONE QUARRY**  
**CLUSTER EXTENT = 6.90.0 ha (2 Proposed + 1 Existing Quarries)**

NAME OF PROPOSED PROJECT PROPONENTS APPLYING IN CLUSTER

Sl. No.	Name	Village	Extent
1	M/s. Royal Stones	Panamarathupatti	1.00.0 ha
2	Thiru. P. Siva Kumar	Panamarathupatti	1.00.0 ha

at

**Panamarathupatti Village, Salem Taluk, Salem District**

Complied as per ToR obtained vide

P1 - Lr No. SEIAA-TN/F.No.7887/SEAC/ToR-868/2020 Dated: 12.03.2021

ToR Amendment:

File No. 11175, ToR Identification: TO24B0108TN5326611A

P2 - Lr No. SEIAA-TN/F.No.9500/SEAC/ToR-1308/2022 Dated: 07.12.2022

Environmental Consultant	ENVIRONMENTAL LAB
<p><b>GEO EXPLORATION AND MINING SOLUTIONS</b> Old No. 260-B, New No. 17, Advaita Ashram Road, Alagapuram, Salem – 636 004, Tamil Nadu, India Accredited for sector 1, Category A, 31 &amp; 38 Category 'B' Certificate No : NABET/EIA/2225/RA0276 Phone: 0427-2431989, Email: ifthiahmed@gmail.com, geothangam@gmail.com Web: www.gemssalem.com</p>	<p><b>NABL ACCREDITED LABORATORY</b> <b>EHS 360 LABS PRIVATE LIMITED,</b>  10/2 Ground floor, 50<sup>th</sup> street, 7<sup>th</sup> Avenue, Ashok Nagar, Chennai – 600 083</p>

**BASELINE MONITORING SEASON – MARCH 2024 TO MAY 2024**  
**DECEMBER 2024**

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## CLUSTER QUARRIES DETAILS

PROPOSED QUARRIES				
CODE	Name of the Proponent and Address	S.F. Nos	Extent	Status
P1	M/s. Royal Stones, 1.Thiru.M. Bharanitharan (Partner) 2.Thiru.P. Dharmalingam (Partner) 207A, Chinnammal Building, No.102-A, Peramanur Main Road, Four Roads, Salem - 636 007	1/7 (Part-7)	1.00.0 ha	Received for TOR Vide Lr No. SEIAA- TN/F.NO.7887/SEAC/ ToR-868//2020 Dated:12.03.2021 ToR Amendment: File No. 11175, ToR Identification: TO24B0108TN5326611A
P2	Thiru. P. Siva Kumar, S/o. S.Panneerselvam, No.268/8, 2nd Cross Street, Kattur, Alagapuram, Salem District – 636 016.	1/7 (Part-11)	1.00.0 ha	Received for TOR Vide Lr No. SEIAA- TN/F.No.9500/SEAC/ToR- 1308/2022 Dated: 07.12.2022
<b>TOTAL</b>			<b>2.00.0 ha</b>	
EXISTING QUARRY				
CODE	Name of the Proponent and Address	S.F.Nos	Extent	Lease Period
E1	Thiru. Arjunan, S/o, Kuppusamy, 11, Poonga Nagar, 3 <sup>rd</sup> East street, Sothupakkam, Melmaruvathur Post, Cheyyar taluk, Kanchipuram District	1/7 (Part-9)	4.90.0 ha	21.10.2018 To 20.10.2028
<b>TOTAL</b>			<b>4.90.0 ha</b>	
ABANDONED QUARRIES / LEASE EXPIRED QUARRIES				
CODE	Name of the Proponent and Address	S.F.Nos	Extent	Lease Period
A1	Thiru.M.Gopi, S/o, K. Manickam, 9/145, Erumapalayam main road, Seelanaickenpatty Post, Salem-636021	1/7 (Part-1)	0.81.0	23.04.2012 to 22.04.2017
A2	Thiru.S.Karthikeyan, S/o, Subramaniagounder, 2/169, Santhiyur,Parapatti Post, Mallur, Salem	1/7 (Part-3)	1.00.0	23.04.2012 To 22.04.2017
A3	Thiru.K.Devaraj, S/o, Kathavarayan, 1/41, Arumuga Pillaiyar koil Street, Gugai, Salem	1/7 (Part-4)	0.81.0	05.05.2011 To 04.05.2016
A4	Thiru.J.Mallika, W/o.R.Jayavel, Vattakadu, Karuppur Via, Omalur Taluk	1/7 (Part-5)	1.00.0	23.04.2012 To 22.04.2017
<b>TOTAL</b>			<b>3.18.0 ha</b>	
<b>TOTAL CLUSTER EXTENT</b>			<b>6.90.0 ha</b>	

Source: 1.AD Letter – Rc.No.179/2020/Mines- A Dated: 26.08.2020

2. AD Letter – Rc.No.180/2020 (Mines) Dated: 20.01.2021

Note:-

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

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## CHAPTER-1. INTRODUCTION

### 1.0 PREAMBLE

Rough Stone is the major requirement for construction industry. This EIA Report is prepared by considering Cumulative load of proposed & existing quarries within 500m radius from the proposal of M/s. Royal Stones Rough Stone Quarry. Total extent of Cluster of 6.90.0 ha at Panamarathupatti village, Salem taluk, Salem District and Tamil Nadu State, cluster area is calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1<sup>st</sup> July 2016.

The proponents awarded tender for Rough Stone over an extent of 2.00.0 ha, Government Land located in S.F.No.1/7 (Part-7) &1/7 (Part-11) of Panamarathupatti Village, Salem Taluk, Salem District, Tamil Nadu State. Tender date- 22.01.2020, Number- 3. Rc.No. 430/2018/Mines/(a), Date:20.01.2020.

The proponent has obtained necessary statutory clearances from the Department of Geology and Mining, Salem District, Tamil Nadu (Statutory Clearance Documents are enclosed along with Mining plan as Annexure No III). The total Extent of the quarries within the radius of 500m from this proposal is > 5Ha, hence the proposal falls under “B1” Category project as per the EIA notification, 2006 (As amended timely).

Proponent applied for Environmental Clearance to SEIAA, Tamil Nadu and obtained ToR vide

letter SEIAA-TN/F.No.7887/SEAC/ToR-868/2020 Dated: 12.03.2021-P1

ToR Amendment: File No. 11175, ToR Identification: TO24B0108TN5326611A-P1

letter SEIAA-TN/F.No.9500/SEAC/ToR-1308/2022 Dated: 07.12.2022-P2 for carrying out EIA and EMP studies for the Rough Stone Quarry.

To carry out the EIA studies and to prepare EIA and EMP studies the proponent M/s. Royal Stones & P.Sivakumar have engaged a consultant M/s. Geo Exploration and Mining Solutions, Salem, Tamil Nadu. The Baseline Monitoring study has been carried out during summer season (March - May 2024) considering the provisions of MoEF & CC Office Memorandum Dated: 29.08.2017 and MoEF & CC Notification S.O. 996 (E) Dated: 10.04.2015.

Environmental Impact Assessment (EIA) study is a process, used to identify the Environmental, Social and Economic impacts of a project prior to decision-making. EIA systematically examines both beneficial and adverse consequences of the proposed project and ensure that these impacts are considered during the project designing.

### 1.1 PURPOSE OF THE REPORT

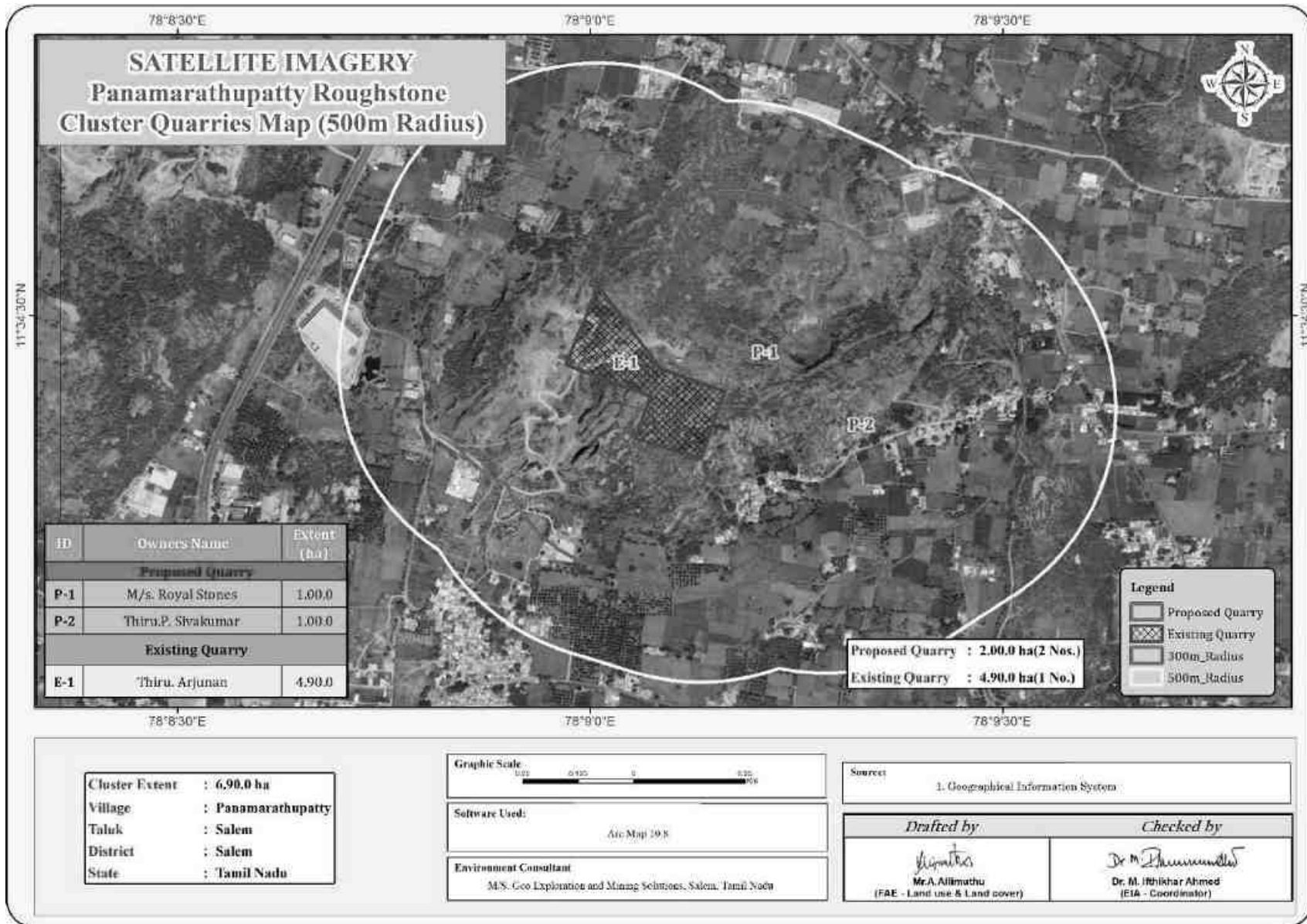
The Ministry of Environment and Forests, Govt. of India, through its EIA notification S.O. 1533(E) of 14<sup>th</sup> September 2006 and its subsequent amendments as per Gazette Notification S.O. 3977 (E) of 14<sup>th</sup> August 2018, Classified Mining Projects under two categories i.e., A (> 100 Ha) and B ( $\leq$  100 Ha), and Schematic Presentation of Requirements on Environmental Clearance of Minor Minerals including cluster situation in Appendix – XI was provided.

Now, as per Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green Tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018 clarified the requirement for EIA, EMP and therefore, Public Consultation for all areas from 5 to 25 ha falling in Category B - 1 and appraised by SEAC/ SEIAA as well as for cluster situation.

The proposed projects are categorized under category “B1” Activity 1(a) (mining lease area in cluster situation) and will be considered at SEIAA – TN after conducting Public Hearing and Submission of EIA/EMP Report for Grant of Environmental Clearance.

**“Draft EIA report prepared on the basis of ToR Issued for carrying out public hearing for the grant of Environmental Clearance from SEIAA, Tamil Nadu”**

**FIGURE1.1: CLUSTER QUARRIES MAP**



## 1.2 IDENTIFICATION OF PROJECT AND PROJECT PROPONENT

### 1.2.1 Identification of Project

- The proposal for Quarrying Rough stone in opencast Mechanized method
- M/s. Royal Stones applied for Rough Stone Quarrying Lease on 06.02.2020.
- The application was processed by the District Collector, Salem and issued Precise Area Communication Letter vide letter Rc.No.179/2020 (Kanimam) Dated: 03.06.2020.
- The Mining Plan was prepared under the provision of amendment rule 41 and 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 and submitted for approval to Department of Geology and Mining, Salem District.
- The Mining Plan was approved by Assistant Director, Department of Geology and Mining, Salem District for an ROM Capacity of 1,92,125m<sup>3</sup> (1,84,525m<sup>3</sup> Rough Stone + 7,600m<sup>3</sup> Topsoil) vide Letter Rc.No.179/2020 (Mines) Dated: 26.08.2020
- There is One Existing quarry located within the radius of 500 m as certified by Assistant Director, Department of Geology and Mining, Salem District vide Letter Rc.No.179/2020 (Mines) Dated: 08.09.2020

**TABLE 1.1: SALIENT FEATURES OF THE PROPOSAL**

PROPOSAL 'P1'	
<b>Name of the Project</b>	M/s. Royal Stones Rough Stone Quarry
<b>S.F. No.</b>	1/7 (Part-7)
<b>Extent &amp; Classification</b>	1.00.0 ha –Government Land
<b>Village Taluk and District</b>	Panamarathupatti Village, Salem Taluk, Salem District.
PROPOSAL 'P2'	
<b>Name of the Project</b>	Thiru.P. Sivakumar Rough Stone Quarry
<b>S.F. No.</b>	1/7 (Part-11)
<b>Extent &amp; Classification</b>	1.00.0 ha –Government Land
<b>Village Taluk and District</b>	Panamarathupatti Village, Salem Taluk, Salem District.

Source: Approved Mining Plan

### 1.2.2 Identification of Project PropONENT

**TABLE 1.2: DETAILS OF PROJECT PROPONENT**

PROPOSAL 'P1'	
<b>Name of the Project PropONENT</b>	M/s. Royal Stones 1.Thiru. M. Bharanitharan (Partner) 2.Thiru. P. Dharmalingam (Partner)
<b>Address</b>	207A, Chinnammal Building, No.102-A, Peramanur Main Road, Four Roads, Salem – 636007
<b>Mobile No</b>	9865868222 & 9976088008
<b>E-Mail</b>	mbharranitharan@gmail.com
PROPOSAL 'P2'	
<b>Name of the Project PropONENT</b>	Thiru.P. Sivakumar
<b>Address</b>	S/o. S.Panneerselvam, No.268/8, 2nd Cross Street, Kattur, Alagapuram, Salem District – 636 016.
<b>Mobile No</b>	95005 15446
<b>E-Mail</b>	karthickmvel@gmail.com

Source: Approved Mining Plan

## 1.3 BRIEF DESCRIPTION OF THE PROJECT

### 1.3.1 Nature and Size of the Project

The quarrying operation is proposed to be carried out by Opencast Mechanized Mining method with 5.0m bench height and 5.0m bench width by deploying Jack Hammer Drilling & Slurry Explosive during blasting. Hydraulic

Excavator and tippers are used for Loading and transportation. Rock Breakers are deployed to avoid secondary blasting.

**TABLE 1.3: SALIENT FEATURES OF THE PROJECT-P1**

Name of the Mine	M/s. Royal Stones Rough Stone Quarry	
Toposheet No	58-I/02	
Latitude Between	11°34'25.18"N to 11°34'29.25"N	
Longitude Between	78°09'09.10"E to 78°09'13.95"E	
Highest Elevation	320m to 365m AMSL	
Proposed Depth of Mining	56 m (55m Rough Stone + 1m Topsoil )	
Water Level in the surrounds area	56 – 60m bgl	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Topography	The lease applied area is a hillock covered by topsoil formation of 1 m average thickness and massive Rough Stone Charnockite formation is notice clearly visible right from the surface as the entire area is covered by Rough Stone and Ground Level is 320m to 365m AMSL	
Machinery Proposed	Tractor mounted compressor with Jack Hammer	6
	Excavator bucket & Rock breaker attached	1
	Tippers	2
Proposed Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Manpower Proposed	20 Nos	
Mining Plan Period / Lease Period	5 Years/10 Years	
Proposed Pit Dimension	95m (L) x 80m (W) x 56m (D) (46m agl + 10m bgl)	
Nearby Water Bodies	Tank Near Veedanur	9.3km South West
	Kumaragiri Lake	9km North East
	Minnakkal Lake	8.4km South West
	Tank near Bairoji	8km South West
	Tank near Attavanaipulaveri	4.4km North West
	Thirumanimutharu River	6.3km North West
	Tank near Sandaipet	5km North West
	Panamarathupatti Lake	2.5km North East
	Tank Near Mookuthipalayam	3.3km South West
	Tank Near Gajallnayakkanpatti	2.1km North West
	Tank near Nathamedu	600m South East
500 m Radius Quarries	Proposed Quarry – 2 Nos (2.00.0 ha) Existing Quarry – 1 No (4.90.0 ha)	
Project Cost	<b>Rs. 63,76,000/-</b>	
CER Cost	Rs 5,00,000	
Greenbelt Development Plan	Proposed to plant 600 trees in Approach Road and nearby periphery of the village Road after consulting the local Panchayat authority and Agriculture Experts area 7.5 m & 10m Safety Zone	
Nearest Reserve Forest	Jarugumalai RF – 1.27km – Northeast	
Proposed Water Requirement	6.12 KLD	
Nearest Habitation	450m Southeast	
	<b>Rough Stone</b>	<b>Topsoil</b>
Geological Resources in m <sup>3</sup>	5,75,950 m <sup>3</sup>	10,000 m <sup>3</sup>
Mineable Reserves in m <sup>3</sup>	3,68,700 m <sup>3</sup>	10,000 m <sup>3</sup>
Topsoil Conservation	The above topsoil shall be excavated and dumped separately at Safety barrier Zone and subsequently will be utilized in spreading over reclaimed areas for plantation during mine closure stage. Precautions will be taken to limit the height of the topsoil dump from 3 to 4 meters in order to preserve its fertility and shelf life. It will be suitably protected from soil erosion and infertility by constructing a retaining wall at the foot wall side and by planting fodder grass and leguminous plants during temporary storage.	

**TABLE 1.3A: SALIENT FEATURES OF THE PROJECT-P2**

Name of the Mine	P.Sivakumar Rough Stone Quarry	
Toposheet No	58-I/02	
Latitude Between	11°34'20.22"N to 11°34'24.83"N	
Longitude Between	78°09'16.04"E to 78°09'21.73"E	
Highest Elevation	305m to 350m AMSL	
Proposed Depth of Mining	66 m (65m Rough stone+ 1m Topsoil)	
Water Level in the surrounds area	56 – 60m bgl	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Topography	The lease applied area is a hillock covered by topsoil formation of 1 m average thickness and massive Rough Stone Charnockite formation is notice clearly visible right from the surface as the entire area is covered by Rough Stone and Ground Level is 305m to 350m AMSL	
Machinery Proposed	Tractor mounted compressor with Jack Hammer	7
	Excavator bucket & Rock breaker attached	1
	Tipplers	2
Proposed Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Manpower Proposed	21Nos	
Mining Plan Period / Lease Period	5 Years/10 Years	
Proposed Pit Dimension	121m (L) x 60m (W) x 66m (D) (46m agl + 20m bgl)	
Nearby Water Bodies	Tank near Nathamedu	350m SE
	Panamarathupatti Lake	2.5km NE
	Tank Near Gajallnayakkanpatti	2.5km NW
	Tank Near Mookuthipalayam	3.5km SW
	Tank near Attavanaipulaveri	4.5km NW
	Tank near Sandaipet	5.5km NW
	Thirumanimutharu River	6.5km NW
	Tank near Bairoji	8.5km SW
	Minnakkal Lake	8.8km SW
	Kumaragiri Lake	9.km NE
Tank Near Veedanur	9.5km SW	
500 m Radius Quarries	Proposed Quarry – 2 Nos (2.00.0 ha) Existing Quarry – 1 No (4.90.0 ha)	
Project Cost	<b>Rs. 61,75,000/-</b>	
CER Cost	Rs 5,00,000	
Greenbelt Development Plan	Proposed to plant 600 trees in Approach Road and nearby periphery of the village Road after consulting the local Panchayat authority and Agriculture Experts area 7.5 m & 10m Safety Zone	
Nearest Reserve Forest	Jarugumalai RF – 1.17km – Northeast	
Proposed Water Requirement	2.0 KLD	
Nearest Habitation	400m Southeast	
	<b>Rough Stone</b>	<b>Topsoil</b>
Geological Resources in m <sup>3</sup>	4,52,495 m <sup>3</sup>	10,020 m <sup>3</sup>
Mineable Reserves in m <sup>3</sup>	3,20,595 m <sup>3</sup>	10,020 m <sup>3</sup>
Topsoil Conservation	The above topsoil shall be excavated and dumped separately at Safety barrier Zone and subsequently will be utilized in spreading over reclaimed areas for plantation during mine closure stage. Precautions will be taken to limit the height of the topsoil dump from 3 to 4 meters in order to preserve its fertility and shelf life. It will be suitably protected from soil erosion and infertility by constructing a retaining wall at the foot wall side and by planting fodder grass and leguminous plants during temporary storage.	

Source: Approved Mining Plan &amp; Survey of India Toposheet

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**1.3.2 Location of the Project**

- The proposed quarry project falls in Panamarathupatti Village, Salem Taluk and Salem District.
- Project area is located about 1.6 km North West side of Panamarathupatti Village, 10 km South East side of Salem District.
- The Panamarathupatti Village is located about 11 km South East side of Salem Taluk.
- The area is marked in the Survey of India, Toposheet No. 58-I/02. The area lies between the Latitudes of 11°34'20.22"N to 11°34'29.25"N and Longitudes of 78°09'09.10"E to 78°09'21.73"E.

**FIGURE1.2: KEY MAP SHOWING THE LOCATION OF THE PROJECT SITE**

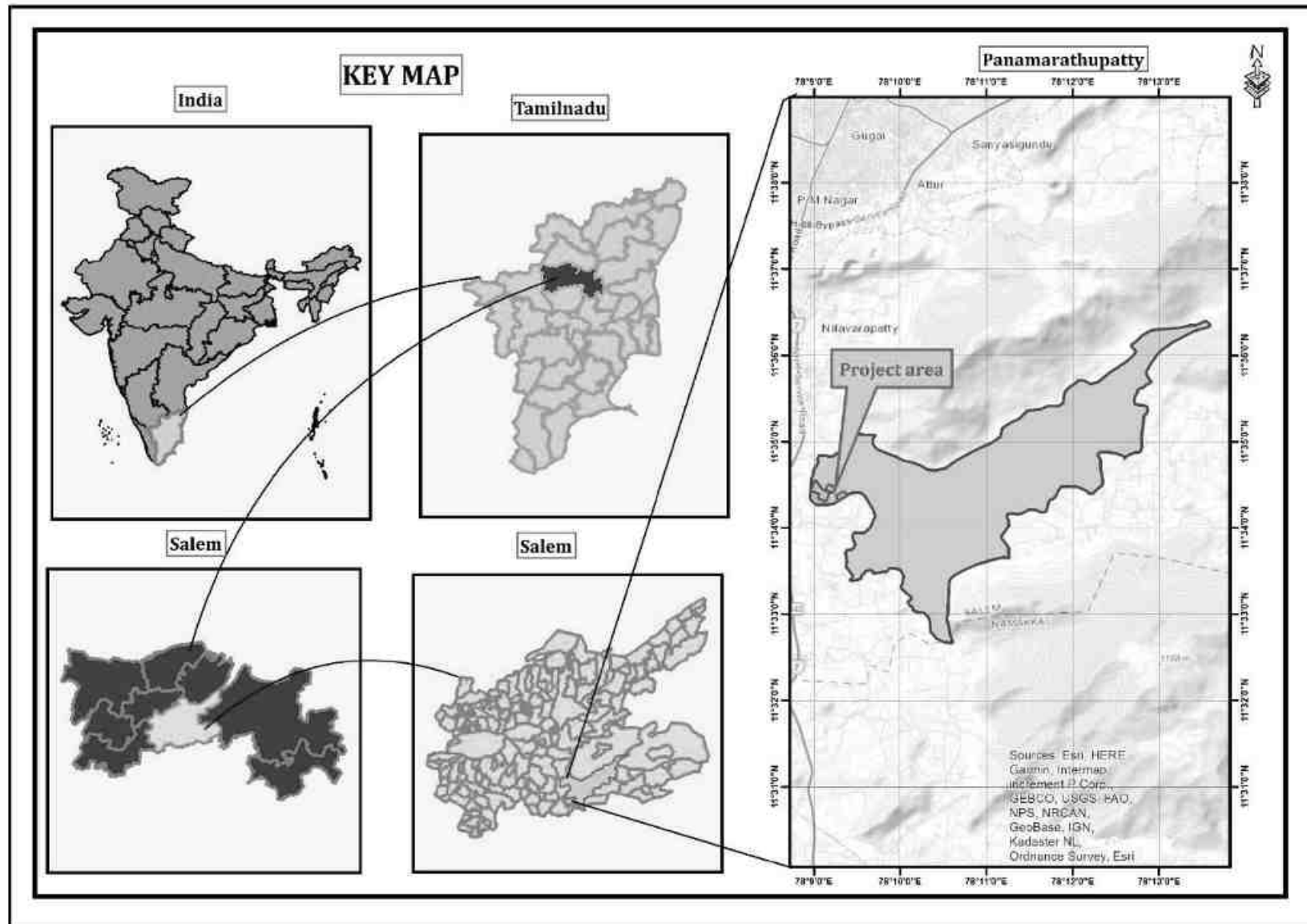
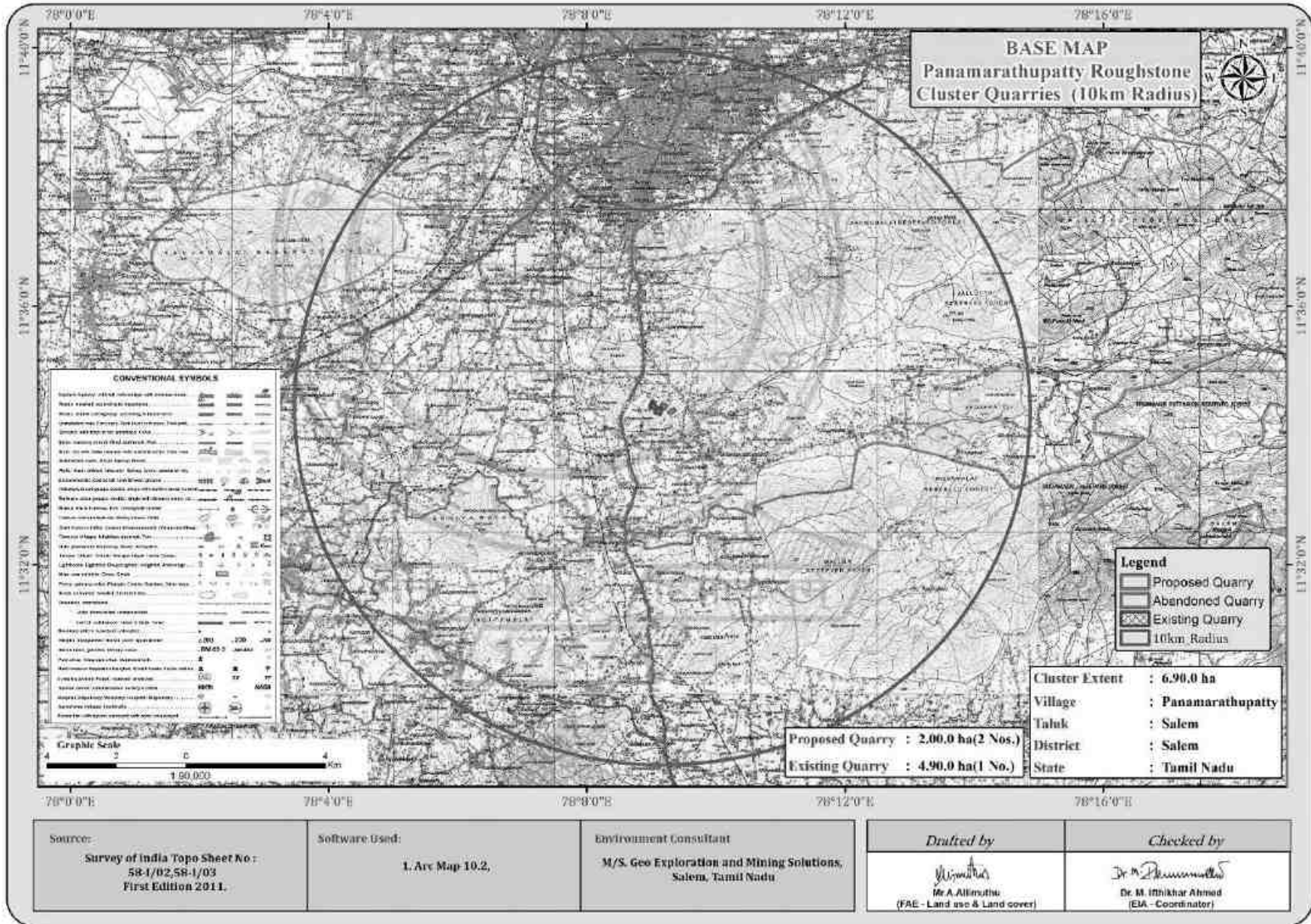




FIGURE 1.3: TOPOSHEET MAP OF THE STUDY AREA 10 KM RADIUS



## 1.4 ENVIRONMENTAL CLEARANCE

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

1. Screening,
2. Scoping
3. Public consultation &
4. Appraisal

### Screening – P1

- The proponent applied for Rough Stone Quarry Lease Dated :06.02.2020
- Precise Area Communication Letter was issued by the District Collector Rc.No.179/2020/ Mines- A Dated:03.06.2020
- The Mining Plan was prepared and got approved by Assistant Geologist/Assistant Director(I/c), Dept.of Geology and Mining, collectorate, Salem Rc.No.179/2020/ Mines- A Dated:26.08.2020
- Proponent applied for ToR for Environmental Clearance vides online Proposal No. SIA/TN/MIN/56965/2020 Dated:24.09.2020

### Scoping – P1

- The proposal was placed in 197<sup>th</sup> SEAC meeting held on 03.02.2021 and the committee recommended for issue of ToR.
- The proposal was considered in 427<sup>rd</sup> SEIAA meeting held on 01.03.2021 and issued ToR vide Lr.No.SEIAA-TN/F.NO.7887/SEAC/ToR-868/2020 Dated:12.03.2021
- ToR Amendment: File No. 11175, ToR Identification: TO24B0108TN5326611A

### Screening – P2

- The proponent applied for Rough Stone Quarry Lease Dated :06.02.2020
- Precise Area Communication Letter was issued by the District Collector Rc.No.180/2020/ Mines- A Dated:22.06.2020
- The Mining Plan was prepared and got approved by Assistant Geologist/Assistant Director(I/c), Dept.of Geology and Mining, collectorate, Salem Rc.No.180/2020/ Mines- A Dated:20.01.2021
- Proponent applied for ToR for Environmental Clearance vides online Proposal No. SIA/TN/MIN/402134/2020 Dated:10.10.2022

### Scoping – P2

- The proposal was placed in 331<sup>th</sup> SEAC meeting held on 24.11.2022 and the committee recommended for issue of ToR.
- The proposal was considered in 576 SEIAA meeting held on 07.12.2022 and issued ToR vide Lr.No.SEIAA-TN/F.NO.9500/SEAC/ToR-1308/2022 Dated:07.12.2022

### Public Consultation –

Application to The Member Secretary of the Tamil Nadu Pollution Control Board (TNPCB) to conduct Public Hearing in a systematic, time bound and transparent manner ensuring widest possible public participation at the project site or in its close proximity in the district is submitted along with this Draft EIA/ EMP Report and the outcome of public hearing proceedings will be detailed in the Final EIA/EMP Report.

### Appraisal –

Appraisal is the detailed scrutiny by the State Expert Appraisal Committee (SEAC) of the application and other documents like the Final EIA & EMP Report, outcome of the Public Consultations including Public Hearing Proceedings, submitted by the proponent to the regulatory authority concerned for grant of environmental clearance

The report has been prepared using the following references:

- Guidance manual of environmental impact assessment for mining of minerals, ministry of environment and forests, 2010
- EIA Notification, 14<sup>th</sup> September, 2006
- ToR Letter No. SEIAA-TN/F.No.7887/SEAC/ToR-868/2020 Dated: 12.03.2021  
ToR Amendment: File No. 11175, ToR Identification: TO24B0108TN5326611A
- ToR Letter No. SEIAA-TN/F.No.9500/SEAC/ToR-1308/2022 Dated: 07.12.2022
- Approved Mining Plan of all the Proposed and Existing Quarries in the Cluster.

## 1.5 TERMS OF REFERENCE (ToR)

“ToR issued vide Letter No. SEIAA-TN/F.No.7887/SEAC/ToR-868/2020 Dated: 12.03.2021”

ToR Amendment: File No. 11175, ToR Identification: TO24B0108TN5326611A – P1

SPECIFIC CONDITIONS		
1	Restricting the depth of mining from 66m to 56m ultimate depth and quantity of 1,79,755 cu.m of Rough Stone & 7600cu.m of Topsoil for five years with a bench height of 5m as per the approved mining plan considering the hydrogeological regime of the surrounding area	Noted and agreed
2	The Project Proponent shall furnish the contour map of the water table detailing the number of wells located around the site and its impacts on the wells due to mining activity	Hydrogeological study was carried out in the pre monsoon season (March – May 2024) detailing the number of wells located around the site and is discussed in Chapter 3, Page No.63-71.
3	The proponent shall conduct the hydro-geological study to evaluate the impact of proposed mining activity on the ground water table, agriculture activity, and water bodies such as rivers, tanks, canals, ponds etc. located nearby the proposed mining area.	The hydro-geological study was conducted in the pre monsoon season (March – May 2024) to evaluate the possible impact on the ground water table. No significant impacts are anticipated on the water bodies around the project area. Details are discussed under Chapter No. 3, Page No. 63-72.
4	The proponent shall furnish the details on number of groundwater pumping wells, open wells within the radius 1 km along with the water levels in both monsoon and non-monsoon seasons. The proponent also shall collect the data of water table level from the PWD/TWAD in this area in both monsoon and non-monsoon seasons.	Hydrogeological study was carried out in the pre monsoon season (March – May 2024). The number of open wells located around the site along with its water level is reported in Chapter 3, Page No. 63-71.
5	The Proponent shall conduct the cumulative impact study on the agricultural area due to mining, crushers and other activities around the site area.	A cumulative impact study on the agriculture area due to mining crushers and other activities around the project site is discussed in Chapter 7, Page no.149-156.
6	The details of surrounding well and the cumulative impact on the ground water shall be part of EIA Study.	The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on the water bodies around the project area. Details are discussed under Chapter No. 3, Page No. 63-71.
7	The Socio-economic impact assessment due to the project needs to be carried out within 10 km buffer zone from the mines.	The Socio-Economic Studies were carried out for 10 km buffer zone from proposed project and discussed under Chapter 3, Page No. 104-118
8	A tree survey study shall be carried out (nos name of the species, age) in the mining lease applied area and its management during mining activity.	It is a fresh quarry lease and hence there is no greenbelt development undertaken. It is proposed to plant about 500Nos of trees during this Mining plan period. The detailed

		Greenbelt Development Plan is discussed in Chapter No. 4. Page No.133
9	Proposal for CER activities should be furnished taking into consideration the requirement of the local habitants available within buffer zone as per Office Memorandum of MoEF& CC dated 01.05.2018.	Noted and agreed
10	A detailed mining closure plan for the proposed project shall be submitted.	
11	A detail report on the safety and health aspects of the workers and for the surrounding habitants during operation of mining for drilling and blasting should be submitted.	Standard Operating Procedures as per DGMS for Safety and Health aspects of the workers and for surrounding habitants during mining operations is to be followed. The details are discussed under Chapter No.10, Page No 162
12	The recommendation for the issue of Terms of Reference is subject to the final outcome of the Hon'ble NGT, Principal bench, New Delhi in O.A.No.186 of 2016 (M.A.No. 350/2016) and O.A.No.200/2016and O.A.No.580/2016(M.A.No.1182/2016)And O.A. No. 404/2016 (M.A.No758/2016, M.A.No 920/2016, M.A.No. 1122/2016, M.A.No.12/2017 &M.A.No. 843/2017) and O.A.No 405/2016 and O.A.No 520 of 2016 (M.A.No. 981/2016, M.A.No.982/2016 &M.A.No. 384/2017)	Noted and agreed
13	A details study of the lithology of the mining lease area shall be furnished	Existing quarries is located within 500m radius, the lithology of the area is clearly inferred from the existing pit, the entire area is covered by massive Charnockite (Rough stone) formation
14	The project proponent shall furnish the details of the existing Green belt area earmarked with GPS coordinates and a list of trees are planted with a copy of photos/documents along with the EIA Report	Not applicable it is a fresh lease area.
<b>ADDITIONAL CONDITIONS</b>		
1	As per the recommendation of SEAC and as accepted by the proponent, the ultimate depth of mining is restricted to 56m and accordingly the quantity of mining is 179,755cu.m of Rough stone & 7600cu.m of top soil for a period of five years	Noted and agreed.
2	As per the MoEF& cc office memorandum F.No.22 - 6512017-]4. III dated : 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	Noted and agreed.

“ToR issued vide Letter No. SEIAA-TN/F.No. 9500/SEAC/ToR-1308/2022 Dated: 07.12.2022” – P2

<b>SPECIFIC CONDITIONS</b>		
1	The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m shall enumerated with details such as dwelling houses with number of occupants, places worship, industries, factories, sheds, etc.	Noted and agreed VAO certificate enclosed in annexure

2	The Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry indicating the mitigating measures to be adopted while working in the hilly terrain during the EIA appraisal. as the depth of the proposed working is extended beyond 30 m above ground level and also extends below ground level	Noted and agreed 'Slope Stability Plan will be processed when the depth of the quarry reach 30m
3	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. mines foreman. I/II Class mines manager appointed by the proponent.	Noted and agreed
4	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 20 m from the blast site.	Noted and agreed
5	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.	Noted and agreed
6	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. h. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.	It is a new quarry
7	All corner coordinates of the mine lease area. superimposed on a High-Resolution Imagery/Toposheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone)	Noted and agreed. Project area boundary coordinates superimposed on Toposheet .
8	The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc. and it shall be furnished during the EIA appraisal	Noted and agreed.

9	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	Noted and agreed
10	The proponent shall rake 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 and it shall be furnished during the EIA appraisal.	Noted and agreed
11	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.	Details of Geological Resources and Proposed reserves are discussed under Chapter No. 2.
12	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 MM& 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment	Discussed about Organization chart in Chapter 6.
13	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 field collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.	The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on the water bodies around the project area. Details are discussed under Chapter No. 3.
14	-The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora./fauna including traffic/vehicular movement study	Baseline Data were collected for One Season (Pre Monsoon) March - May 2024 as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3.
15	The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind	The Cumulative impact study due to mining operations is explained in chapter – 7

16	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	Noted and agreed
17	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact. If any, of change of land use should be given.	Land use and land cover of the study area is discussed in Chapter No. 3. Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Chapter No. 2.
18	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use. R&R issues. If any. should be provided	Not applicable
19	Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range.
20	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.	Mine Closure in Chapter -2
21	impact on local transport infrastructure due to the Project should be indicated.	Transportation details mentioned in Chapter -2
22	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.	Details of the trees in the buffer zone given in Chapter No.3.
23	A detailed mine closure plan for the proposed project shall be included in EIA-/EMP report which should be site-specific.	Mine closure plan is detailed in Chapter:4.
24	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	Noted and Agreed
25	The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.	Noted and Agreed
26	The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.	Noted and agreed

27	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.	Noted and agreed
28	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.	Species are proposed to plant in the safety barrier as mentioned in the ToR appendix. Proposed species are given in the Chapter No 4 .
29	Taller/one ear 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	It is a fresh Lease. Around 600 trees are proposed to plant
30	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.	Disaster management Plan details in Chapter-7
31	A Risk Assessment and management Plan shall be prepared and included in the ELA/EMP Report.	A Risk Assessment and management Plan Chapter- 7
32	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Occupational Health impacts chapter- 10
33	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.	It is explained in Chapter -3
34	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.	Details are listed in Chapter:3
35	Details of litigation pending against the project, if any, with direction. /order passed by any Court of Law against the Project should be given.	No Litigation is pending



36	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.	Noted and agreed
37	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC. Regional Office, Chennai (or) the concerned DEE/TNPCB.	It is a fresh Lease
38	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.	Noted and agreed
39	stating to abide the EMP for the entire life of mine.	Noted and agreed
<b>ADDITIONAL CONDITIONS</b>		
1	Cluster Management Committee, which must include all the proponents in the cluster as members including the existing as well as proposed quarry.	Noted and agreed.
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..	Noted and agreed.
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.	Noted and agreed.
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	Noted and agreed.
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.	Discussed in Chapter: 7.
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	Discussed in Chapter: 7.
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	Noted and agreed
8	The committee shall furnish the Emergency Management plan within the cluster	Discussed in Chapter: 7.
9	The committee shall deliberate on the health of the workers/ staff involved in the mining as well as the health of the public	Noted and agreed

10	<p>Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following</p> <p>a) Soil health &amp; bio-diversity.  b) Climate change leading to Droughts, Floods etc.  c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, &amp; Livelihood of the local people.  d) Possibilities of water contamination and impact on aquatic ecosystem health.  e) Agriculture, forestry &amp; Traditional practices.  F) Hydrothermal /geothermal effect due to destruction in the Environment  g) Bio-geochemical processes and its footprints including environmental stress</p>	Noted and agreed
11	The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.	Noted and agreed
12	The committee shall furnish the fire safety and evacuation plan in the case of fire accidents'	Discussed in Chapter: 7.
13	The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy/ shall be furnished.	Discussed in Chapter: 4.
14	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.	Discussed in Chapter: 4. Around 600 trees are proposed to plant
15	Impact on surrounding agricultural fields around the proposed mining Area	Noted and agreed
16	Erosion Control measures.	Noted and agreed
17	Impact on soil flora & vegetation around the project site.	Details is discussed in chapter no.3
18	Detailed study shall be carried out regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.	Details is discussed in chapter no.3 Tank near Nathamedu – 350m SE.
19	The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological structures etc.	VAO certificate is Obtained
20	As per the MoEF& CC office memorandum F.No.22-65/2017-1A III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	Noted and agreed
21	The Environmental Impact Assessment shall study in detail on the carbon emission and also suggest the	Details of carbon emission and mitigation activities are given int the Chapter No.4

	measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.	
22	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.	Discussed in Chapter: 3.
23	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	The Eco System of the area will be retained during the mining operation by the way of planting trees in the boundary barrier and un utilized areas. After completion of mining operation, the quarried-out pit will be facilitated to collect the rainwater to pit act as temporary reservoir.
24	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the nearby water body and Reservoir.	Nearest water bodies is Tank near Nathamedu – 350m SE.
25	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.	There is Top soil in the project area, Details of impact on soil environment is detailed in Chapter No.4..
26	The Environmental Impact Assessment should study impact on forest, vegetation, endemic. vulnerable and endangered indigenous flora and fauna.	Details of flora and fauna studies given in the Chapter No.3,
27	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	About 600 trees is planted in safety and along roads
28	The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.	Details are discussed in the Chapter No 3.
29	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 with budgetary allocations given in the Chapter No. 10.
30	The Environmental Impact Assessment should study impact on climate change, temperature rise. pollution and above soil & below soil carbon stock.	The project will not cause significant impact on climatic change. Description about the project and climatic changes is described in Chapter No.3.
31	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	Anticipated Environment Impact and Mitigation measures are detailed in Chapter No.4
32	The project proponent shall study and furnish the impact of project on plantations in adjoin patta lands, Horticulture, Agriculture and livestock.	Proponent proposed to erect green mesh along with fencing on the South side besides, Budgetary allocation given in the Chapter No. 10
33	The project proponent shall study and furnish the details on potential fragmentation impact of natural environment, by the activities.	Details given in Chapter:4
34	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 near by caves, heritage Site. And archaeological sites possible land form changes visual and aesthetic impacts	
35	The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. fie 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.	
36	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.	
37	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/unfavorable accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.	Details given in Chapter:7
38	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining	Details given in Chapter:7
39	Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.	Details given in Chapter:2
40	Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued	Details given in Chapter: 10
<b>STANDARD TERMS OF REFERENCE</b>		
1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.	Not applicable. This is Not a violation category project. This proposal falls under B1 Category (Cluster Condition).
2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.	The applied land for quarrying is a Government Land. Document is enclosed along with Approved Mining Plan as Annexure Volume 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.	Noted & agreed.
4	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the	Map showing – Project area is superimposed on Satellite imagery is enclosed in Figure No. 2.2 . Project area boundary coordinates superimposed on Toposheet – Figure No. 1.3.

	land use and other ecological features of the study area (core and buffer zone).	Surface Features around the project area covering 10km radius – Figure No. 2.5. Geology map of the project area covering 10km radius - Figure No. 2.9. Geomorphology Map of the Study Area covering 10 km radius – Figure No. 2.10.
5	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.	Map showing – Geology map of the project area covering 10km radius - Figure No. 2.9. Geomorphology Map of the Study Area covering 10 km radius – Figure No. 2.10.
6	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.	The applied area was inspected by the officers of Department of Geology along with revenue officials and found that the land is fit for quarrying under the policy of State Government.
7	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by 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.	The proponent has framed their Environmental Policy and the same is discussed in the Chapter No 10.1, Page No 160.
8	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.	It is an opencast quarrying operation proposed to operate in Mechanized method. The rough stone formation is a hard, compact and homogeneous body. The height and width of the bench will be maintained as 5m with 90° bench angles. Quarrying activities will be carried out under the supervision of Competent Persons like Mines Manager, Mines Foreman and Mining Mate. Necessary permissions will be obtained from DGMS after obtaining Environmental Clearance.
9	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc., should be for the life of the mine / lease period.	Noted & agreed. The study area considered for this study is 10 km radius and all data contained in the EIA report such as waste generation etc., is for the Life of the Mine / lease period.
10	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features	Land use and land cover of the study area is discussed in Chapter No. 3.

	should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Chapter No. 2, Table No 2.3.
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	Not Applicable. There is no waste anticipated during this quarry operation. The entire quarried out Rough stone will be transported to the needy customers. No Dumps is proposed outside the lease area.
12	A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.	Not Applicable. There is no Forest Land involved in the proposed project area. The proposed project area is a government land. Approved Mining Plan is enclosed as Annexure Volume 1.
13	Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.	Not Applicable. The proposed project area does not involve any Forest Land.
14	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.	Not Applicable. The project doesn't attract Recognition of Forest Rights Act, 2006.
15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	No Reserve Forest within the Study 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.	Not Applicable. There are No National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km Radius from the periphery of the project area.
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	Not Applicable. There are No National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km Radius from the periphery of the project area.

	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.	Detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] was carried out and discussed under Chapter No. 3. There is no schedule I species of animals observed within study area as per Wildlife Protection Act 1972 as well as no species is in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area.
19	Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravalli Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range.
20	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).	Not Applicable. The project doesn't attract The C. R. Z. Notification, 2018.
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.	Not Applicable. There are no approved habitations within a radius of 300 meters. Therefore, R&R Plan / Compensation details for the Project Affected People (PAP) is not anticipated and Not Applicable for this project.

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>	<p>Baseline Data were collected for One Season (Non-Monsoon) March – May 2024 as per CPCB Notification and MoEF &amp; CC Guidelines. Details in Chapter No. 3,.</p>
23	<p>Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.</p>	<p>Air Quality Modelling for prediction of incremental GLC's of pollutant was carried out using AERMOD view 9.6.1 Model. Details in Chapter No. 4.</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>	<p>Total Water Requirement: 6.12 KLD Discussed under Chapter 2, Table No 2.13.</p>
25	<p>Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.</p>	<p>Not Applicable. Water for dust suppression, greenbelt development and domestic use will be sourced from accumulated rainwater/seepage water in mine pits and purchased from local water vendors through water tankers on daily requirement basis. Drinking water will be sourced from the approved water vendors.</p>
26	<p>Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.</p>	<p>Part of the working pit will be allowed to collect rain water during the spell of rain will be used for greenbelt development and dust suppression. The Mine Closure Plan is prepared for converting the excavated pit into rain water harvesting structure and serve as water reservoir for the project village during draught season.</p>
27	<p>Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary</p>	<p>Impact Studies and Mitigation Measures of Water Environment including Surface Water and Ground Water are discussed in Chapter 4.</p>



	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.	<b>Not Applicable.</b> The ground water table inferred 56-60m below ground level. The Proposed depth of quarry is 56 m (46m agl + 10m bgl). This proposal of 10m below ground level will not intersect the ground water table, which is inferred from the hydro-geological carried out at the project site. Discussed under Chapter 3.
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.	<b>Not Applicable.</b> There is no stream, seasonal or other water bodies passing within the project area. Therefore, no modification/diversion of water bodies is anticipated.
30	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and BGL. A schematic diagram may also be provided for the same.	Highest elevation of the project area is 365 m AMSL. The Proposed depth of quarry is 56 m (46m agl + 10m bgl)-P1. The Proposed depth of quarry is 66 m (46m agl + 20m bgl)-P2. Water level of the area is 56-60 m BGL
31	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.	Greenbelt Development Plan is discussed under Chapter 4.
32	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.	Traffic density survey was carried out to analyse the impact of Transportation in the study area as per IRC guidelines 1961 and it is inferred that there is no significant impact due to the proposed transportation from the project area. Details in Chapter 2.

33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	Infrastructure & other facilities will be provided to the Mine Workers after the grant of quarry lease and the same has been discussed in the Chapter No. 2.
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.	Discussed under Chapter 2. Mine Closure Plan is a part of Approved Mining Plan enclosed as Annexure Volume – 1
35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Occupational Health Impacts of the project and preventive measures are detailed under Chapter 4.
36	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	No Public Health Implications anticipated due to this project. Details of CER are discussed under Chapter 8.
37	Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	No Negative Impact on Socio Economic Environment on the Study Area is anticipated and this project shall benefit the Socio-Economic Environment by ways of employment for 20 people directly and 10 people indirectly. Details in Chapter 7.
38	Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.	Detailed Environment Management Plan for the project to mitigate the anticipated impacts described under Chapter 4 is discussed under Chapter 10.
39	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.	This draft report is prepared for conducting public hearing. The outcome of public hearing will be updated in the final EIA/AMP report
40	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	No litigation is pending in any court against this project.
41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.	Project Cost is Rs.63,76,100/--P1 & Project Cost is Rs.61,75,000/--P2 CER Cost is Rs.5,00,000/- for P1 and P2 In order to implement the environmental protection measures, an amount of Rs. 31.50 lakhs -P1 & Rs. 32.10 lakhs – P2 as capital cost and recurring cost as Rs. 15.50 lakhs -P1 & Rs. 15.75 lakhs -P2 as recurring cost is proposed considering present market price considering present market scenario for the proposed project.
42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Details in Chapter 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.	Details in Chapter 8.
44		
A	Executive Summary of the EIA/EMP Report	Enclosed as separate booklet.
B	All documents to be properly referenced with index and continuous page numbering.	All the documents are properly referenced with index and continuous page numbering.
C	Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.	List of Tables and source of the data collected are indicated.
D	Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF & CC / NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project	Baseline monitoring reports are enclosed with This report in Chapter 3. Original Baseline monitoring reports will be submitted in the final EIA report during appraisal. -
E	Where the documents provided are in a language other than English, an English translation should be provided.	Not Applicable.
F	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	Will be enclosed along with Final EIA/ EMP Report.
G	While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA.II(I) Dated: 4th August, 2009, which are available on the website of this Ministry, should be followed.	Noted & agreed. Instructions issued by MoEF & CC O.M. No. J-11013/41/2006-IA.II (I) Dated: 4 <sup>th</sup> August, 2009 are 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	Noted & agreed.
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.	Not Applicable.
J	The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.	Surface Plan – Figure No. 2.3 Geological Plan – Figure No 2.11

## 1.6 POST ENVIRONMENT CLEARANCE MONITORING

The project proponent shall submit a half-yearly compliance report in respect of stipulated Environmental Clearance terms and conditions to MoEF & CC Regional Office & SEIAA after grant of EC on 1<sup>st</sup> June and 1<sup>st</sup> December of each calendar year as per MoEF & CC Notification S.O. 5845 (E) Dated: 26.11.2018.

## 1.7 GENERIC STRUCTURE OF EIA DOCUMENT

The Generic Structure of the EIA report is prepared based on the EIA Notification S.O.1533 (E) 14<sup>th</sup> September 2006 Appendix III and the Guidance Manual for Mining of Minerals February 2010.

## 1.8 THE SCOPE OF THE STUDY

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

**TABLE 1.4: ENVIRONMENT ATTRIBUTES**

Sl.No.	Attributes	Parameters	Source and Frequency
1	Ambient Air Quality	PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>x</sub>	Continuous 24-hourly samples twice a week for three months at 8 locations
2	Meteorology	Wind speed and direction, temperature, relative humidity and rainfall	Near project site continuous for three months with hourly recording and from secondary sources of IMD station
3	Water quality	Physical, Chemical and Bacteriological parameters	Grab samples were collected at 5 ground water and 1 surface water locations once during study period.
4	Ecology	Existing terrestrial and aquatic flora and fauna within 10 km radius circle.	Limited primary survey and secondary data was collected from the Forest department.
5	Noise levels	Noise levels in dB(A)	8 locations – data monitored once for 24 hours during EIA study
6	Soil Characteristics	Physical and Chemical Parameters	Once at 6 locations during study period
7	Land use	Existing land use for different categories	Based on Survey of India topographical sheet and satellite imagery and primary survey.
8	Socio-Economic Aspects	Socio-economic and demographic characteristics, worker characteristics	Based on primary survey and secondary sources data like census of India 2011.
9	Hydrology	Drainage pattern of the area, nature of streams, aquifer characteristics, recharge and discharge areas	Based on data collected from secondary sources as well as hydro-geology study report prepared.
10	Risk assessment and Disaster Management Plan	Identify areas where disaster can occur by fires and explosions and release of toxic substances	Based on the findings of Risk Modelling done for the risk associated with mining.

Source: Onsite Monitoring Data/Sampling by EHS 360 Laboratories in association with GEMS

The data has been collected as per the requirement of the ToR issued by SEIAA – TN. The compliance of the ToR has been given in Chapter 1, Section 1.5.

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**1.8.1 Regulatory Compliance & Applicable Laws/Regulations**

- Application for Quarrying Lease as per Tamil Nadu Minor Mineral Concession Rules, 1959
- Obtained Precise Area Communication Letter as per Tamil Nadu Minor Mineral Concession Rules, 1959 for Preparation of Mining Plan and obtaining Environmental Clearance
- The Mining Plan of Rough Stone quarry has been approved under Rule 41 & 42as amended of Tamil Nadu Minor Mineral Concession Rules, 1959
- ToR issued vide Lr. No. SEIAA-TN/F.NO.7887/SEAC/ToR-868/2020 Dated:12.03.2021  
ToR Amendment: File No. 11175, ToR Identification: TO24B0108TN5326611A
- ToR issued vide Lr. No. SEIAA-TN/F.NO.9500/SEAC/ToR-1308/2022 Dated:07.12.2022

## CHAPTER 2- PROJECT DESCRIPTION

### 2.0 GENERAL

The Proposed Rough Stone Quarries requires Environmental Clearance. There are two proposed & one Existing Quarry within 500m radius from this proposal and total extent of quarries within 500 m radius is 6.90.0 ha. Therefore, this proposal falls under Cluster Situation as per MoEF & CC Notification S.O. 2269(E) Dated 1<sup>st</sup> July 2016.

As the extent of cluster are more than 5 ha, the proposal falls under B1 Category as per the Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green Tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018, and requirement for EIA, EMP and Public Consultation for obtaining Environmental Clearance.

### 2.1 DESCRIPTION OF THE PROJECT

The proposed projects are site specific and there is no additional area required for this project. There is no effluent generation/discharge from the proposed quarries. Rough Stone is proposed to be excavated by opencast mechanized method involving splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy crushers and rock breakers to avoid secondary blasting.

### 2.2 LOCATION OF THE PROJECT

- The proposed area is located in **Panamarathupatti Village, Salem Taluk, Salem District, Tamil Nadu.**
- The proposed area falls in the Survey of India Topo sheet No. 58-I/02
- The Latitude between of **11°34'25.18"N to 11°34'29.25"N**
- The Longitude between of **78°09'09.10"E to 78°09'13.95"E** on WGS 1984 Datum.
- The proposed area does not fall within 10 km radius of any eco – sensitive zone, Wild life Sanctuary, National Park, Tiger Reserve, Elephant Corridor and Biosphere Reserves.

**TABLE 2.1: SITE CONNECTIVITY**

<b>Nearest Roadway</b>	(NH-7) Salem – Karur – 1Km – NW (SH-86A) Salem – Tiruchengode Road – 7Km – NW
<b>Nearest Village/Habitation</b>	Panamarathupatti – 2Km – SE
<b>Nearest Town</b>	Salem – 10Km –North
<b>Nearest Railway</b>	Salem – 10Km –North
<b>Nearest Airport</b>	Salem Airport – 25Km – NW
<b>Seaport</b>	Kochi – 275 km – SW

Source: Survey of India Toposheet

**TABLE 2.2: BOUNDARY COORDINATES OF PROJECT AREA**

PROPOSAL 'P1'		
Corner Nos.	Latitude	Longitude
1	11°34'29.25''N	78°09'10.22''E
2	11°34'27.54''N	78°09'13.95''E
3	11°34'25.18''N	78°09'12.84''E
4	11°34'26.89''N	78°09'09.10''E

Source: Approved Mining Plan

PROPOSAL 'P2'		
Corner Nos.	Latitude	Longitude
1	11°34'20.22''N	78°09'17.13''E
2	11°34'21.85''N	78°09'16.04''E
3	11°34'24.83''N	78°09'20.65''E
4	11°34'23.20''N	78°09'21.73''E

Source: Approved Mining Plan

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**FIGURE 2.1: PHOTOGRAPHS OF THE PROJECT AREA**



FIGURE 2.2: GOOGLE IMAGE OF PROJECT AREA





FIGURE 2.2A: GOOGLE IMAGE OF PROJECT AREA



FIGURE 2.3: SURFACE PLAN OF THE PROJECT AREA

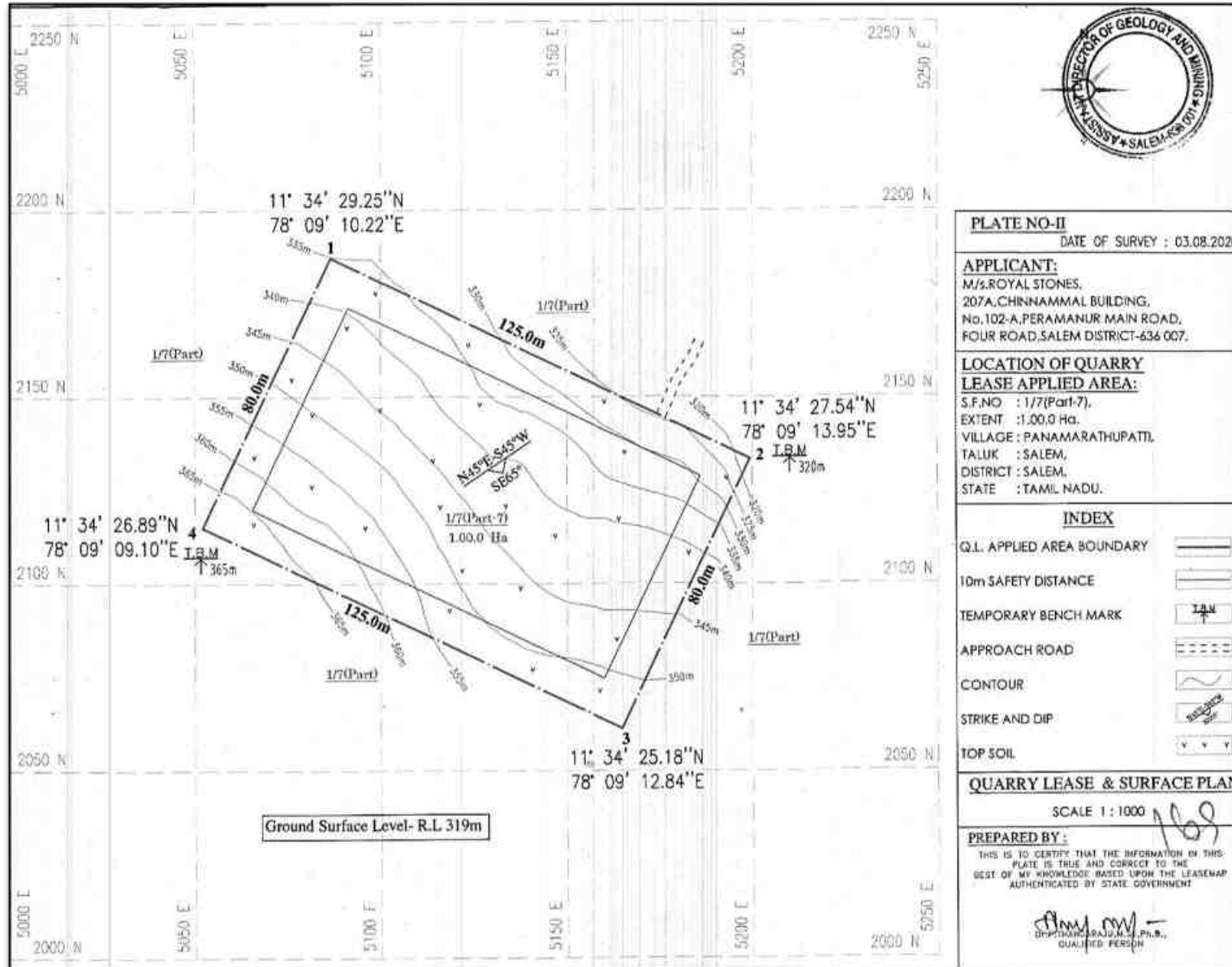


FIGURE 2.3A: SURFACE PLAN OF THE PROJECT AREA

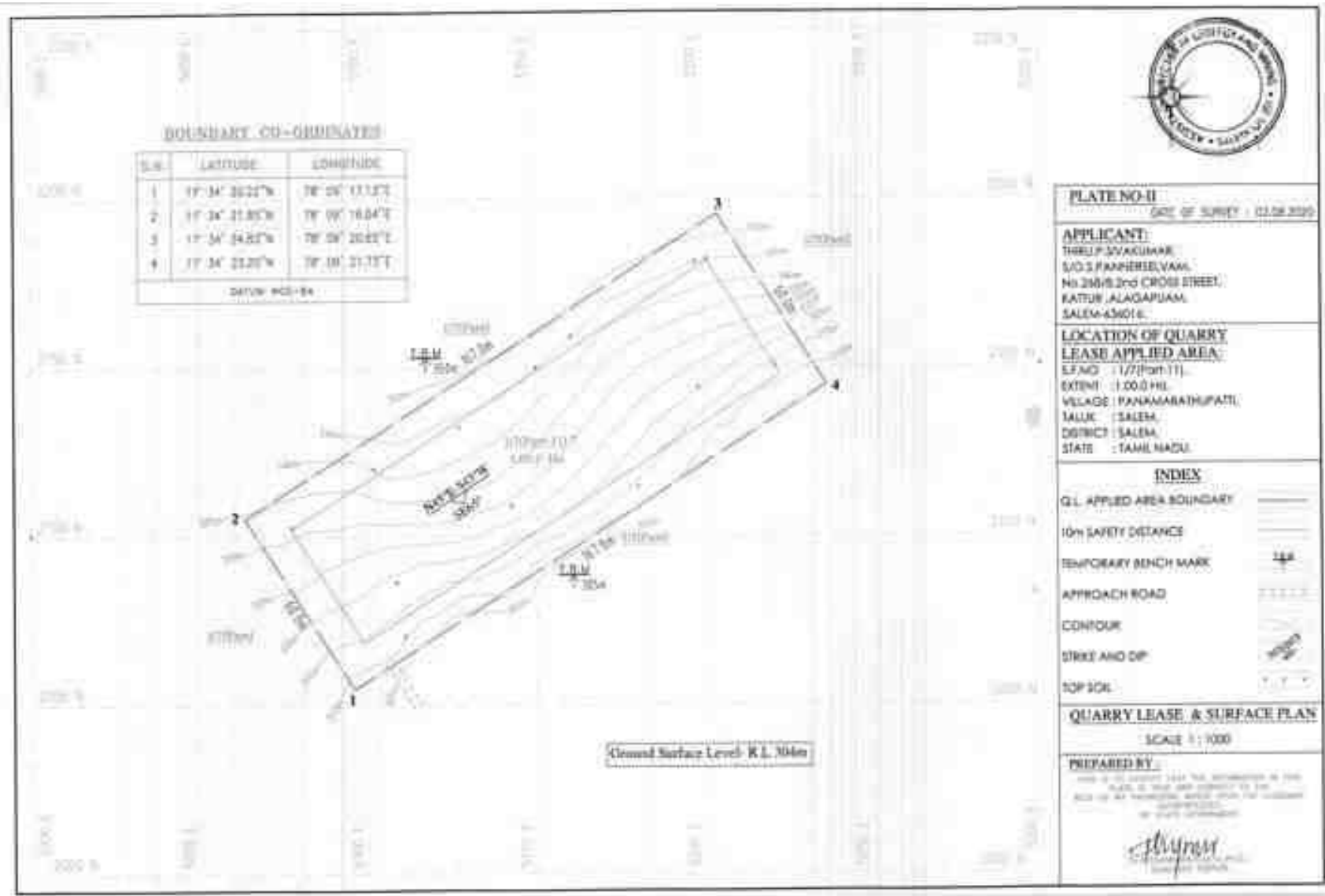


FIGURE 2.4 GOOGLE EARTH IMAGE

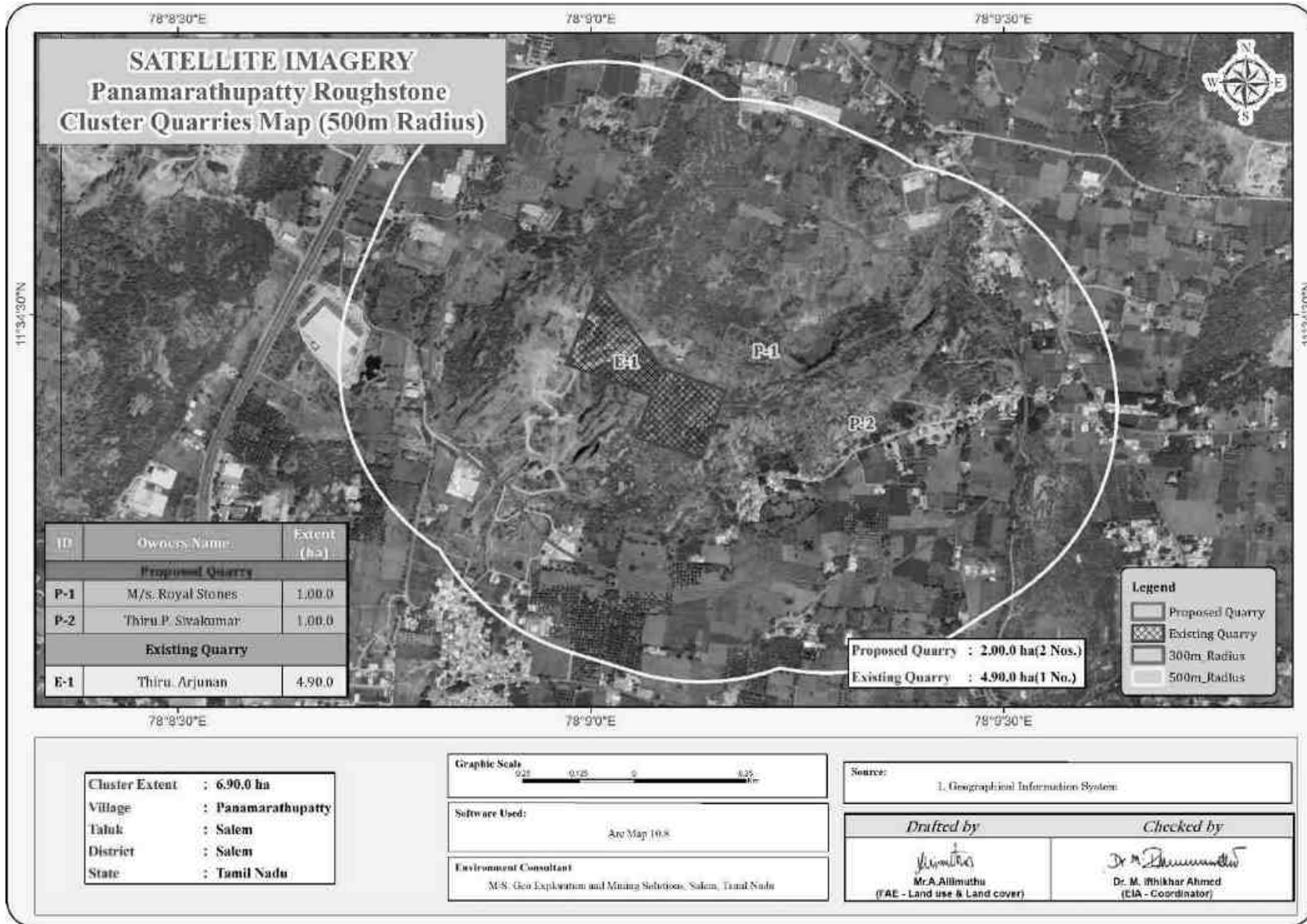


FIGURE 2.5 IMAGE SHOWING SURFACE FEATURES AROUND 10 KM RADIUS

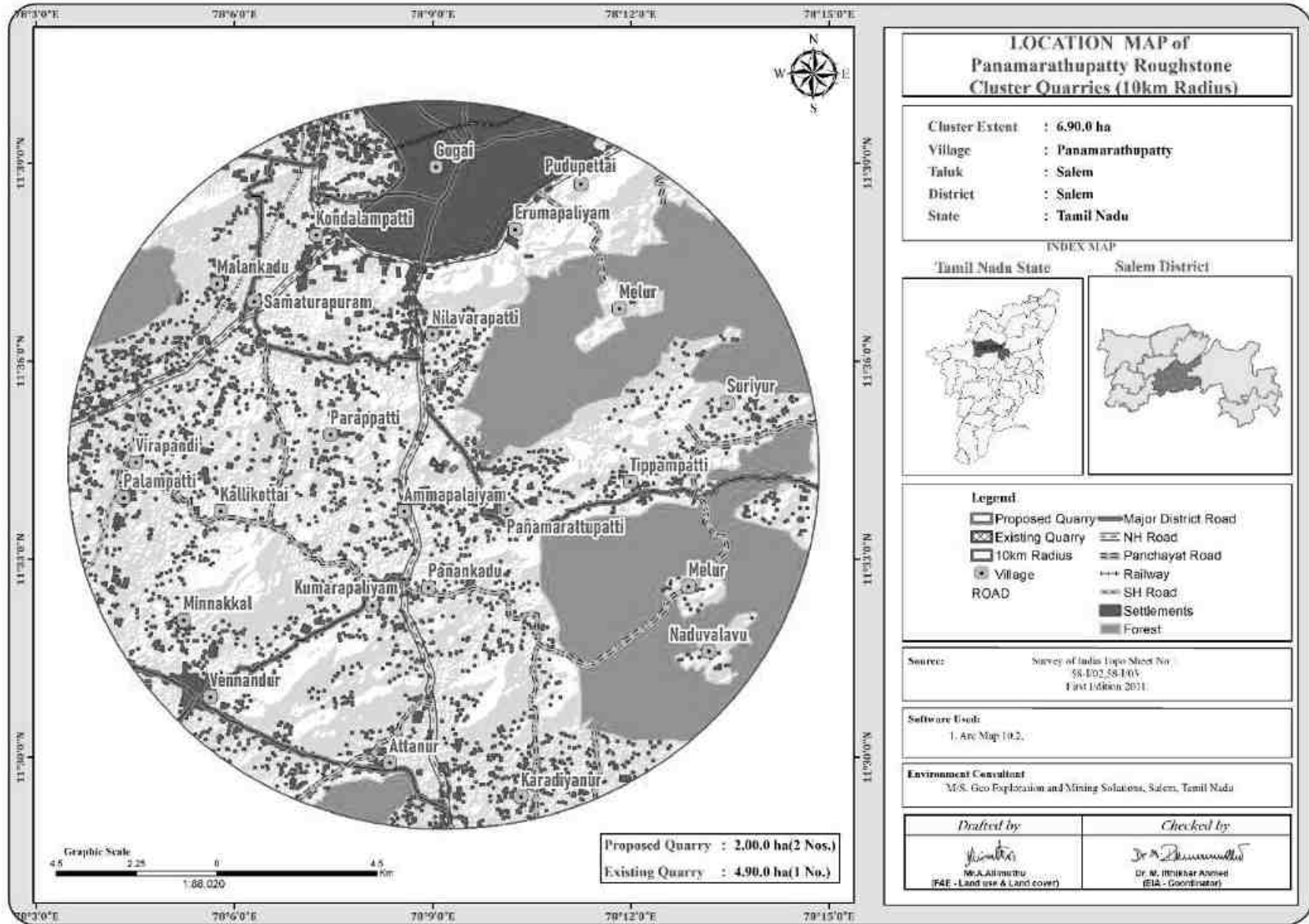


FIGURE 2.6: IMAGE SHOWING SURFACE FEATURES AROUND 5KM RADIUS

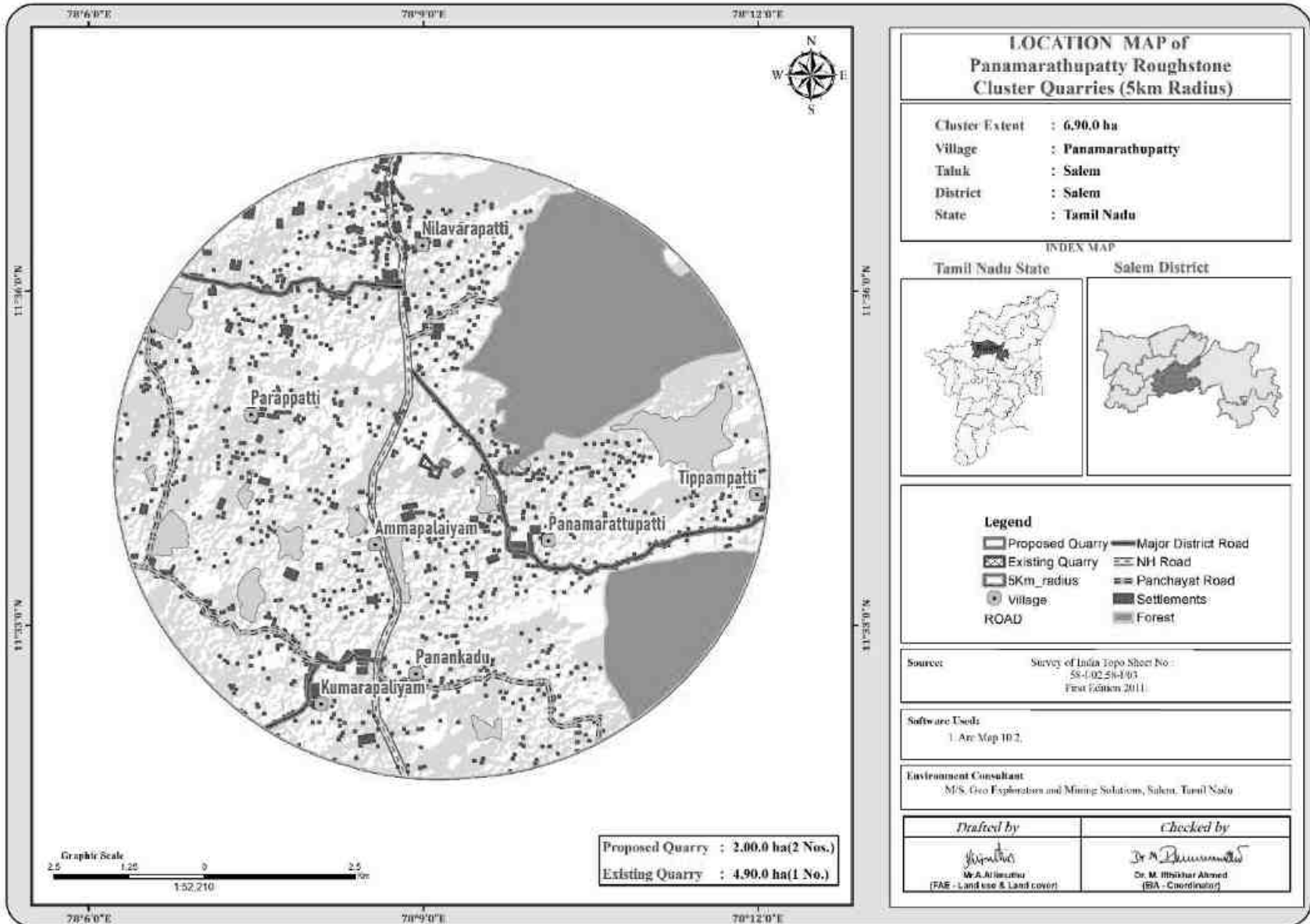
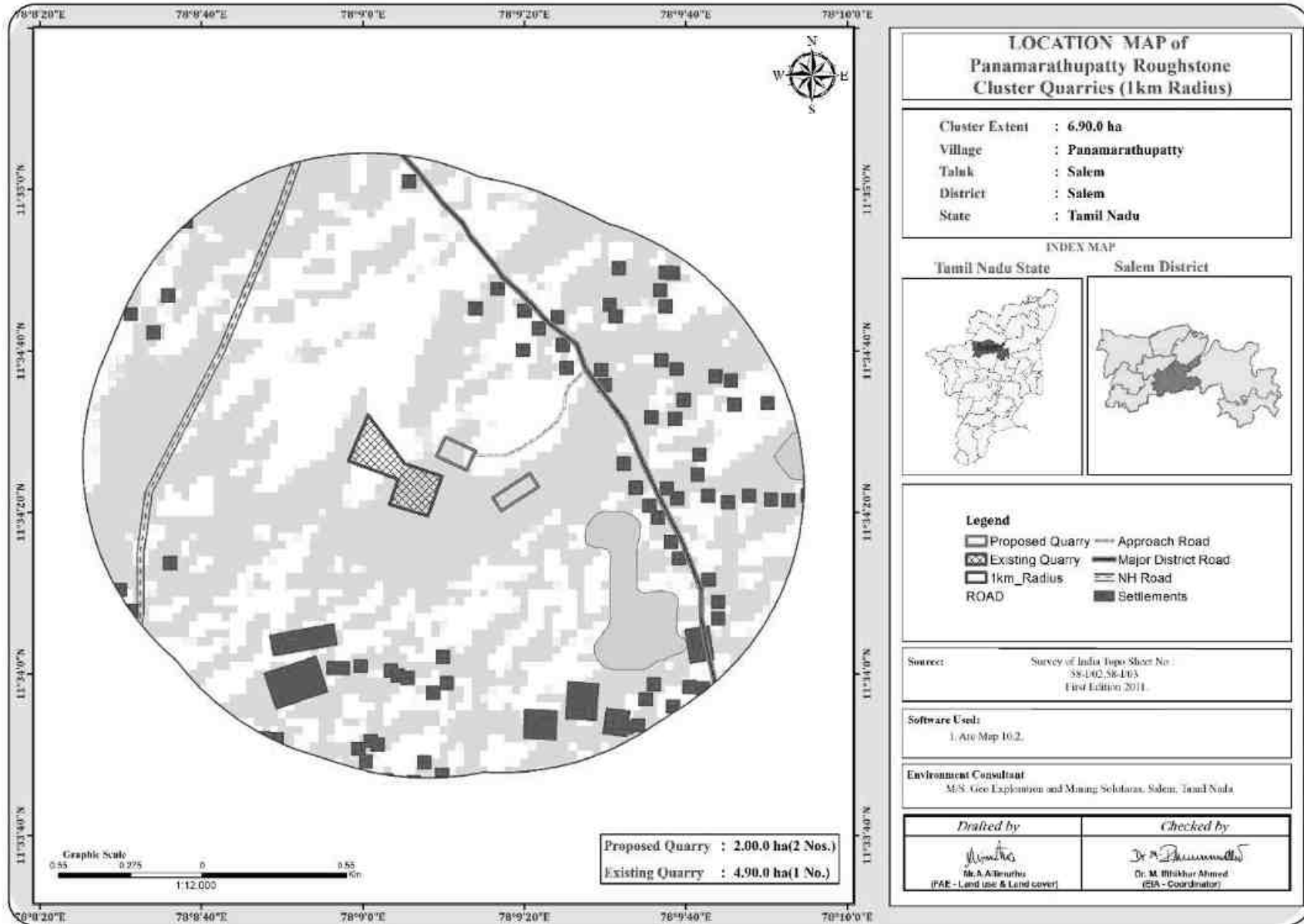


FIGURE 2.7: IMAGE SHOWING SURFACE FEATURES AROUND 1 KM RADIUS



## 2.2.1 Project Area

- The Rough Stone quarry is proposed to operate by opencast mechanized method of mining and the project is site specific
- There is No beneficiation or processing proposed inside the project area.
- Highest elevation is 365 m AMSL.
- The lease applied area classified as Government Poramboke Land and exhibits plain terrain covered by topsoil formation of 1m average thickness and massive Charnockite formation is notice clearly visible right from the surface as the entire area is covered by Rough Stone.
- There is no forest land involved in the proposed project area and the area is devoid of major cultivation and trees.

**TABLE 2.3: LAND USE PATTERN OF THE CORE ZONE**

<b>Proposed – P1</b>		
<b>Description</b>	<b>Present area in (ha)</b>	<b>Area at the end of life of quarry (ha)</b>
Area under quarry	Nil	0.76.0
Infrastructure	Nil	Nil
Roads	Nil	Nil
Green Belt	Nil	Nil
Un – utilized area	1.00.0	0.24.0
<b>Grand Total</b>	<b>1.00.0</b>	<b>1.00.0</b>
<b>Proposed – P2</b>		
<b>Description</b>	<b>Present area in (ha)</b>	<b>Area at the end of life of quarry (ha)</b>
Area under quarry	Nil	0.72.6
Infrastructure	Nil	Nil
Roads	Nil	Nil
Green Belt	Nil	Nil
Un – utilized area	1.00.0	0.27.4
<b>Grand Total</b>	<b>1.00.0</b>	<b>1.00.0</b>

Source: Approved Mining Plan

## 2.2.2 Size or Magnitude of Operation

**TABLE 2.4: OPERATIONAL DETAILS**

<b>PARTICULARS</b>	<b>DETAILS-P1</b>	
	<b>Rough Stone (5Year Plan Period)</b>	<b>Topsoil (1 Year Plan Period)</b>
Geological Resources in m <sup>3</sup>	5,75,950	10,000
Mineable Reserves in m <sup>3</sup>	3,68,700	7,600
Production for five-year plan period in m <sup>3</sup>	1,79,775	7,600
Mining Plan Period	5Years	
Number of Working Days	300 Days	
Production per day in m <sup>3</sup>	120	25
No of Lorry loads (6m <sup>3</sup> per load)	20 Nos	Will be preserved in safety barrier
Total Depth of Mining	56m (46m agl + 10m bgl)	
<b>PARTICULARS</b>	<b>DETAILS-P2</b>	
	<b>Rough Stone (5Year Plan Period)</b>	<b>Topsoil (1 Year Plan Period)</b>
Geological Resources in m <sup>3</sup>	4,52,495	10,020
Mineable Reserves in m <sup>3</sup>	3,20,595	7,600
Production for five-year plan period in m <sup>3</sup>	1,89,025	7,260
Mining Plan Period	5Years	
Number of Working Days	300 Days	
Production per day in m <sup>3</sup>	126	25



No of Lorry loads (6m <sup>3</sup> per load)	21Nos	Will be preserved in safety barrier
Total Depth of Mining	66m (46m agl + 20m bgl)	

Source: Approved Mining Plan

## 2.3 GEOLOGY

### 2.3.1 Regional Geology

Crystalline rocks of Archaean to late Proterozoic age occupy over 80% of the area of the state of Tamilnadu, while the rest is covered by Phanerozoic sedimentary rocks mainly along the coastal belt and in a few inland River valleys. The hard rock terrain comprises predominantly of Charnockite and Khondalite groups and their migmatitic derivatives, supracrustal sequences of Sathyamangalam and Kolar groups and Peninsular Gneissic Complex (Bhavani Group), intruded by ultramafic-mafic complexes, basic dykes, Granites and Syenites. The sedimentary rocks of the coastal belt include fluviatile, fluvio-marine and marine sequences, such as Gondwana Supergroup (Carboniferous to Permian and Upper Jurassic to Lower Cretaceous), marine sediments of Cauvery basin (Lower Cretaceous to Paleogene), Cuddalore /Pannambarai Formation (Mio-Pliocene) and sediments of Quaternary and Recent age.

The general geological sequences of the rocks in this area are given below:

**TABLE 2.4A STRATIGRAPHY OF SALEM DISTRICT**

Age	Group	Lithology
Holocene to Recent	Alluvium Colluvium	Red Soil
		Coastal Sand Clay River Alluvium Laterite Red Teri Kankar Tuffaceous Kankar Shell LimeStone Calcareous Sandstone
Mio-Pliocene	Panamparai Sandstone	Hard, Compact, Calcareous Sandstone Shell Limestone
Precambrian	Crystalline Complex	Charnockite Mixed Composite Gneiss Peliticgneiss Calc-Granulite Quartzite

The geology of the area is characterised by contrasting lithological associations that are grouped under Sathyamangalam Group, Khondalite Group, Charnockite Group, Migmatite Complex, and Bhavani Gneissic Complex of Archaean/ Pre-Cambrian age, younger basic and acid intrusives are of Proterozoic age and kankar/ calcrites belonging to Quaternary age.

The Sathyamangalam Group of rocks comprises Quartzites ± Fuchsite ± Sillimanite, Talc-Tremolite, Actinolite schist, Amphibolite, Amphibolite, Gabbro and Pyroxenite. These litho units occur as thin bands, pods and lenses of various dimensions within Charnockites and Hornblende Biotite Gneisses. Quartzite bands is co-folded with Amphibolite and Pyroxenite. Talc-Tremolite-Actinolite schists occur as small oval to bean-shaped bodies in Hornblende Biotite Gneiss in the Southeast. Gabbros and Pyroxenites are distributed in the valley portion in the NorthEast and in Southern plains. A thin band of Amphibolite occurs in the North.

The Charnockite Group is represented by Charnockite and Banded Magnetite Quartzite. Charnockite, a greasy looking rock, is confined to the Northern part occupying the hills and the intervening valley. It is light to dark Grey in colour, medium to coarse to Pegmatoidal and consists of bluish Grey Quartz, Grey Feldspars, Pyroxenes (opx)

± Hornblende ± Biotite and opaques. It has a NNW-SSE trend with moderate to steep dips towards SSE or vertical in disposition. The rock is intruded by basic and ultrabasic rocks and basic dykes. Banded Magnetite Quartzite occurs as very thin bands within Charnockite.

The Khondalite Group is represented by Quartzite, Garnetiferous Sillimanite Gneiss and Calc Granulite. Quartzite occurs as thin bands associated with basic Granulites in a Gneissic country in the central part. Garnet Sillimanite Gneiss is restricted to the East where it forms persistent bands upto 50 m width occupying higher elevation of Perumal Malai. The rock is associated with Pyroxene Granulite and Garnetiferous Quartzofeldspathic Gneiss. Calc Granulite is confined to the Northeast and shows typical ribbed weathering and contains Calcite, Plagioclase, Feldspar, Garnet and Diopside.

The Bhavani Gneissic Complex, comparable to the Peninsular Gneissic Complex, is roughly confined to the Southern half of the area. It is made up of Hornblende-Biotite and Biotite Gneisses exhibiting a distinct fissility. The Gneisses contain enclaves of the Sathyamangalam Supracrustals.

Source: <https://salem.nic.in/salem-district-mineral-survey-report-new/>

### 2.3.2 Local Geology

The lease applied area is a hillock. The gradient is towards Northeast and south and altitude of the area is ranges between 305m to 365m above from Mean Sea level. The area is covered by 1m thickness of Topsoil and followed by Massive Rough Stone Charnockite which is clearly visible right from the surface as the entire area is covered by Rough Stone. The Water table is found at a depth of 60m in summer and at 56m in rainy seasons. Average annual rainfall is about 998mm.

#### a). Hard Rocks:

The Charnockite Group is represented by Charnockite and Banded Magnetite Quartzite. Charnockite, a greasy looking rock, is confined to the Northern part occupying the hills and the intervening valley. It is light to dark Grey in colour, medium to coarse to Pegmatoidal and consists of bluish Grey Quartz, Grey Feldspars, Pyroxenes (opx) ± Hornblende ± Biotite and opaques. It has a NNW-SSE trend with moderate to steep dips towards SSE or vertical in disposition. The rock is intruded by basic and ultrabasic rocks and basic dykes. Banded Magnetite Quartzite occurs as very thin bands within Charnockite.

#### b) Sedimentary (Alluvial formation):

The Quaternary Alluvium occurs all along the course of the Sarabanga River in the central part.

### 2.3.3 Hydrogeology

#### Aquifer Systems:

The district is a part of Cauvery and Ponnaiar river basins and Sarabanga, Tirumanimuttar, Vasista and Suveda are the important watersheds/sub basins.

The district is underlain by both porous and fissured formations. The important aquifer systems in the district are constituted by unconsolidated & semi consolidated formations and weathered and fractured crystalline rocks.

The porous formations in the district include sandstones and clays of Recent to subrecent and Tertiary age (Quaternary). The Recent formations comprising mainly sands, clays and gravels are confined to major drainage courses in the district. The maximum thickness of alluvium is 36.0 m bgl, whereas the average thickness is about 25.0 m. Ground water occurs under water table and confined conditions in these formations and is being developed by means of dug wells and filter points. The productive zones are encountered in the depth range of 20 to 36 m bgl. Alluvium, which forms a good aquifer system along the Cauvery, Ponnaiar, Sarabanga, Tirumanimuttar, Vasista and Suveda river bed which is one of the major sources of water supply to the villages

The water-bearing properties of crystalline formations which lack primary porosity depend on the extent of development of secondary intergranular porosity. The occurrence and movement of ground water in these rocks are under unconfined conditions in the joints & fissures and dependent on the nature and extent of pores and interconnection of fractures zones. The morpho-tectonic analysis of the crystalline tract indicates the presence of deep seated tensile and shear fractures particularly along the fold axes. These tension joints and fractures and shear fractures at deeper depth of 20 to 36 m have been acting as conduits for ground water movement.

### Aquifer Parameters

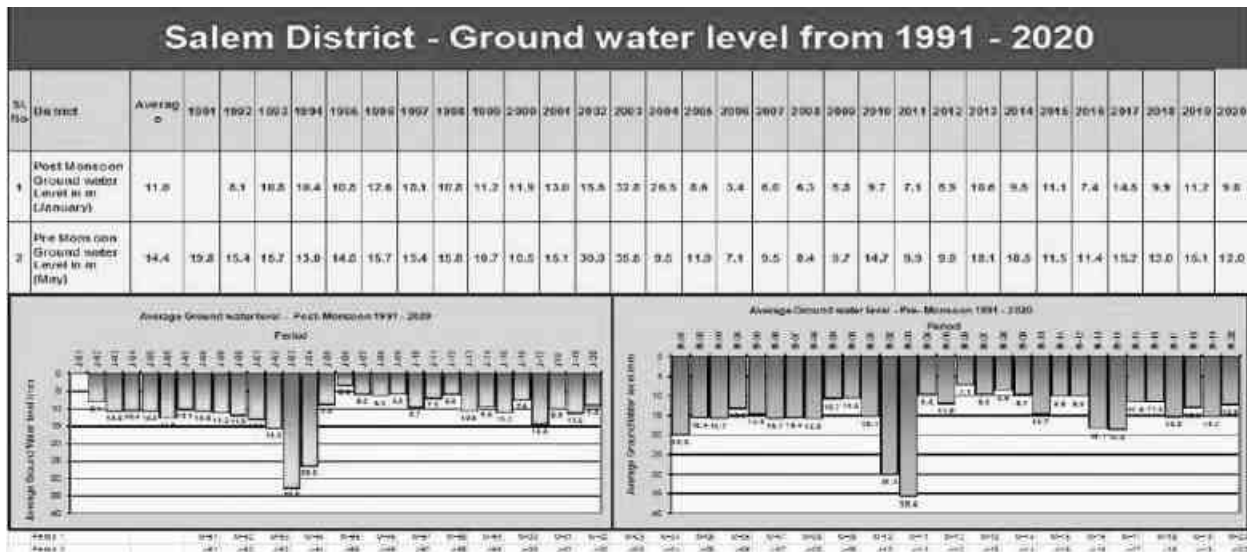
The thickness of aquifer in this district is highly erratic and varies between 20 m to 36 m below ground level. The inter granular Porosity is essentially dependent on the intensity and degree of weathering and fracture development in the bed rock. As discussed earlier deep weathering has developed in Gneissic formations and moderate eathering in Charnockite formations. The range of aquifer parameters in hard rock and sedimentary formations are given below:

**TABLE 2.5: RANGE OF AQUIFER PARAMETERS**

Type of Aquifer	Unconfined to Semi confined conditions
Aquifer parameters	Hard rock
Well yield in lpm	45 - 545
Transmissivity (T)m <sup>2</sup> /day	10.2 – 542.8
Permeability (K)(m/day))	0.1 - 50
Depth of Water level	20m to 36m

Source:<https://www.twadboard.tn.gov.in/content/salem>

**FIGURE 2.8: GROUND WATER LEVEL VARIATIONS OF SALEM DISTRICT**



Source:

**TABLE 2.6: GROUND WATER LEVEL VARIATIONS OF SALEM DISTRICT**

Jan 2013	May 2013	Jan 2014	May 2014	Jan 2015	May 2015	Jan 2016	May 2016	Jan 2017	May 2017	Jan 2018	May 2018	Jan 2019	May 2019	5 Years Pre Monsoon Average	5Years Post Monsoon Average
10.60	18.11	9.50	17.99	11.05	11.47	7.09	11.27	14.52	25.7	9.9	13.0	24.4	15.1	12.4	14.6

Source:<https://www.twadboard.tn.gov.in/content/salem>

**FIGURE 2.9 REGIONAL GEOLOGY MAP**

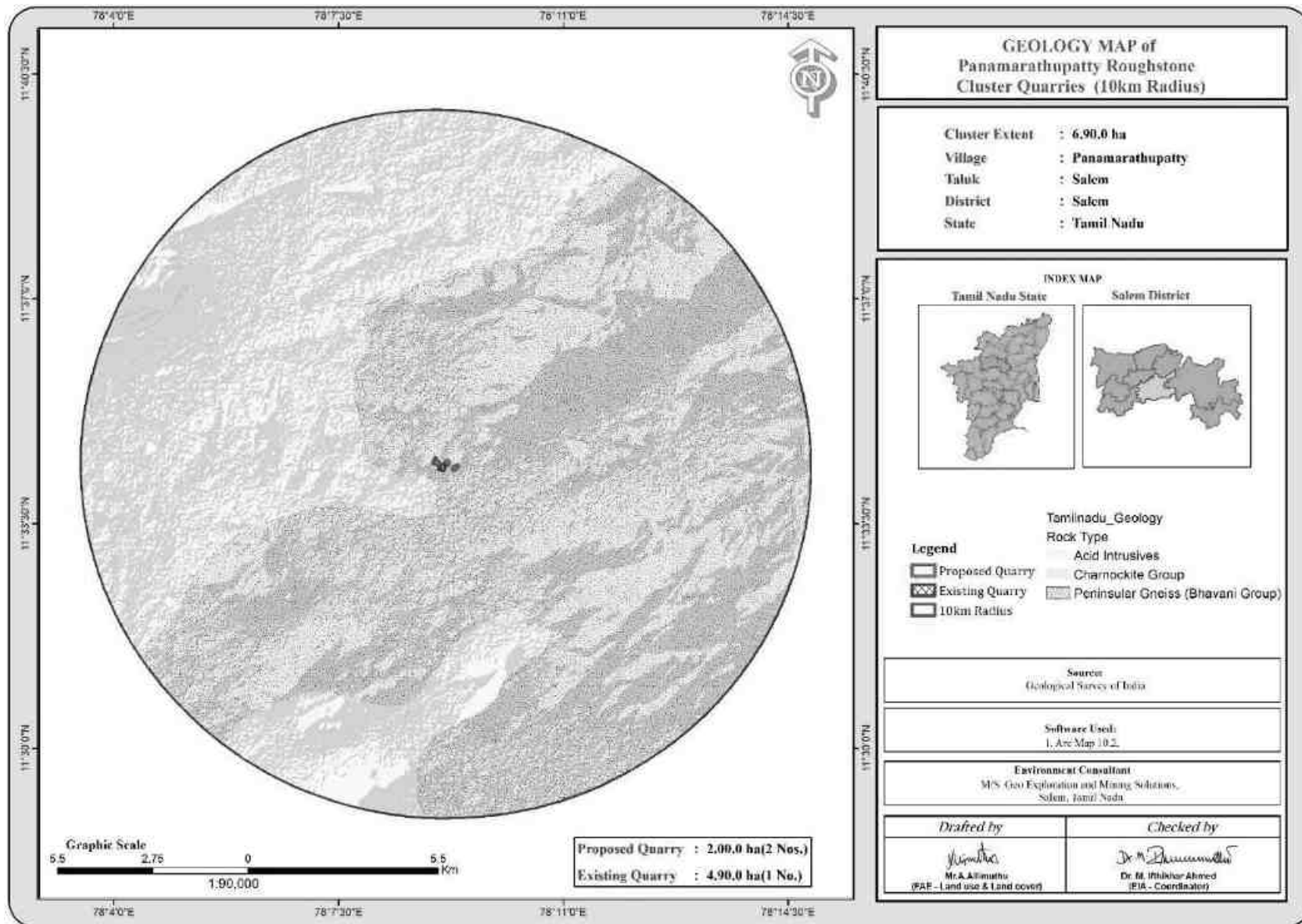


FIGURE 2.10 REGIONAL GEOMORPHOLOGY MAP

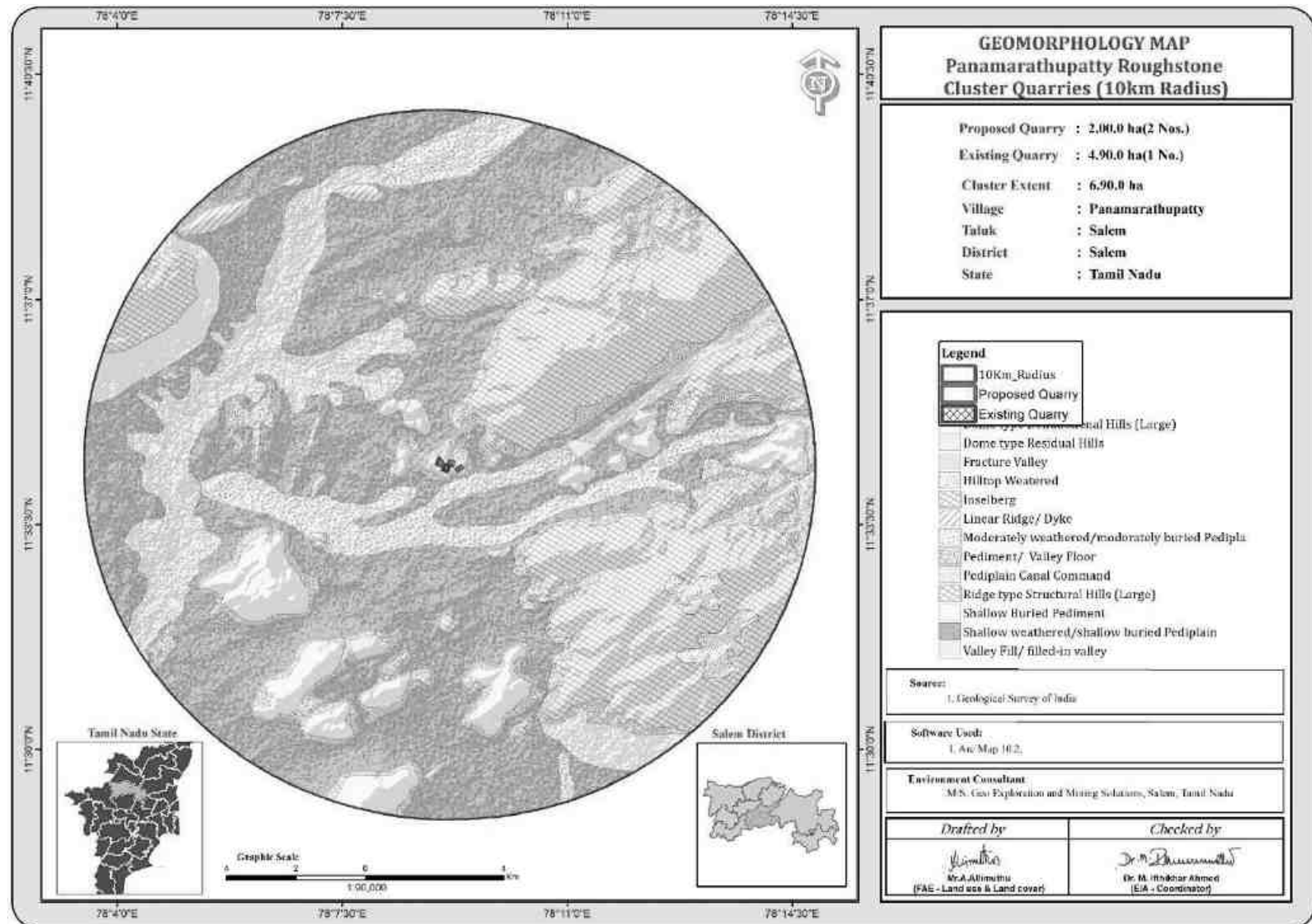
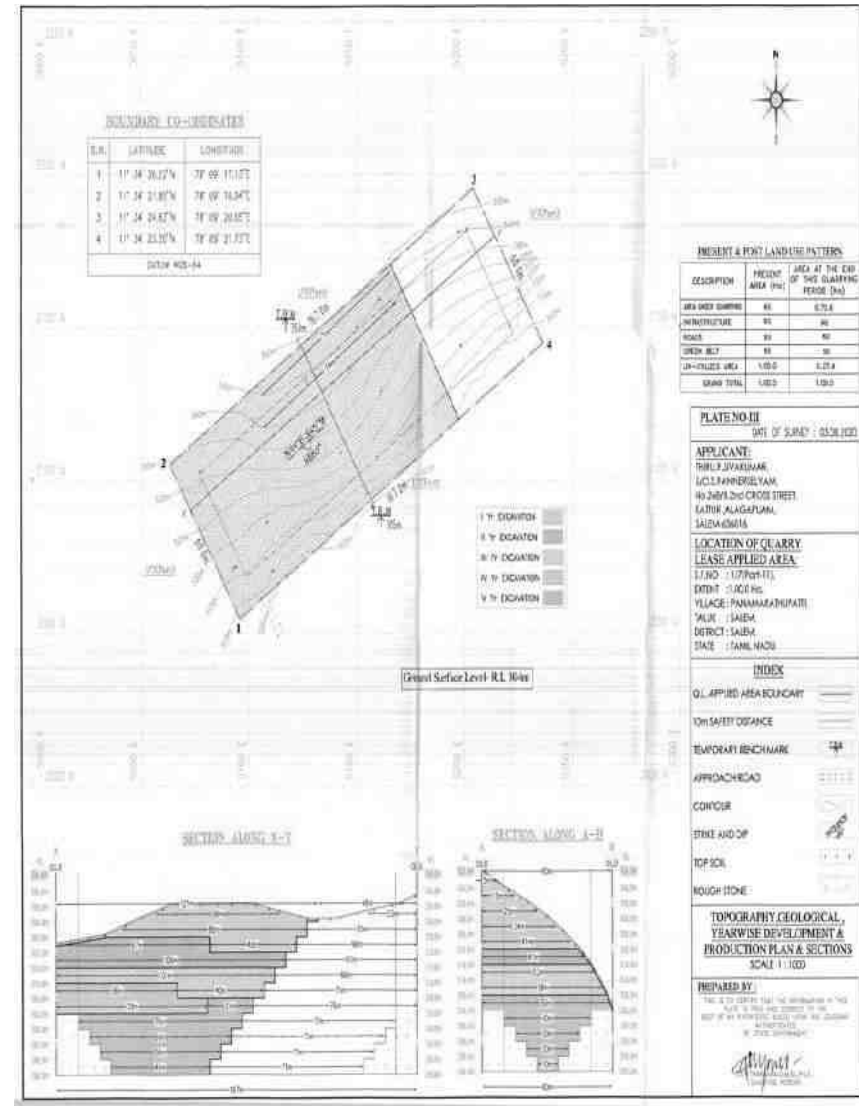
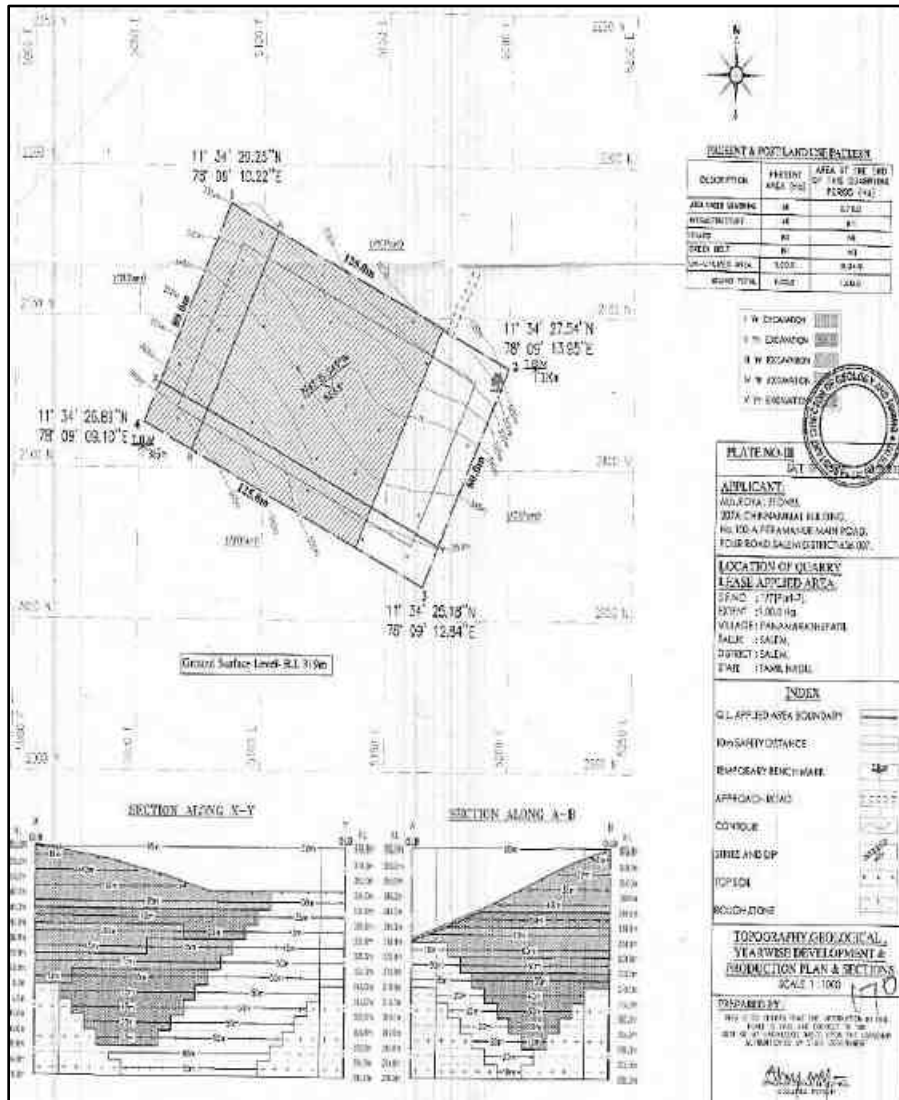


FIGURE 2.11: TOPOGRAPHY, GEOLOGICAL, YEAR-WISE DEVELOPMENT PRODUCTION PLAN AND SECTIONS

Proposed -P1

Proposed -P2

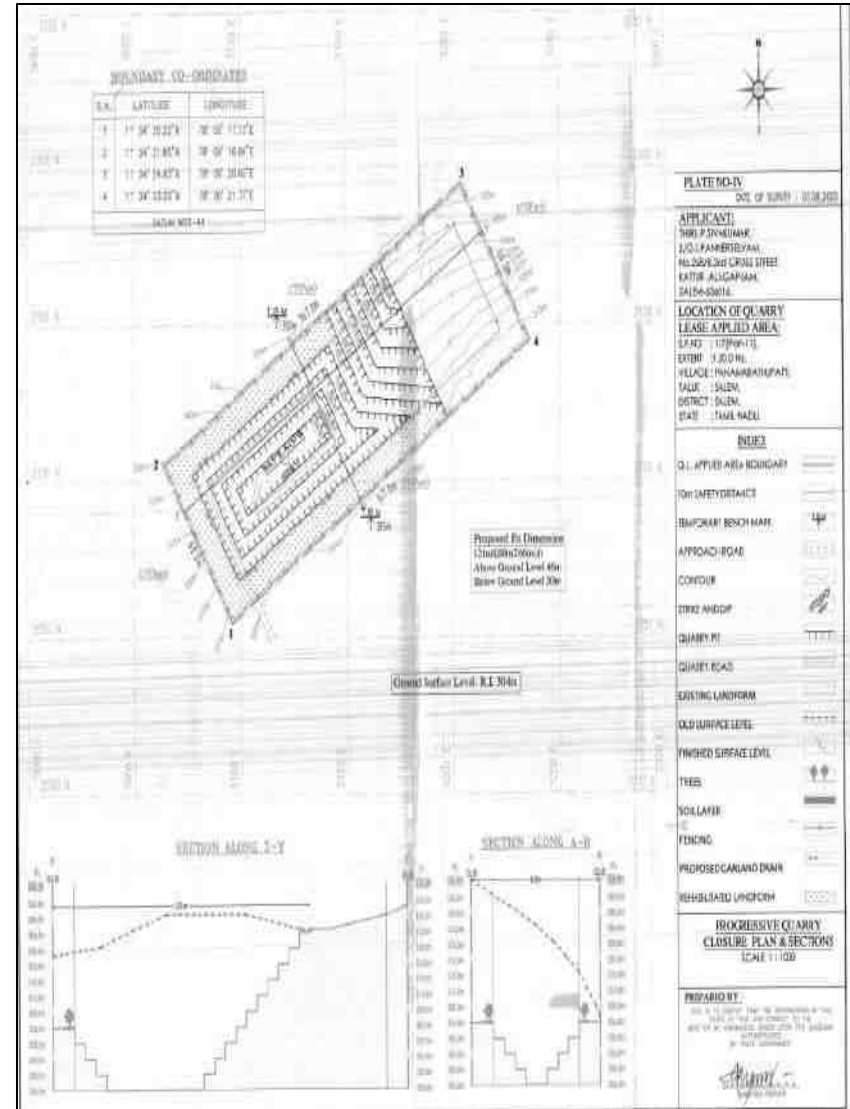
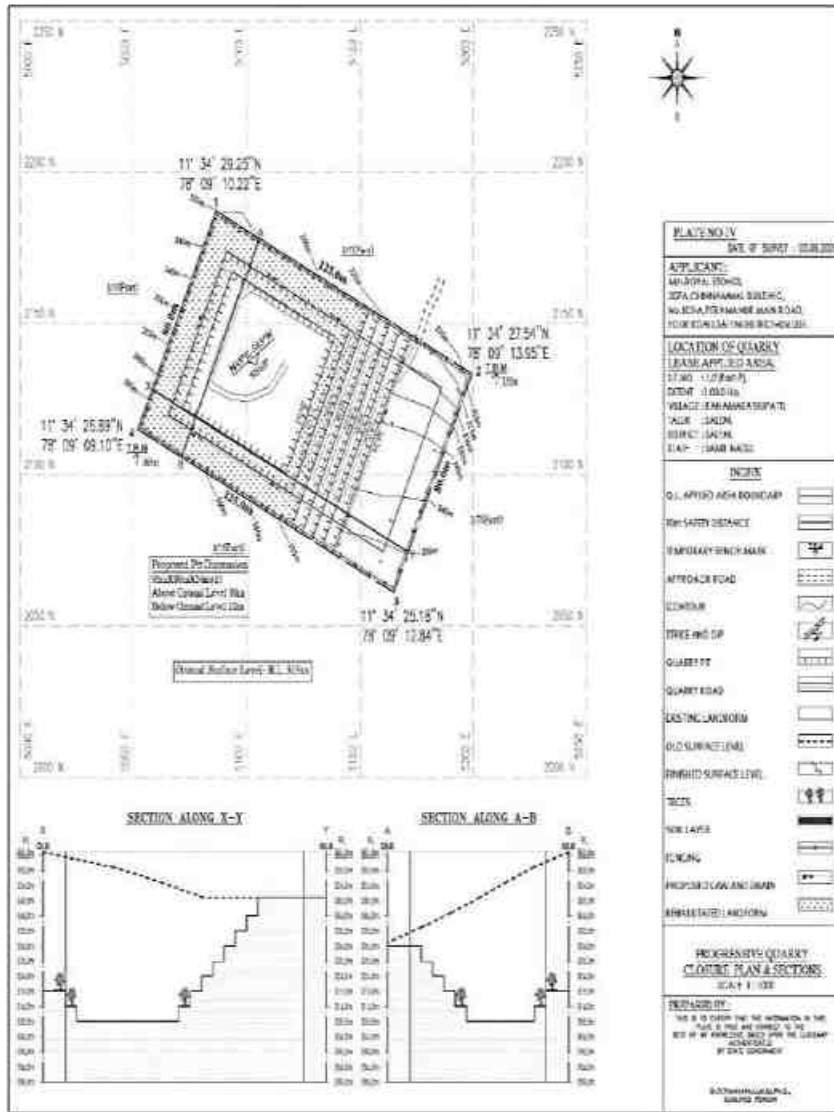


Source: Approved Mining Plan

FIGURE 2.12: MINE CLOSURE PLAN AND SECTIONS

Proposed- P1

Proposed- P2



Source: Approved Mining Plan

## 2.4 RESOURCES AND RESERVES

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

### Proposal – P1

**Total Geological Resources of Rough Stone = 5,75,950 m<sup>3</sup>**

**Total Geological Resources of Topsoil = 10,000 m<sup>3</sup>**

### Proposal – P2

**Total Geological Resources of Rough Stone = 4,52,495 m<sup>3</sup>**

**Total Geological Resources of Topsoil = 10,020 m<sup>3</sup>**

Based on the availability of Geological Resources, the Mineable Reserves are calculated by considering excavation system of bench formation and leaving essential safety distance of 7.5 m and 10m (Safety Barrier all around the applied area) and deducting the locked-up reserves during bench formation. (Also called as Bench Loss). The Mineable Reserves is calculated considering that there is no waste / overburden / side burden (100% Recovery Anticipated).

### Proposal – P1

**Total Year wise Reserves of Rough Stone = 1,79,775 m<sup>3</sup>**

**Total Year wise Reserves of Topsoil = 7,600 m<sup>3</sup>**

### Proposal – P2

**Total Year wise Reserves of Rough Stone = 1,89,025m<sup>3</sup>**

**Total Year wise Reserves of Topsoil = 7,260 m<sup>3</sup>**

The above calculated Mineable Reserves is further divided for tentative excavation plan period of the Lease Applied Period for 5 Years.

**TABLE 2.7: YEAR-WISE PRODUCTION PLAN**

<b>PROPOSAL-P1</b>		
<b>YEAR</b>	<b>ROUGH STONE (m<sup>3</sup>)</b>	<b>Topsoil (m<sup>3</sup>)</b>
I	36,700	7,600
II	35,675	-
III	36,525	-
IV	38,000	-
V	32,875	-
<b>TOTAL</b>	<b>1,79,775</b>	<b>7,600</b>
<b>PROPOSAL-P2</b>		
<b>YEAR</b>	<b>ROUGH STONE (m<sup>3</sup>)</b>	<b>Topsoil (m<sup>3</sup>)</b>
I	37,395	7,260
II	38,645	-
III	37,460	-
IV	36,330	-
V	39,195	-
<b>TOTAL</b>	<b>1,89,025</b>	<b>7,260</b>

Source: Approved Mining Plan

### Disposal of Waste

There is no waste anticipated in this Rough Stone quarrying operation. The entire quarried out materials will be utilized (100%).



## Conceptual Mining Plan/ Final Mine Closure Plan

The ultimate pit size is designed based on certain practical parameters such as economical depth of mining, safety zones, permissible area, etc.

**TABLE 2.7A: ULTIMATE PIT DIMENSION-P1**

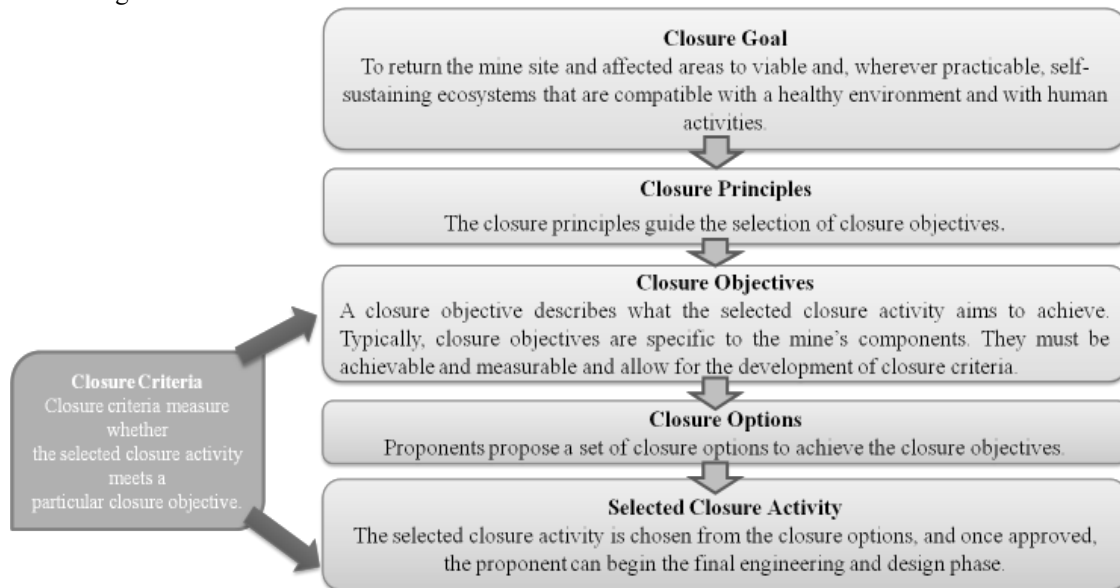
Pit	Length (Max) (m)	Width (Max) (m)	Depth (Max) (m)
I	95	80	56m (D) (46m agl + 10m bgl) (1m Topsoil + 55m Rough stone)

**TABLE 2.7A: ULTIMATE PIT DIMENSION-P2**

Pit	Length (Max) (m)	Width (Max) (m)	Depth (Max) (m)
I	167	60	66m (D) (46m agl + 20m bgl) (1m Topsoil + 65m Rough stone)

Source: Approved Mining Plan

- At the end of life of mine, the excavated mine pit / void will act as artificial reservoir for collecting rain water and helps to meet out the demand or crises during drought season.
- After mine closure the greenbelt developed along the safety barrier and top benches and temporary water reservoir will enhance the ecosystem
- Mine Closure is a process of returning a disturbed site to its natural state or which prepares it for other productive uses that prevents or minimizes any adverse effects on the environment or threats to human health and safety.
- The principle closure objectives are for rehabilitated mines to be physically safe to humans and animals, geo-technically stable, geo-chemically non-polluting/ non-contaminating, and capable of sustaining an agreed post-mining land use.

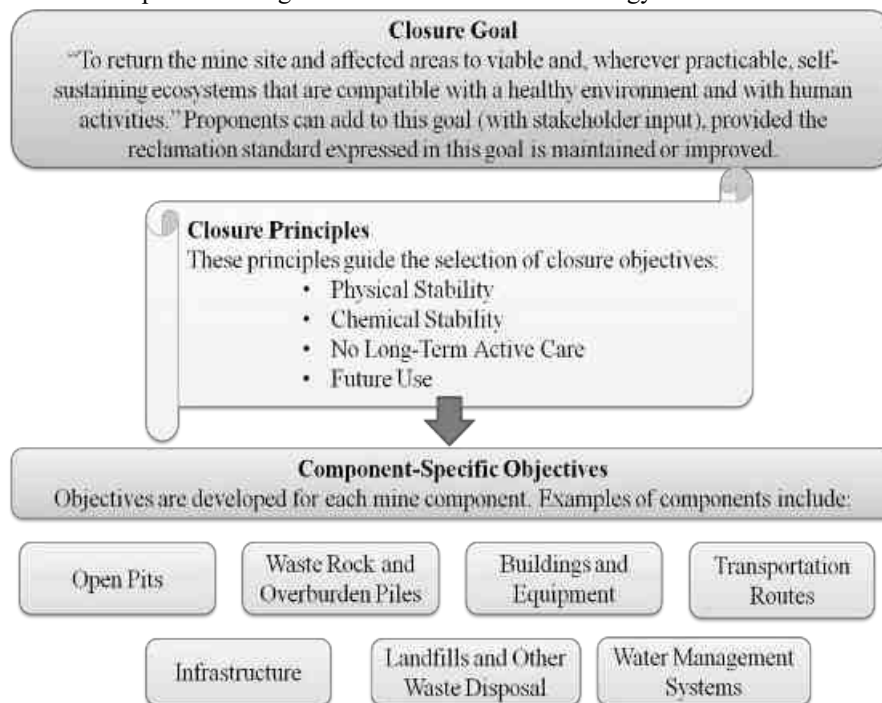


### Closure Objectives –

- Access to be limited, for the safety of humans and wildlife.
- The open pit mine workings and pit boundary are physically and geo-technically stable.
- Water quality in flooded pits is safe for humans, aquatic life, and wildlife.
- Discharge of contaminated drainage has been minimized and controlled.
- Original or desired new surface drainage patterns have been established.
- For flooded pits, in-pit aquatic habitat has been established where practical and feasible.
- Emergency access and escape routes from flooded pits for humans and wildlife are in place.
- Dust levels are safe for people, vegetation, aquatic life, and wildlife.

### Closure Planning & Options Considerations in Mine Design –

- The closure of mine is well planned at the initial stage of planning & design consideration by the internal and external stake holders
- Construction of 2m height bund all along the mine pit boundary and ensure its stability all time & construction of garland drain along the natural slope to avoid sliding and collection of soil to the pit & surface runoff during rainfall
- After complete exploitation of mineral the lowest bench foot wall side will be maintained as plain surface without any sump pits to avoid any accidents
- All the sharp edges will be dressed to smoother face before the closure of mine and ensure no loose debris on hanging wall side
- There is a river on southern side of the project area. The river will not be hindered by any of mine closure activities
- The project proponent as a part of social responsibilities assures to supply the stored mine pit water to the nearby villages after effective treatment process as per the standards of TNPCB & TWAD
- Native species will be planted in 3 row pattern on the boundary barriers and 1<sup>st</sup> bench, a full time sentry will be appointed at the gate to prevent inherent entry of public & cattle.
- The access road to the quarry will be cut-off immediately after the closure
- The layout design shall be prepared and get approved from Department of Geology and Mining.
- The proponent is instructed to construct as per the layout approved
- Physical and chemical stability of structures left in place at the site, the natural rehabilitation of a biologically diverse, stable environment, the ultimate land use is optimized and is compatible with the surrounding area and the requirements of the local community, and taking the needs of the local community into account and minimizing the socio-economic impact of closure
- There will be a positive change in the environmental and ecology due to the mine closure



### Post-Closure Monitoring –

The purpose of post-closure monitoring with respect to open pit mine workings is to ensure the attainment of closure objectives.

- Monitor physical and geotechnical stability of remnant pit walls.
- Monitor the ground regime in pit walls to confirm achievement of design objectives.
- Monitor water level in pit to confirm closure objectives regarding fish, fish habitat, and wildlife safety are being achieved.
- Sample water quality and quantity at controlled pit discharge points.
- Identify and test unanticipated areas where water management is an issue.
- Inspect integrity of barriers such as berms & fences.

- Monitor wildlife interactions with barriers to determine effectiveness.
- Inspect aquatic habitat in flooded pits where applicable.
- Monitor dust levels.

**TABLE 2.8: MINE CLOSURE BUDGET**

<b>PROPOSAL- P1</b>							
<b>Activity</b>	<b>Year</b>					<b>Cost</b>	<b>Total Cost</b>
	<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>	<b>V</b>		
Plantation in Nos	500	-	-	-	-		
Plantation cost & Maintenance (Rs.) (Manuring, Fertilizer, Insecticide application, Watchman etc.)	Rs.1,00,000					@ 200 Rs/ Saplings	Rs. 1,00,000
Wire Fencing for 400 Mtrs length	1,200,00					@ 300Rs per meter	Rs 1,20,000
Garland drains with settling traps for 270 mtrs length	81,000					@ 300Rs per meter	Rs 81,000
<b>TOTAL</b>							<b>Rs 3,01,000</b>
<b>PROPOSAL- P2</b>							
<b>Activity</b>	<b>Year</b>					<b>Cost</b>	<b>Total Cost</b>
	<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>	<b>V</b>		
Plantation in Nos	650	-	-	-	-		
Plantation cost & Maintenance (Rs.) (Manuring, Fertilizer, Insecticide application, Watchman etc.)	Rs.30,000					@ 100 Rs/ Saplings	Rs. 50,000
Wire Fencing for 440 Mtrs length	1,32,000					@ 300Rs per meter	Rs 1,32,000
Garland drains with settling traps for 260 mtrs length	78,000					@ 300Rs per meter	Rs 78,000
<b>TOTAL</b>							<b>Rs 2,60,000</b>

Source: Proposed by FAE's and EC

## 2.5 METHOD OF MINING

Opencast Mechanized Mining Method is being proposed by formation of 5.0-meter height bench with a bench width not less than the bench height. However, as far as the quarrying of Rough Stone is concerned, observance of the provisions of Regulation 106 (2) (b) as above is seldom possible due to various inherent petro genetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the above regulation from the Director of Mines Safety for which necessary provision is available with the Regulation 106 (2) (b) of MMR-1961, under Mine Act – 1952.

The top layer of Topsoil will be Excavate directly by Hydraulic Excavators and preserved all along the safety barrier to facilitate greenbelt development during Mine Closure Stage. The Rough Stone is a batholith formation and the splitting of rock mass of considerable volume from the parent rock mass will be carried out by deploying jackhammer drilling and Slurry Explosives will be used for blasting. Hydraulic Excavators attached with Rock Breakers unit will be deployed for breaking large boulders to required fragmented sizes to avoid secondary blasting and hydraulic excavators attached with bucket unit will be deployed for loading the Rough Stone into the tippers and then the stone is transported from pithead to the nearby crushers.

### 2.5.1 Drilling & Blasting Parameters:

Drilling & Blasting will be carried out as per parameters given below:-

Spacing	–	1 m
Burden	–	0.8 m

Depth of hole	–	1.5 m
Charge per hole	–	125 gms
Powder factor	–	7.0 tonnes/kg
Diameter of hole	–	32 mm

### Type of Explosives to be used –

Slurry explosives (An explosive material containing substantial portions of a liquid, oxidizers, and fuel, plus a thickener), NONEL / Electric Detonator & Detonating Fuse

### Storage of Explosives –

The applicant will engage an authorised explosive agency to carry out the small amount of blasting and it will be supervised by competent and statutory foreman/ mines manager.

### Precaution during Drilling and Blasting –

The blasting will be taken up by competent persons at appointed timing only with sufficient caution to the public as per the DGMS Guidelines; Controlled blasting with MSD will be practiced to prevent fly rocks. Sentries will be posted in haul roads to regulate and restrict the public during blasting hours.

## 2.5.2 Extent of Mechanization

**TABLE 2.9: PROPOSED MACHINERY DEPLOYMENT**

Proposal- P1				
S.NO.	TYPE	NOS	SIZE/CAPACITY	MOTIVE POWER
1	Tractor Mounted Compressor	1	40 HP	Diesel Drive
2	Jack Hammer	4	32 mm dia	Compressed air
3	Excavator with Bucket / Rock Breaker Unit	1	0.90 m <sup>3</sup> Bucket Capacity	Diesel Drive
4	Tippers / Dumpers	2	5/10 Tonnes	Diesel Drive
Proposal- P2				
S.NO.	TYPE	NOS	SIZE/CAPACITY	MOTIVE POWER
1	Tractor Mounted Compressor	2	40 HP	Diesel Drive
2	Jack Hammer	5	32 mm dia	Compressed air
3	Excavator with Bucket / Rock Breaker Unit	1	0.90 m <sup>3</sup> Bucket Capacity	Diesel Drive
4	Tippers / Dumpers	2	5/10 Tonnes	Diesel Drive

Source: Approved Mining Plan

## 2.6 GENERAL FEATURES

### 2.6.1 Existing Infrastructures

Infrastructures like Mine office, Temporary Rest shelters for workers, Latrine and Urinal Facilities, First Aid Station will be constructed after the grant of quarry lease.

### 2.6.2 Drainage pattern

There are no streams, canals or water bodies crossing within the project area, hence there is no requirement of stream or canals diversion.

### 2.6.3 Traffic Density

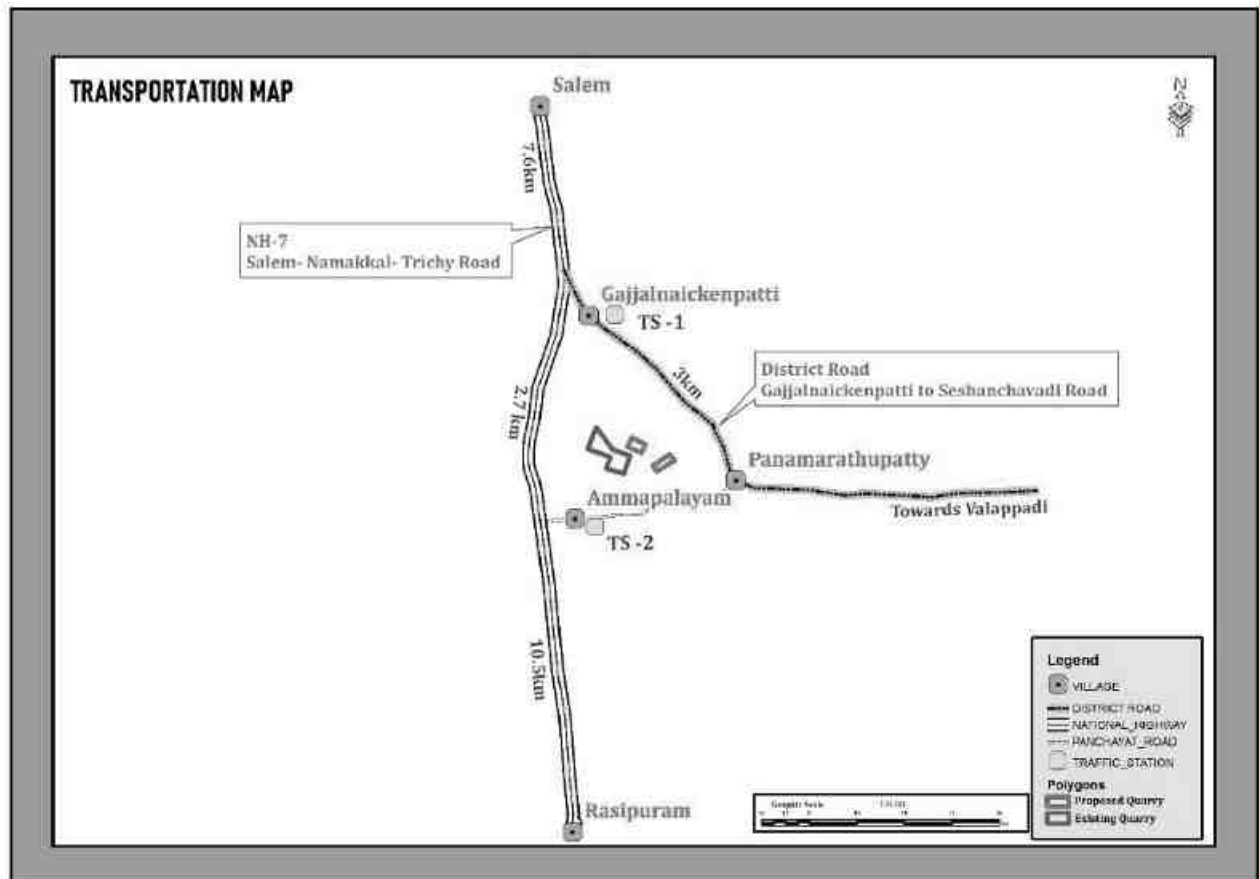
The traffic survey conducted based on the transportation route of material, the Rough Stone is proposed to be transported.

1. The Nearest National Highway (NH-7)– Salem- Namakkal- Trichy Road – 1 km –South West.
2. The Nearest District Road - Gajjalnaickenpatti to Seshanchavadi Road – 2km – North West.

Traffic density measurement were made continuously for 24 hours by visual observation and counting of vehicles under three categories, viz., Heavy motor vehicles, light motor vehicles and two/three wheelers. As traffic densities on the roads are high, two skilled persons were deployed simultaneously at each station during each shift-

one person on either direction for counting the traffic. At the end of each hour, fresh counting and recording was undertaken.

**FIGURE.2.13: MINERAL TRANSPORTATION ROUTE MAP**



**TABLE.2.10: TRAFFIC SURVEY LOCATIONS**

Station Code	Road Name	Distance and Direction	Type of Road
TS-1	Ammapalayam	1km South West	NH-7
TS-2	Gajjalnaickenpatti	2km North West	District Road

**TABLE 2.11: EXISTING TRAFFIC VOLUME**

Station code	HMV		LMV		2/3 Wheelers		Total PCU
	No	PCU	No	PCU	No	PCU	
TS1	203	609	198	198	580	290	1097
TS2	112	336	80	80	204	102	518

**TABLE 2.11: ROUGH STONE HOURLY TRANSPORTATION REQUIREMENT**

Transportation of Rough Stone per day in the Cluster		
Capacity of trucks	No Trips per day Cumulatively	Volume in PCU
10 – 20 tonnes	20	20

**TABLE 2.12: SUMMARY OF TRAFFIC VOLUME**

Route	Existing Traffic volume in PCU	Incremental traffic due to the Cluster	Total traffic volume	Hourly Capacity in PCU as per IRC – 1960 guidelines
(NH-7)	1097	20	1117	1500
District Road	518	20	538	1200

#### 2.6.4 Mineral Beneficiation and Processing

There is no proposal for the mineral processing or ore beneficiation in this project.

## 2.7 PROJECT REQUIREMENT

### 2.7.1 Water Source & Requirement

**TABLE 2.13 WATER REQUIREMENT FOR THE PROJECT**

Proposal – P1		
Purpose	Quantity	Source
Dust Suppression	3.6 KLD	Rainwater accumulated in Mine Pit/ Water Tanker
Green Belt development	1.8 KLD	Rainwater accumulated in Mine Pit/ Water Tanker
*Domestic purpose	0.72 KLD	Water Tankers
<b>Total</b>	<b>6.12 KLD</b>	
Proposal – P2		
Purpose	Quantity	Source
Dust Suppression	1.0 KLD	Rainwater accumulated in Mine Pit/ Water Tanker
Green Belt development	0.5 KLD	Rainwater accumulated in Mine Pit/ Water Tanker
*Domestic purpose	0.5 KLD	Water Tankers
<b>Total</b>	<b>2.0 KLD</b>	

Source: Prefeasibility report

\* Water for drinking purpose will be brought from approved water vendors

### 2.7.2 Power and Other Infrastructure Requirement

The project does not require power supply for the mining operations. The quarrying activity is proposed during day time only (General Shift 8 AM – 5 PM, Lunch Break 1 PM – 2 PM). Electricity for use in office and other internal infrastructure will be obtained from TNEB.

The temporary infrastructures such as Mine Office, First Aid Room, Rest Shelter etc., will be constructed within the project area before commencing the quarry operation. No workshops are proposed inside the project area hence there will not be any process effluent generation from the project area. Domestic discharge from the mine office will be discharged to septic tank and soak pit system. There is no toxic effluent expected to generate in the form of solid, liquid or gaseous form hence there is no requirement of waste treatment plant.

### 2.7.3 Fuel Requirement

High speed Diesel (HSD) will be used for mining machineries. Diesel will be brought from nearby Fuel Stations. Average diesel consumption is around = 800 Liters of HSD / day for proposed project.

### 2.7.4 Project Cost

**TABLE 2.14: PROJECT COST BREAKUP**

PROPOSAL – P1	
Land Cost	Rs. 32,50,000/-
Machinery Cost	Rs. 20,00,000/-
Refilling / Fencing	Rs. 1,20,000/-
Labourers Shed	Rs. 85,000/-
Sanitary Facility	Rs. 60,000/-
Others Items	Rs. 50,000/-
Drinking Facility	Rs. 1,00,000/-
Sanitary Arrangement	Rs. 60,000/-
Safety Kit	Rs. 50,000/-
Water Sprinkling	Rs. 90,000/-
Garland	Rs. 81,000/-
Greenbelt	Rs. 50,000/-
<b>Total Cost</b>	<b>Rs. 59,96,000/-</b>
PROPOSAL – P2	
Land Cost	Rs. 30,40,000/-
Machinery Cost	Rs. 20,00,000/-
Refilling / Fencing	Rs. 1,32,000/-
Labourers Shed	Rs. 85,000/-
Sanitary Facility	Rs. 60,000/-

Others Items	Rs. 50,000/-
Drinking Facility	Rs. 1,00,000/-
Sanitary Arrangement	Rs. 60,000/-
Safety Kit	Rs. 50,000/-
Water Sprinkling	Rs. 90,000/-
Garland	Rs. 78,000/-
Greenbelt	Rs. 50,000/-
<b>Total Cost</b>	<b>Rs. 57,95,000/-</b>

Source: Approved Mining Plan

## 2.8 EMPLOYMENT REQUIREMENT:

The skilled, competent qualified statutory persons will be engaged for quarrying operation, preference will be given to the local community.

**TABLE 2.15: EMPLOYMENT POTENTIAL**

PROPOSAL – P1		
S.No	Description	Numbers
Skilled Labour		
1	Mines Manager	1
2	Mines Foreman	1
3	Machinery Operators	12
Ordinary Employees		
4	Skilled labour	3
5	Unskilled	3
6	Security	1
<b>Total</b>		<b>20</b>
PROPOSAL – P2		
S.No	Description	Numbers
Skilled Labour		
1	Mines Manager	1
2	Mines Foreman	1
3	Machinery Operators	13
Ordinary Employees		
4	Skilled labour	2
5	Unskilled	3
6	Security	1
<b>Total</b>		<b>21</b>

Source: Approved Mining Plan

## 2.9 PROJECT IMPLEMENTATION SCHEDULE:

The commercial operation will commence after the grant of Environmental Clearance. CTO will be obtained from the Tamil Nadu State Pollution Control Board. The conditions imposed during the Environmental Clearance will be compiled before the start of mining operation.

**TABLE 2.16: EXPECTED TIME SCHEDULE**

Sl.No.	Particulars	Time Schedule (In Month)					Remarks if any
		1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	
1	Environmental Clearance						
2	Consent to Operate						Production Start Period
Time line may vary; subjected to rules and regulations /& other unforeseen circumstances							

Source: Anticipated based on Timelines framed in EIA Notification & CPCB Guidelines

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## CHAPTER-3 DESCRIPTION OF ENVIRONMENT

### 3.0 GENERAL

This chapter presents a regional background to the baseline data at the very onset, which will help in better appreciation of micro-level field data, generated on several environmental and ecological attributes of the study area. The baseline status of the project environment is described section wise for better understanding of the broad-spectrum conditions. The baseline environment quality represents the background environmental scenario of various environmental components such as Land, Water, Air, Noise, Biological and Socio-economic status of the study area. Field monitoring studies to evaluate the base line status of the project site were carried out covering March 2024 – May 2024 as per CPCB & MoEF & CC guidelines. Environmental data has been collected with reference to proposed mine by EHS 360 LABS PRIVATE LIMITED– An ISO 9001: 2015, Certified & MoEF Recognised Laboratory, Accredited by ISO/IEC-17025:2017 (NABL) & UPPCB for the below attributes –

- Land
- Water
- Air
- Noise
- Biological
- Socio-Economic status

#### Study Area

An area of 10 km radius (aerial distance) from the boundary of the cluster quarries is considered for EIA study. The data collection has been used to understand the existing environment scenario around the cluster quarries against which the potential impacts of the project can be assessed. The study area has been divided into two zones viz core zone and buffer zone where core zone is considered as cluster quarries and buffer zone taken as 10km radius from the periphery of the Cluster quarries. Both Core zone and Buffer zone is taken as the study area.

#### Study Period

The baseline study was conducted during the Pre-monsoon season i.e., March 2024 – May 2024.

#### Study Methodology

- The project area was surveyed in detail with the help of Total Station and the boundary pillars were picked up with the help of GPS. The boundary coordinates were superimposed on the satellite imagery to understand the relief of the area, besides Land use pattern of the area was studied through the Bhuvan (ISRO).
- Soil samples were collected and analyzed for relevant physio-chemical characteristics, exchangeable cations, nutrients and micro nutrients etc. in order to assess the impact due to mining activities and to recommend samplings for greenbelt development.
- Ground water samples were collected during the study period from the existing open wells and bore wells while surface water was collected from ponds in the buffer zone. The samples were analyzed for parameters necessary to determine water quality (based on IS 10500:2012 criteria) and those which are relevant from the point of view of environmental impact of the proposed mines.
- An onsite meteorological station was setup in cluster area, to collect the data about wind speed, wind direction, temperature, relative humidity, rainfall and general weather conditions were recorded throughout the study period.
- In order to assess the ambient air quality (AAQ), samples of ambient air were collected by installation of respiratory dust samplers (RDS) for fugitive dust PM<sub>10</sub> and SO<sub>2</sub>, NO<sub>x</sub> with gaseous attachments and finer dust samplers for PM<sub>2.5</sub> and other parameters as per NAAQ Norms and analyzed for primary air pollutants to work out the existing status of air quality.
- The noise level measurements were also made at various locations in different intervals of time with the help of sound level meter to establish the baseline noise levels in the impact zone.
- Baseline biological studies were carried out to assess the ecology of the study area to study the existing flora and fauna pattern if the area.



- Socio economic survey was conducted at village and household level in the study area to understand the present socio-economic conditions and assess the extent of impact due to the proposed mining project.

The sampling methodologies for the various environmental parameters required for the study, frequency of the sampling, method of samples analysis etc. are given below Table 3.1

**TABLE 3.1: MONITORING ATTRIBUTES AND FREQUENCY OF MONITORING**

Attribute	Parameters	Frequency of Monitoring	No. of Locations	Protocol
Land-use Land cover	Land-use Pattern within 10 km radius of the study area	Data from census handbook 2011 and from the satellite imagery	Study Area	Satellite Imagery Primary Survey
Soil	Physio-Chemical Characteristics	Once during the study period	6 (1 core & 5 buffer zone)	IS 2720 Agriculture Handbook - Indian Council of Agriculture Research, New Delhi
Water Quality	Physical, Chemical and Bacteriological Parameters	Once during the study period	6 (2 surface water & 4 ground water)	IS 10500& CPCB Standards
Meteorology	Wind Speed Wind Direction Temperature Cloud cover Dry bulb temperature Rainfall	1 Hourly Continuous Mechanical/Automatic Weather Station	1	Site specific primary data& Secondary Data from IMD Station
Ambient Air Quality	PM <sub>10</sub> PM <sub>2.5</sub> SO <sub>2</sub> NO <sub>x</sub> Fugitive Dust	24 hourly twice a week (3 Months)	8 (2 core & 6 buffer)	IS 5182 Part 1-23 National Ambient Air Quality Standards, CPCB
Noise Levels	Ambient Noise	Hourly observation for 24 Hours per location	8 (2 core & 6 buffer zone)	IS 9989 As per CPCB Guidelines
Ecology	Existing Flora and Fauna	Through field visit during the study period	Study Area	Primary Survey by Quadrate & Transect Study Secondary Data – Forest Working Plan
Socio Economic Aspects	Socio–Economic Characteristics, Population Statistics and Existing Infrastructure in the study area	Site Visit & Census Handbook, 2011	Study Area	Primary Survey, census handbook & need based assessments.

Source: On-site monitoring/sampling by EHS 360 LABS PRIVATE LIMITED in association with GEMS

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

### 3.1 LAND ENVIRONMENT

The mining operation is proposed to carry out by opencast mining method; studies on land environment of eco-system play an imperative role in identifying susceptible issues and taking appropriate action to uphold ecological equilibrium in the region.

#### 3.1.1 Land Use/ Land Cover

A visual interpretation technique has been adopted for land use classification based on the keys suggested in the Chapter – V of the guidelines issued by NNRMS Bangalore & Level III classification with 1:50,000 scale for the preparation of land use mapping.

Land use pattern of the area was studied through LISS III imagery of Bhuvan (ISRO). The 10 km radius map of study area was taken for analysis of Land use cover. The main objective of this section is to provide a baseline status of the study area covering 10 km radius around the mine site so that temporal changes due to the mining activities on the surroundings can be assessed in future.

**TABLE 3.2: LAND USE / LAND COVER TABLE 10 KM RADIUS**

S.No	CLASSIFICATION	AREA_ha	AREA_%
<b>BUILTUP</b>			
1	Builtup-Urban	2301.34	6.93
2	Builtup-Rural	1015.03	3.05
3	Mining Area	317.541	0.95
<b>AGRICULTURAL LAND</b>			
4	Agricultural Land	1359.67	4.09
5	Crop Land	14547.8	43.8
6	Fallow Land	1731.96	5.21
<b>BARREN/WASTE LANDS</b>			
7	Scrub Land	2779.56	8.37
8	Barren Rocky	569.334	1.71
<b>WATER BODIES</b>			
9	Water Bodies	660.801	1.99
10	River	68.8003	0.2
<b>FOREST</b>			
11	Evergreen Forest	1836.44	5.53
12	Deciduous Forest	4979.55	14.9
13	Scrub Forest	965.018	2.9
14	Forest Plantation	66.5891	0.2
<b>Total</b>		<b>33199.4334</b>	<b>100</b>

Source: Survey of India Toposheet and Landsat Satellite Imagery

**FIGURE 3.1: LAND USE PIE DIAGRAM OF STUDY AREA**

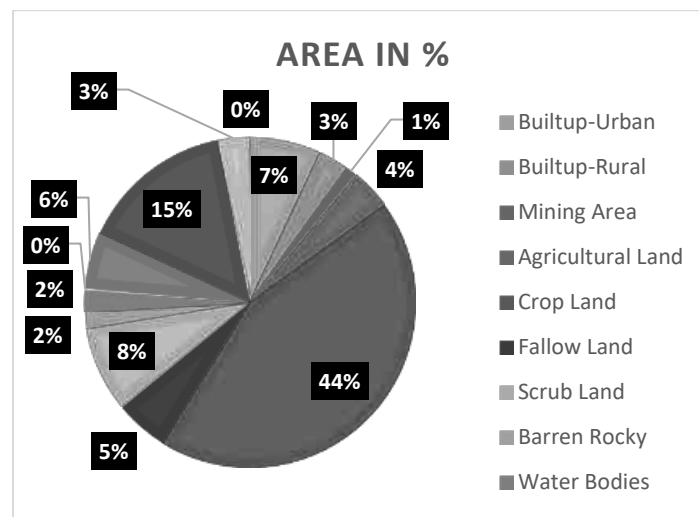
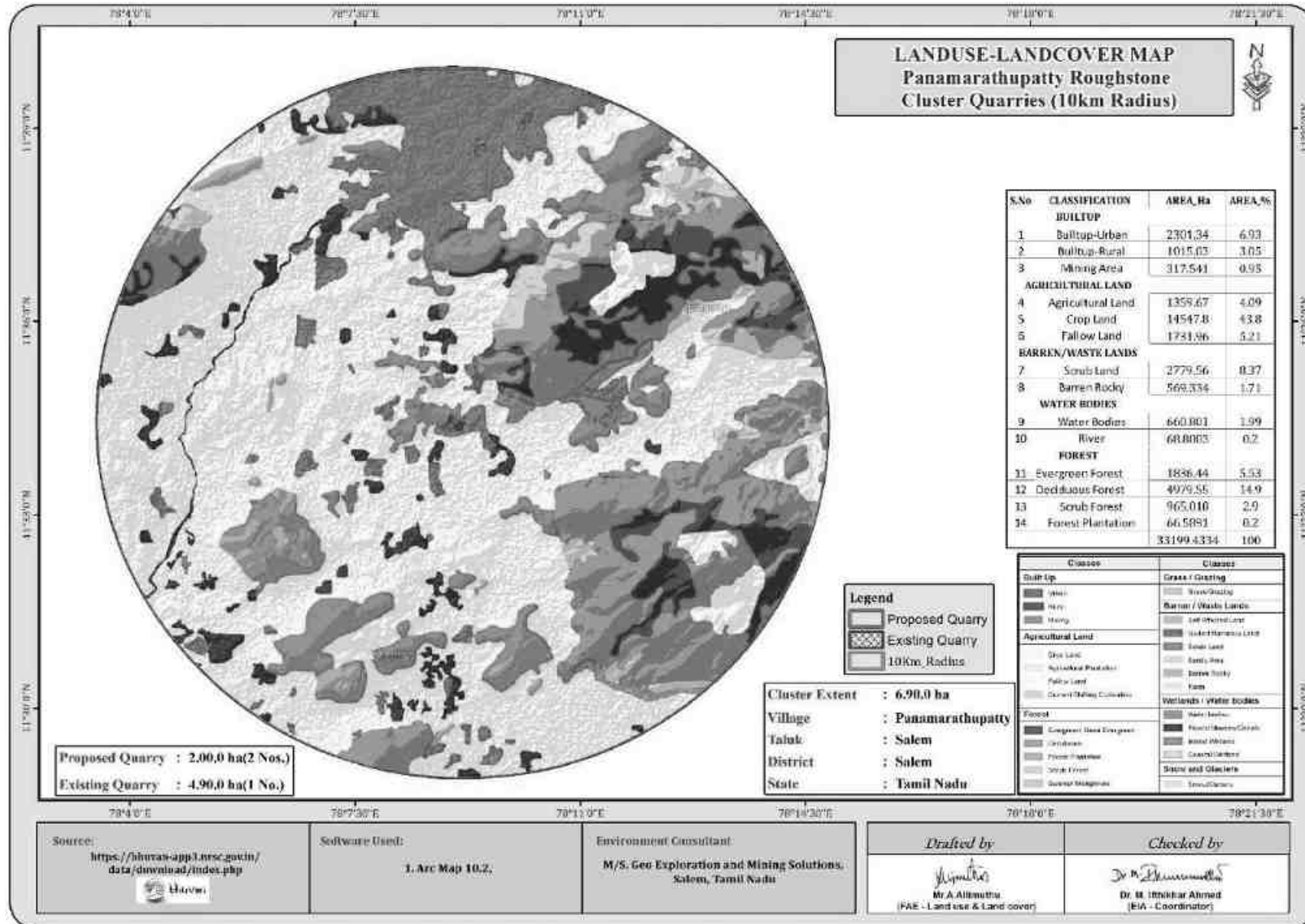


FIGURE 3.2: LAND USE LAND COVER MAP 10KM RADIUS



From the above Land Use Map, Pie Diagram and land Use Table; it is inferred that the majority of the land in the study area is Agriculture land (includes, crop land, fallow land) 53.1 % followed by Built-up area (Rural & Urban) 9.98%, Mining area 0.95%, Barren & scrub 10.8% and water bodies (Rivers Stream Canals) is around 2.19 %. The total built up mining area within the study area is 317.541 ha i.e. 0.95 %. The cluster area of 6.90.0 ha contributes about 2.17 % of the total mining area within the study area and this proposed project area of 2.00.0 ha contributes about 0.62 % of the total mining area within the study area. This small percentage of Mining Activities shall not have any significant impact on the environment.

### 3.1.2 Topography

The project area exhibits almost plain topography, the gentle sloping towards North West side and the altitude of the area is 305 - 365m AMSL

### 3.1.3 Drainage Pattern of the Area

They're developed surface drainage channels in the study area. The drainage pattern of the area is dendritic it is inferred the rock-hard rock terrain

The area is studded with few tanks that serve as the source of drinking water and also their surplus feeds adjoining tanks. The area is mostly dry in all seasons except rainy seasons.

During rainy season the surface runoff flows in West - East direction. The drainage pattern of the study area is given in Fig. 3.5. The quarrying activity will not hinder the natural flow of rainwater.

### 3.1.4 Seismic Sensitivity

The proposed project site falls in the seismic Zone II (Least active), low damage risk zone as per BMTPC, Vulnerability Atlas of Seismic zone of India IS: 1893 – 2002. The project area falls in the hard rock terrain on the peninsular shield of south India which is highly stable.

### 3.1.5 Environmental Features in the Study Area

There is no Wildlife Sanctuaries, National Park and Archaeological monuments within 10 km from project area. No Protected and Reserved Forest area is involved in the project area. Therefore, there will be no need to acquisition/diversion of forest land. The details related to the environment sensitivity around the proposed mine lease area i.e., 10 km radius, are given in the below Table 3.3.

**TABLE 3.3: DETAILS OF ENVIRONMENT SENSITIVITY IN STUDY AREA**

Sl.No	Sensitive Ecological Features	Name	Arial Distance in km from Mine Lease Boundary
1	National Park /Wild life Sanctuaries	None	Nil within 10 km Radius
2	Reserve Forest	Jarugumalai RF	1.27 km - NE
3	Lakes/Reservoir/Dams/Stream/Rivers	Tank	600m South East
		Tank	2.1km North West
		Panamarathupatti Lake	2.5km North East
		Tank	3.3km South West
		Tank	4.4km North West
		Tank	5km North West
		Thirumanimutharu River	6.3km North West
		Tank	8km South West
		Minnakkal Lake	8.4km South West
		Kumaragiri Lake	9km North East
	Tank	9.3km South West	
4	Tiger Reserve/Elephant Reserve/Biosphere Reserve	None	Nil within 10 km Radius
5	Critically Polluted Areas	None	Nil within 10km Radius
6	Mangroves	None	Nil within 10km Radius
7	Mountains/Hills	None	Nil within 10km Radius
8	Notified Archaeological Sites	None	Nil within 10km Radius
9	Industries/Thermal Power Plants	PUPA Chemical Industries	8.5 km – NE
10	Defence Installation	None	Nil within 10 km Radius

Source: Satellite Imageries and Field Survey

### 3.1.6 Soil Environment

Soil quality of the study area is one of the important components of the land environment. The composite soil samples were collected from the study area and analysed for different parameters. The locations of the monitoring sites are detailed in Table 3.4 and Figure 3.3.

**TABLE 3.4: SOIL SAMPLING LOCATIONS**

S. No	Location code	Monitoring Locations	Distance & Direction	Coordinates
1	S-1	Core Zone	-	11°34'28.20"N 78° 9'10.12"E
2	S-2	Near Parapatti	3km NW	11°35'27.81"N 78° 7'35.39"E
3	S-3	Pasuvanatampatti	2.5km West	11°34'17.92"N 78° 7'25.55"E
4	S-4	Nilavarapatti	3km North	11°36'21.07"N 78° 9'3.63"E
5	S-5	Pichampalayam	2.5km SE	11°32'46.77"N 78° 9'50.04"E
6	S-6	Adikarai	750m East	11°34'20.00"N 78°10'3.80"E

Source: On-site monitoring/sampling by EHS 360 LABS PRIVATE LIMITED, in association with GEMS

#### The objective of the soil sampling is -

- To determine the baseline soil characteristics of the study area;
- To determine the impact of proposed activity on soil characteristics and;
- To determine the impact on soil more importantly agriculture production point of view

#### Methodology –

For studying soil quality, sampling locations were selected to assess the existing soil conditions in and around the project site representing various land use conditions. The samples were collected by auger boring into the soil up to 90-cm depth. Six (6) locations were selected for soil sampling on the basis of soil types, vegetative cover, industrial & residential activities including infrastructure facilities, which would accord an overall idea of the soil characteristics. The samples were analysed for physical and chemical characteristics. The samples were sent to laboratory for analysis. The samples were filled in Polythene bags, coded and sent to laboratory for analysis and the details of methodology in respect are given in below Table 3.5.

**TABLE 3.5: METHODOLOGY OF SAMPLING COLLECTION**

Particulars	Details
Frequency	One grab sample from each station-once during the study period
Methodology	Composite grab samples of the topsoil were collected from 3 depths, and mixed to provide a representative sample for analysis. They were stored in airtight Polythene bags and analysed at the laboratory.

Source: On-site monitoring/sampling by Enviro-Tech Services Laboratories in association with GEMS

#### Soil Testing Result –

The samples were analysed as per the standard methods prescribed in “Soil Chemical Analysis (M.L. Jackson, 1967) & Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India”. The important properties analysed for soil are bulk density, porosity, infiltration rate, pH and Organic matter, kjeldahi Nitrogen, Phosphorous and Potassium. The standard classification of soil and physico-chemical characteristics of the soils is presented below in Table 3.6 & Test Results in Table 3.7.

**FIGURE 3.3: SOIL SAMPLING LOCATION MAP**

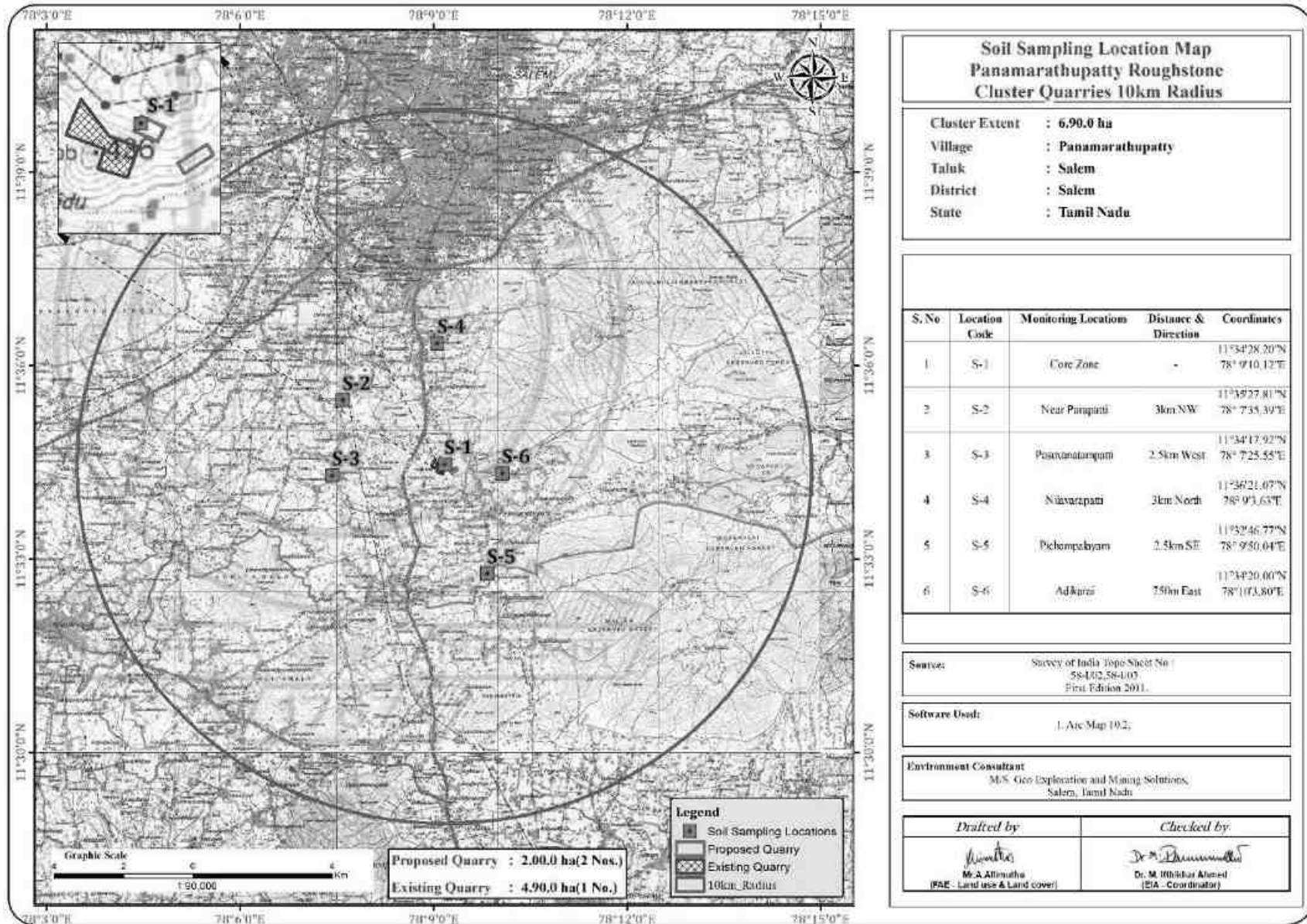
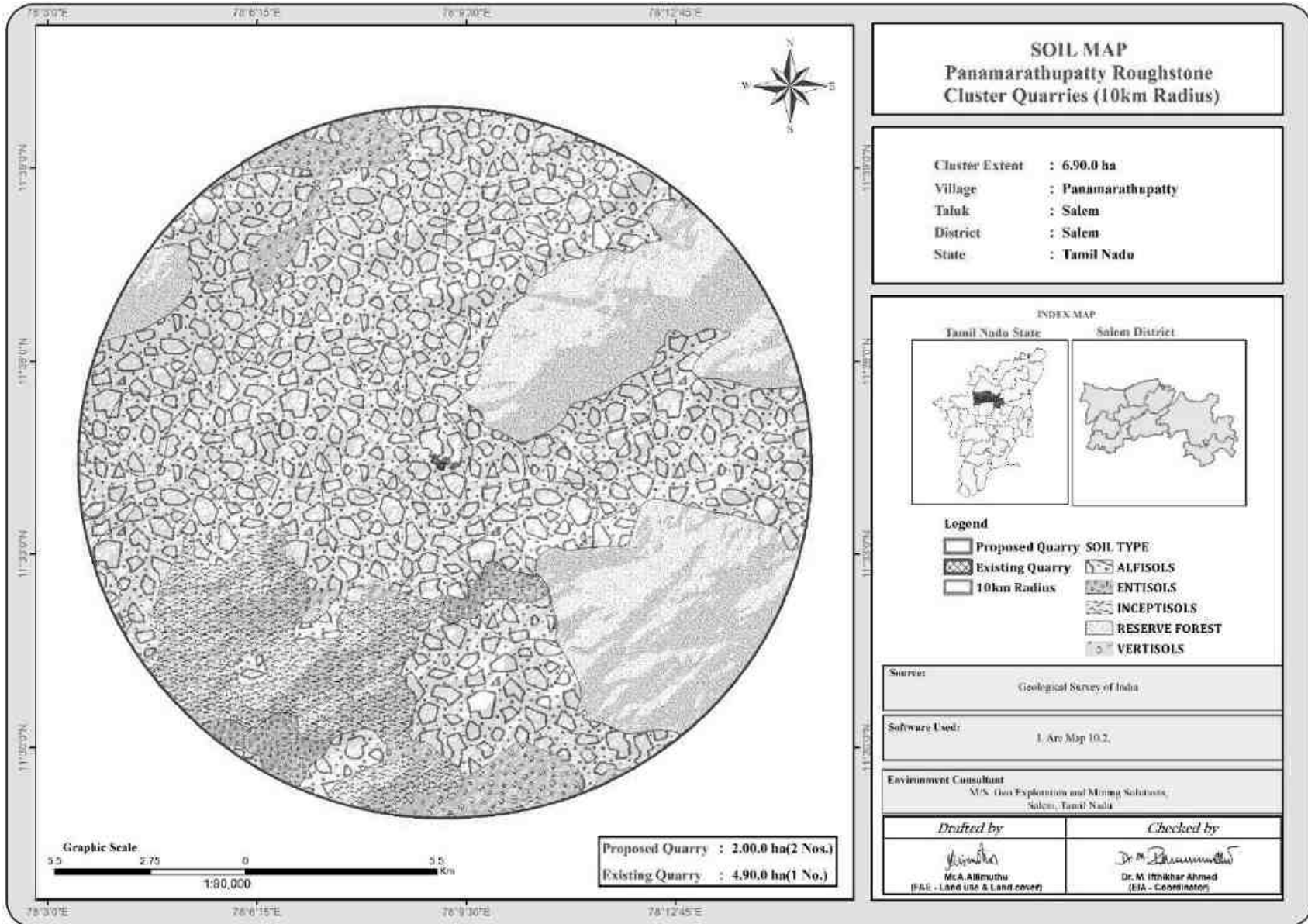


FIGURE 3.4 SOIL MAP



**TABLE 3.6: SOIL QUALITY STANDARD**

Sl. No.	Soil Test	Remarks
1	pH	<4.5 Extremely acidic 4.51- 5.50 Very strongly acidic 5.51-6.0 moderately acidic 6.01-6.50 slightly acidic 6.51-7.30 Neutral 7.31-7.80 slightly alkaline 7.81-8.50 moderately alkaline 8.51-9.0 strongly alkaline 9.01 very strongly alkaline
2	Electrical Conductivity (in $\mu\text{mohs/cm}$ )	Normal <1000, Critical for germination 1000 – 2000, Critical for growth 2000- 4000, Injurious to most crops > 4000
3	Organic Carbon (in %)	Upto 0.2: very less 0.21-0.4: less 0.41-0.5 medium, 0.51-0.8: on an average sufficient 0.81-1.00: sufficient >1.0 more than sufficient
4	Nitrogen (in Kg/ha)	Upto 50 very less 51-100 less 101-150 good 151-300 Better >300 sufficient
5	Phosphorus (in Kg/ha)	Upto 15 very less 16-30 less 31-50 medium, 51-65 on an average sufficient 66-80 sufficient >80 more than sufficient
6	Potash (in Kg/ha)	0 -120 very less 120-180 less 181-240 medium 241-300 average 301-360 better >360 more than sufficient

Source: Handbook of Agriculture, Indian Council of Agriculture Research, New Delhi



TABLE 3.7: SOIL QUALITY OF THE STUDY AREA

Parameter		S-1 Core Zone	S-2 Near Parapatti	S-3 Pasuvanampatti	S-4 Nilavarapatti	S-5 Pichampalayam	S-6 Adikarai
1	Colour	Dark Brown	Brown	Brown	Brown	Brown	Brown
2	pHat27°C	7.36	8.46	7.65	7.82	8.16	8.36
3	ElectricalConductivityat25°C	326	684	546	429	493	524
4	Texture	Sandy Loam	Clay	Sandy Clay Loam	Clay Loam	Sandy Clay Loam	Clay
5	Sand	73.6	36.7	62.3	41.9	63.7	36.7
6	Slit	11.1	18.7	11.2	24.4	13.1	9.7
7	Clay	15.3	44.6	26.5	33.7	23.2	53.6
8	Water Holding Capacity	37.3	53.8	46.4	43.5	52.7	47.8
9	Bulk Density	0.82	1.23	1.14	1.03	1.21	1.22
10	Porosity	24.3	34.9	31.5	27.5	31.9	31.7
11	Exchangeable Calcium(asCa)	146	178	153	145	173	165
12	Exchangeable Magnesium(asMg)	22.4	34.2	30.8	29.4	33.7	24.7
13	Exchangeable Manganese(asMn)	29.5	35.4	33.4	31.9	34.2	27
14	Exchangeable Zinc as Zn	0.53	1.29	1.06	0.89	0.67	0.85
15	Available Boron (as B)	0.68	0.93	0.77	0.75	0.81	0.71
16	Soluble Chloride(as Cl)	143	176	152	141	164	158
17	Soluble Sulphate(as S04)	119	162	149	153	157	144
18	Available Potassium(as K)	33.5	46.8	38.2	36.4	40.3	33.7
19	Available Phosphorous (as P)	0.79	1.38	0.83	0.92	1.06	0.75
20	Available Nitrogen(as N)	163	265	231	219	248	163
21	Cadmium (as Cd)	BDL (DL:0.003)	BDL (DL:0.003)	BDL (DL:0.003)	BDL (DL:0.003)	BDL (DL:0.003)	BDL(DL:0.003)
22	Chromium (asCr)	0.12	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)
23	Copper(asCu)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)
24	Lead (as Pb)	0.95	1.35	1.12	1.05	0.86	0.78
25	Total Iron	1.68	2.72	2.07	2.23	2.15	2.02
26	Organic Matter	1.34	2.63	1.53	1.89	2.03	2.46
27	Organic Carbon	0.78	1.53	0.89	1.10	1.18	1.43
28	CEC	36.5	43.2	39.5	40.6	41.2	52

Source: Sampling Results by Enviro-Tech Services Laboratories in association with GEMS

## Interpretation & Conclusion

- Variation in pH of the soil in the study area was found to be 7.36 to 8.46
- Mostly the soils collected from different location in the study area are Sandy clay loam in texture.
- The bulk density of the soil in the study area ranged between 0.82 – 1.23 g/cc.
- Organic carbon of the soil in the study area ranged between 0.78 - 1.53 %.
- Available Nitrogen, available phosphorous and potassium content is low.

### 3.2 WATER ENVIRONMENT

The water resources, both surface and groundwater play a significant role in the development of the area. The purpose of this study is to assess the water quality characteristics for critical parameters and evaluate the impacts on agricultural productivity, domestic community usage, recreational resources and aesthetics in the vicinity. The water samples were collected and transported as per the norms in pre-treated sampling cans to laboratory for analysis.

#### 3.2.1 Surface Water Resources:

**TABLE 3.8: SURFACE WATER BODIES IN THE STUDY AREA**

Tank	600m South East
Tank	2.1km North West
Panamarathupatti Lake	2.5km North East
Tank	3.3km South West
Tank	4.4km North West
Tank	5km North West
Thirumanimutharu River	6.3km North West
Tank	8km South West
Minnakkal Lake	8.4km South West
Kumaragiri Lake	9km North East
Tank	9.3km South West

Salem district is drained by tributaries of Cauvery and Vellar rivers. Cauvery River, which is perennial in nature, flows along the Western and Southern boundaries of the district. Sarabanga and Tirumanimuttar are important tributaries of Cauvery River and originate in the Shevroy hills. The Swetha and Vasishta rivers are tributaries of Vellar River. The Swetha River originates in the Kollimalai and flows Eastwards and joins the Vellar River. The Vasishta River originates in the chitteri hills and flows southwards and joins the Vellar River. In general, the district is characterized by denitrific drainage.

#### 3.2.2 Ground Water Resources:

Groundwater occurs in all the crystalline formations of oldest Achaean and Recent Alluvium. The occurrence and behaviour of groundwater are controlled by rainfall, topography, geomorphology, geology, structures etc.

Ground water is occurring in phreatic conditions in weathered and fractured gneiss rock formation. The weathering is controlled by the intensity of weathering and fracturing. Dug wells as well as bore wells are more common ground water abstraction structures in the area. The diameter of the dug well is in the range of 7 to 10 m and depth of dug wells range from 10.5 to 13.6 m bgl. The dug wells yield up to 1 lps in summer months and few wells remains dry. The yield is adequate for irrigation for one or two crops in monsoon period.

#### 3.2.3 Methodology

Reconnaissance survey was undertaken and monitoring locations were finalized based on;

- Drainage Pattern
- Location of Residential areas representing different activities /likely impact area and likely areas, which can represent baseline condition

- Two (2) surface water and Four (4) ground water samples were collected from the study area and physio-chemical, heavy metals and bacteriological parameters were analysed in order to assess the effect of mining and other activities on surface and ground water. The samples were analysed as per the procedures specified by CPCB, IS-10500:2012 and 'Standard methods for the Examination of Water and Wastewater' published by American Public Health Association (APHA). The water sampling locations are given in Table 3.9 and shown as Figure 3.5.

**TABLE 3.9: WATER SAMPLING LOCATIONS**

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	SW-1	Panamarathupatti Lake	3km NE	11°34'39.95"N 78°11'7.35"E
2	SW-2	Kottanathan Lake	5km NW	11°36'43.67"N 78° 7'4.90"E
3	WW-1	Core Zone	-	11°34'39.98"N 78° 8'58.57"E
4	WW-2	Nilavarapatti	3km North	11°36'20.25"N 78° 9'16.62"E
5	BW-1	Core Zone	-	11°34'36.89"N 78° 9'15.84"E
6	BW-2	Pichampalayam	2.5km SE	11°32'46.33"N 78° 9'51.59"E

Source: On-site monitoring/sampling by EHS 360 LABS PRIVATE LIMITED in association with GEMS

**FIGURE 3.5 WATER SAMPLING LOCATION MAP**

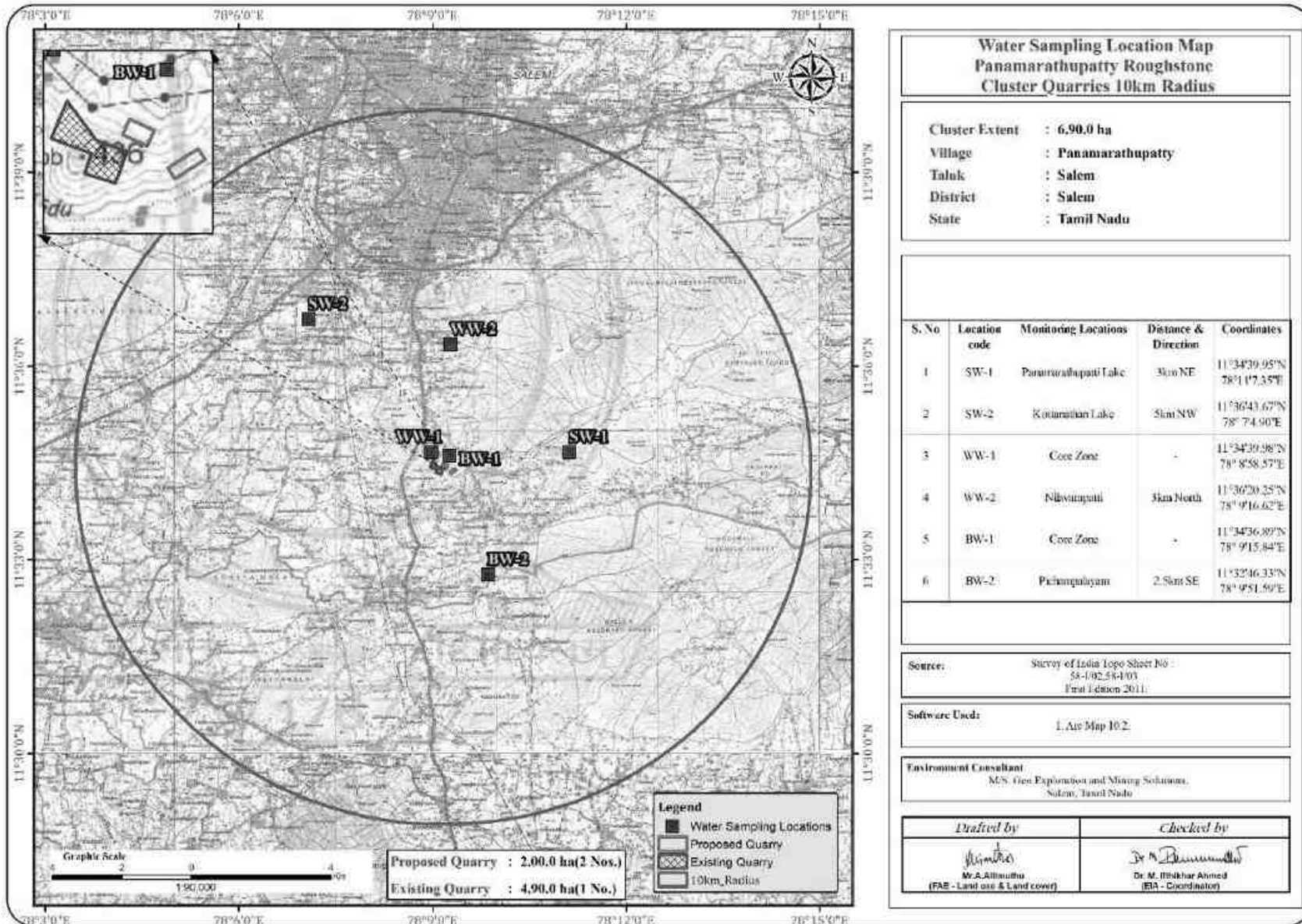


TABLE 3.10: GROUND WATER SAMPLING RESULTS

S.NO	Parameter	WW1 Core Zone	WW2 Nilavarapatti	BW1 Core Zone	BW2 Pichampalayam
1	Color	< 5	< 5	< 5	< 5
2	Odour	Agreeable	Agreeable	Agreeable	Agreeable
3	pH@ 25°C	7.23	6.87	7.82	7.44
4	Electrical Conductivity @ 25°C	581	528	663	760
5	Turbidity	< 1	< 1	< 1	< 1
6	Total Dissolved Solids	342	312	390	448
7	Total Hardness as CaCO <sub>3</sub>	182.8	146.5	186.6	261.2
8	Calcium as Ca	32.9	28.6	35.6	42.9
9	Magnesium as Mg	24.5	18.3	23.8	37.5
10	Total Alkalinity	142	135	167	173
11	Chloride as Cl <sup>-</sup>	60.9	51.8	75.9	95.2
12	Sulphate as SO <sub>4</sub> <sup>-</sup>	23.3	21.5	26.3	32.6
13	Iron as Fe	0.21	BDL(DL:0.1)	0.27	BDL(DL:0.1)
14	Free Residual Chlorine	BDL(DL: 2.0)	BDL(DL: 2.0)	BDL(DL: 2.0)	BDL(DL: 2.0)
15	Fluoride as F	0.28	0.19	0.25	0.31
16	Nitrates as NO <sub>3</sub>	11.3	4.5	12.2	18
17	Copper as Cu	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)
18	Manganese as Mn	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)
19	Mercury as Hg	(BDL (DL: 0.0005))	(BDL (DL: 0.0005))	(BDL (DL: 0.0005))	(BDL (DL: 0.0005))
20	Cadmium as Cd	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)
21	Selenium as Se	BDL (DL: 0.05)	BDL (DL: 0.05)	BDL (DL: 0.05)	BDL (DL: 0.05)
22	Aluminium as Al	BDL (DL: 0.03)	BDL (DL: 0.03)	BDL (DL: 0.03)	BDL (DL: 0.03)
23	Lead as Pb	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)
24	Zinc as Zn	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)
25	Total Chromium	BDL (DL: 0.05)	BDL (DL: 0.05)	BDL (DL: 0.05)	BDL (DL: 0.05)
26	Boron as B	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)
27	Mineral Oil	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)
28	Phenolic Compunds as C <sub>6</sub> H <sub>5</sub> OH	Absent	Absent	Absent	Absent
29	Anionic Detergents as	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)
30	Cynaide as CN	Absent	Absent	Absent	Absent
31	Total Coliform	< 2	< 2	< 2	< 2
32	E-Coli	< 2	< 2	< 2	< 2
33	Barium as Ba	BDL (DL:0.5)	BDL (DL:0.5)	BDL (DL:0.5)	BDL (DL:0.5)
34	Ammonia (as Total	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)
35	Sulphide as H <sub>2</sub> S	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)
36	Molybdenum as Mo	BDL (DL:0.5)	BDL (DL:0.5)	BDL (DL:0.5)	BDL (DL:0.5)
37	Total Arsenic as As	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)
38	Total Suspended Solids	BDL(DL:2)	BDL(DL:2)	BDL(DL:2)	BDL(DL:2)

**TABLE 3.11: SURFACE WATER SAMPLING RESULTS**

S.NO	Parameter	SW1 Panamarathupatti Lake	SW2 Kottanathan Lake
1	Color	5	5
2	Odour	Agreeable	Agreeable
3	pH@ 25°C	7.65	8.12
4	Electrical Conductivity @ 25°C	632	695
5	Turbidity	4.3	3.7
6	Total Dissolved Solids	372	410
7	Total Hardness as CaCO <sub>3</sub>	183.2	196
8	Calcium as Ca	31.6	33.7
9	Magnesium as Mg	25.4	27.2
10	Total Alkalinity as CaCO <sub>3</sub>	157	164
11	Chloride as Cl <sup>-</sup>	72.2	90.9
12	Sulphate as SO <sub>4</sub> <sup>-</sup>	25.6	29.3
13	Iron as Fe	0.28	0.35
14	Free Residual Chlorine	BDL(DL: 2.0)	BDL(DL: 2.0)
15	Fluoride as F	0.33	0.35
16	Nitrates as NO <sub>3</sub>	12.3	14.2
17	Copper as Cu	BDL (DL:0.2)	BDL (DL:0.2)
18	Manganese as Mn	BDL (DL:0.05)	BDL (DL:0.05)
19	Mercury as Hg	(BDL (DL: 0.0005))	(BDL (DL: 0.0005))
20	Cadmium as Cd	BDL (DL:0.01)	BDL (DL:0.01)
21	Selenium as Se	BDL (DL: 0.05)	BDL (DL: 0.05)
22	Aluminium as Al	BDL (DL: 0.03)	BDL (DL: 0.03)
23	Lead as Pb	BDL (DL:0.01)	BDL (DL:0.01)
24	Zinc as Zn	BDL (DL:0.02)	BDL (DL:0.02)
25	Total Chromium	BDL (DL: 0.05)	BDL (DL: 0.05)
26	Boron as B	BDL (DL:0.1)	BDL (DL:0.1)
27	Mineral Oil	BDL (DL:1.0)	BDL (DL:1.0)
28	Phenolic Compunds as	Absent	Absent
29	Anionic Detergents as	BDL (DL:0.1)	BDL (DL:0.1)
30	Cynaide as CN	Absent	Absent
31	Biological Oxygen	6.3	8.5
32	Chemical Oxygen	21.3	24.7
33	Dissolved Oxygen	5.1	4.5
34	Total Coliform	present	present
35	E-Coli	present	present
36	Barium as Ba	BDL (DL:0.5)	BDL (DL:0.5)
37	Ammonia-n (as Total	2.5	2.9
38	Sulphide as H <sub>2</sub> S	BDL (DL:0.05)	BDL (DL:0.05)
39	Molybdenum as Mo	BDL (DL:0.5)	BDL (DL:0.5)
40	Total Arsenic as As	BDL (DL:0.01)	BDL (DL:0.01)
41	Total Suspended Solids	4.3	6.8

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### 3.2.4 Interpretation & Conclusion

#### Surface Water

##### Ph:

The pH varied from 7.65 – 8.12 while turbidity found within the standards (Optimal pH range for sustainable aquatic life is 6.5 to 8.5 pH).

##### Total Dissolved Solids:

Total Dissolved Solids varied from 372 – 410 mg/l, the TDS mainly composed of carbonates, bicarbonates, Chlorides, phosphates and nitrates of calcium, magnesium, sodium and other organic matter.

##### Other parameters:

Chloride is 72.2 – 90.9 mg/l. Nitrates is 12.3 – 14.2 mg/l, while sulphates is 25.6 – 29.3 mg/l.

Whereas, the micronutrient iron (Fe) ranges from 0.28 – 29.3 mg/kg and whereas the values of zinc (Zn) and copper (Cu) are in Below Detection Limit (BDL).

#### Ground Water

The pH of the water samples collected ranged from 6.87 to 7.82 and within the acceptable limit of 6.5 to 8.5. pH, Sulphates and Chlorides of water samples from all the sources are within the limits as per the Standard. On Turbidity, the water samples meet the requirement. The Total Dissolved Solids were found in the range of 312 to 448 mg/l in all samples. The Total hardness varied between 146.5 to 261.2 mg/l for all samples.

On Microbiological parameters, the water samples from all the locations meet the requirement. The parameters thus analysed were compared with IS 10500:2012 and are well within the prescribed limits.

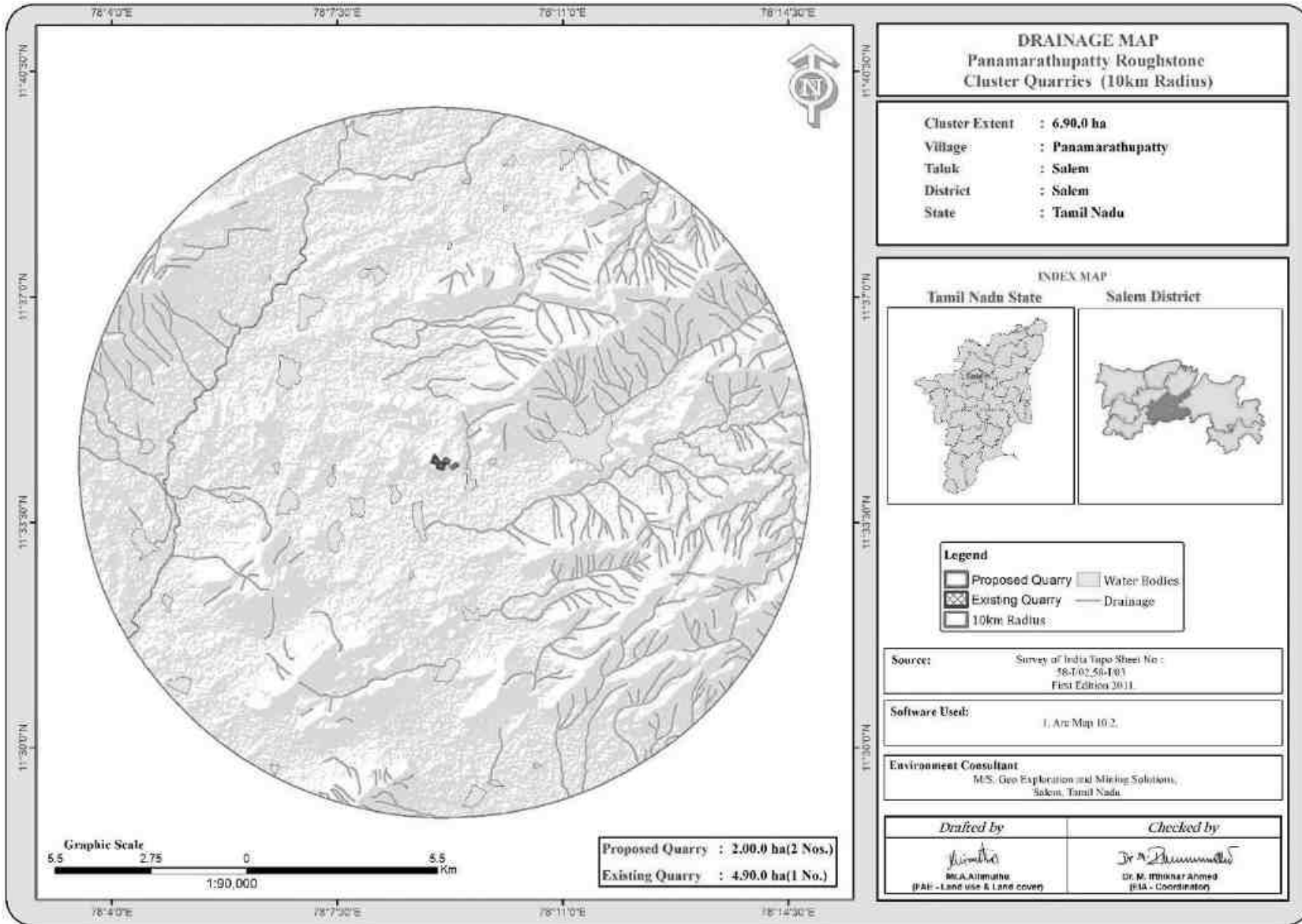
### 3.2.5 Hydrology and Hydrogeological Studies

#### 3.2.5.1 HYDROLOGY –

The district is underlain by hard rock formation fissured and fractured crystalline rocks constitute the important aquifer systems in the district. Geophysical prospecting was carried out in that area by SSRMP-80 Instrument by qualified Geo physicist with the help of IGIS software and it was inferred that the low resistance encountered at the depth between 56 - 58 m. The maximum depth proposed is 56m (46m agl + 10m bgl). Hence there is no possibilities of water table intersection during the entire mine life period besides it is also inferred topographically that there are no major water bodies intersecting the project area. There is no necessity of stream, channel diversion due to these proposed projects.

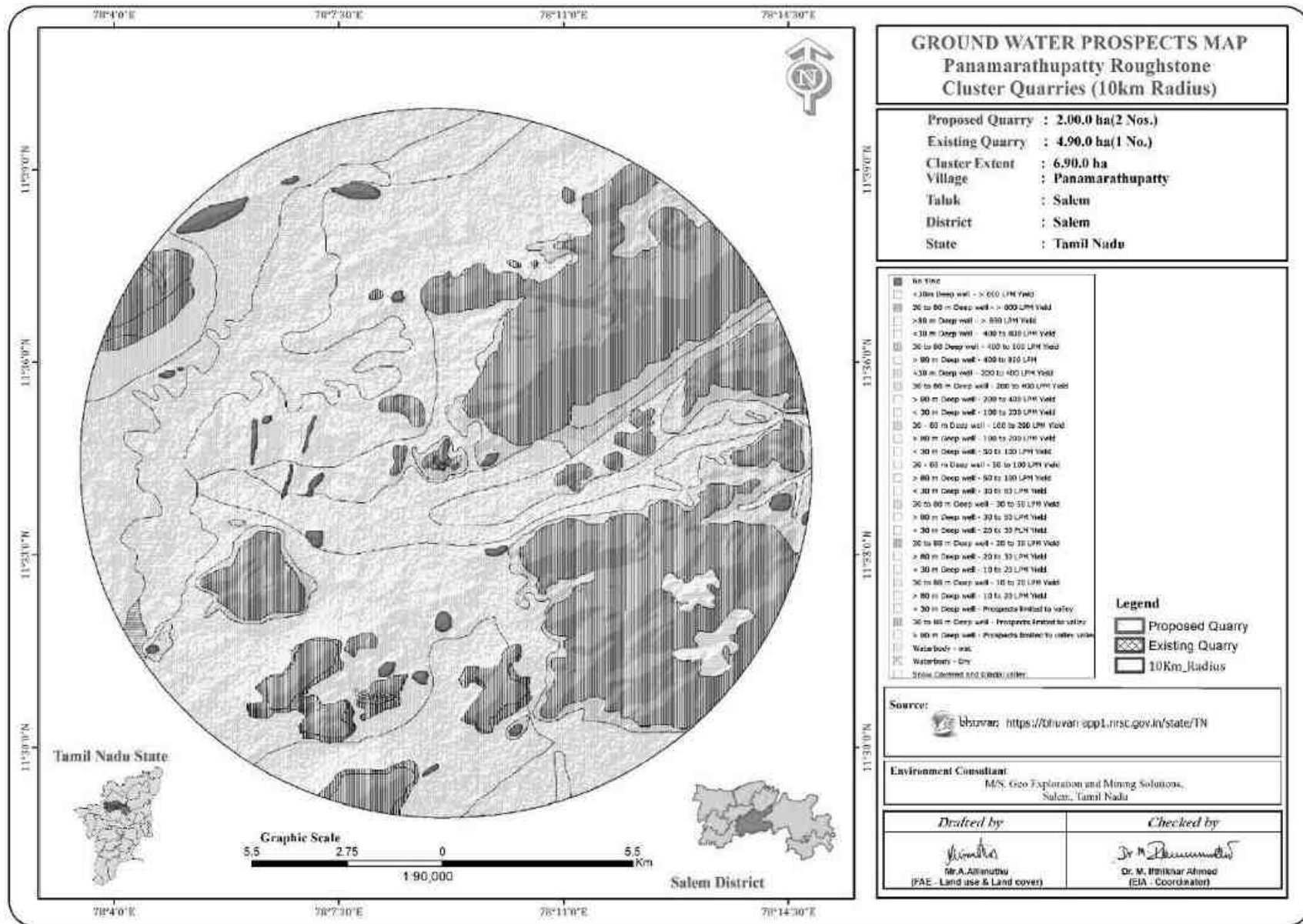
During the rainy season there is a possibility of collection of seepage water from the subsurface levels this is due to the high intensity of fracture and weathered portion upto a depth of 10 m thus the collected seepage water will be stored in the mine sump pits and will be used for dust suppression and greenbelt development and during the end of the life of the mine this collected water will act as a temporary reservoir.

**FIGURE 3.6: DRAINAGE MAP AROUND 10 KM RADIUS FROM PROJECT SITE**





**FIGURE 3.7: GROUND WATER PROSPECT MAP**



**TABLE 3.12: PRE MONSOON WATER LEVEL OF OPEN WELLS 1 KM RADIUS**

S.no	Label	Latitude	Longitude	Depth in Meter		
				March-2024	April-2024	May-2024
1	OW1	11° 34' 52.3384" N	78° 09' 09.1280" E	10.5	11.75	11.95
2	OW2	11° 34' 48.4167" N	78° 08' 57.2611" E	10.8	12.05	12.25
3	OW3	11° 34' 39.6076" N	78° 08' 57.6472" E	10.4	11.65	11.85
4	OW4	11° 34' 37.9418" N	78° 08' 50.3092" E	10.6	11.85	12.05
5	OW5	11° 34' 12.8919" N	78° 08' 59.2372" E	11.5	12.75	12.95
6	OW6	11° 34' 02.8439" N	78° 08' 59.3059" E	11.2	12.45	12.65
7	OW7	11° 34' 08.4548" N	78° 09' 20.9177" E	10.9	12.15	12.35
8	OW8	11° 34' 17.0714" N	78° 09' 30.7250" E	10.7	11.95	12.15
9	OW9	11° 34' 41.7344" N	78° 09' 32.0261" E	10.5	11.75	11.95
10	OW10	11° 34' 44.4315" N	78° 09' 28.5027" E	11.4	12.65	12.85
11	OW11	11° 34' 43.3978" N	78° 09' 15.9799" E	10.8	12.05	12.25

Source: Field Monitoring Data

FIGURE 3.9: PRE MONSOON WATER LEVEL OF OPEN WELLS 1 KM RADIUS – MAR 2024

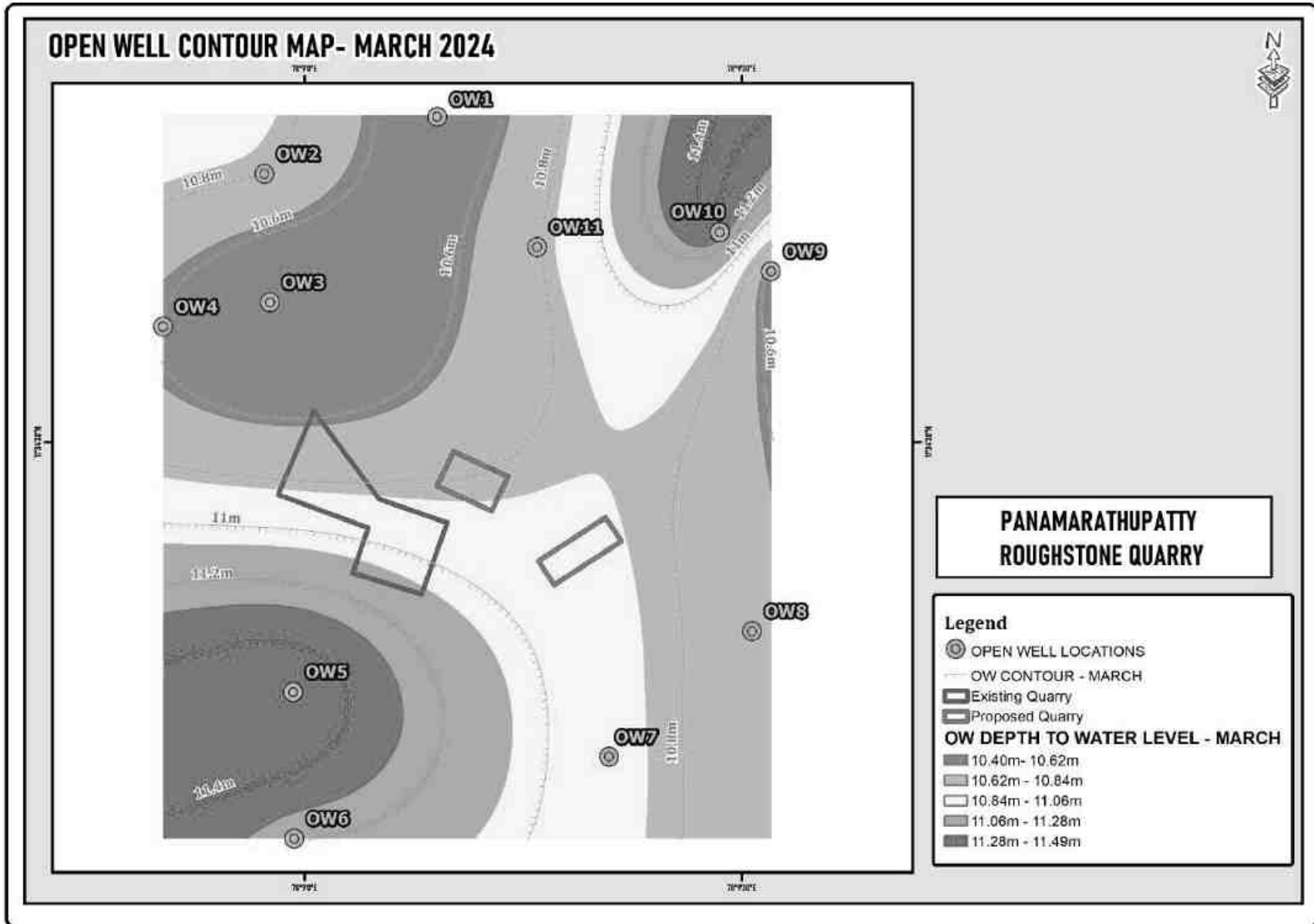


FIGURE 3.10: PRE MONSOON WATER LEVEL OF OPEN WELLS 1 KM RADIUS – APR 2024

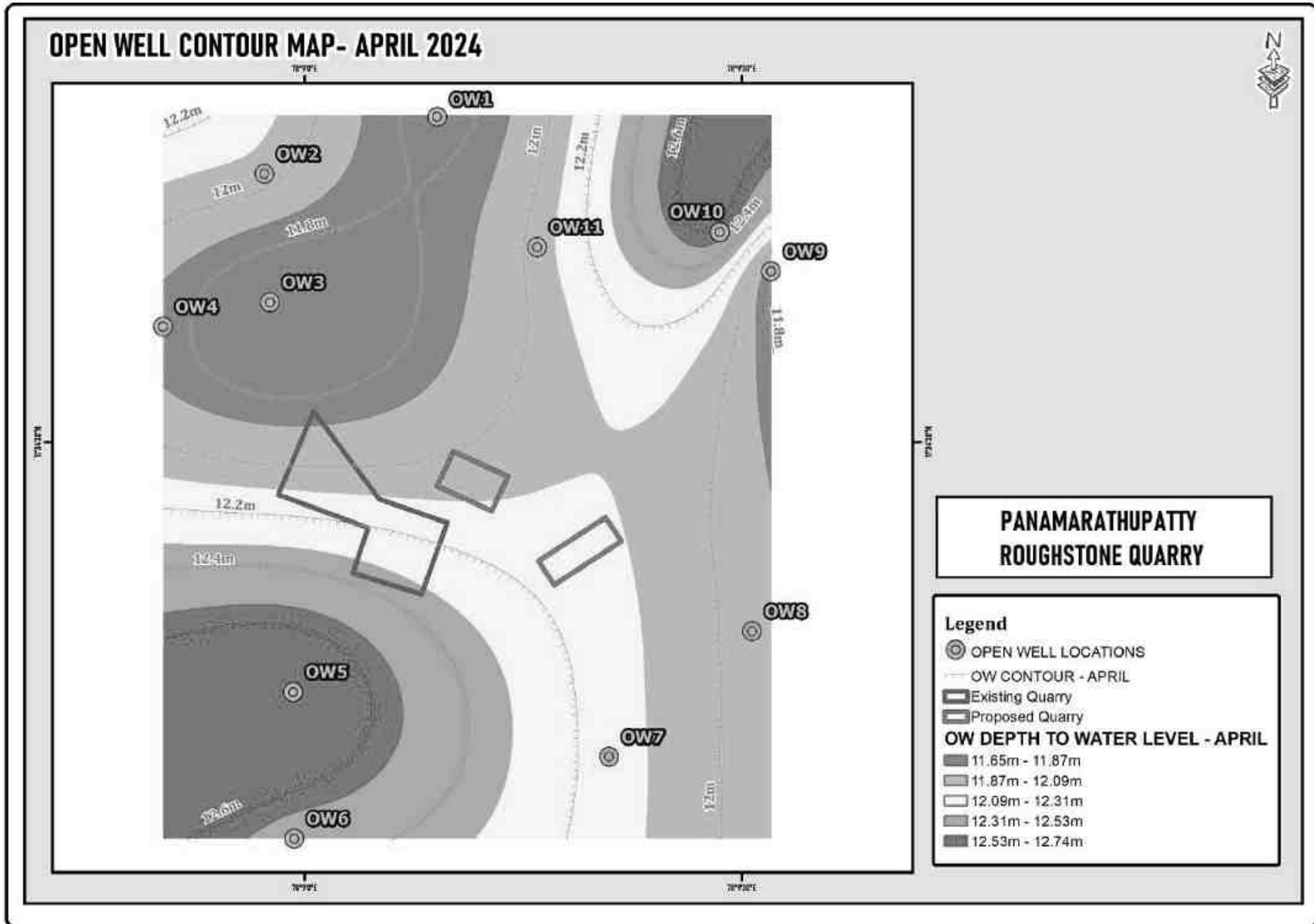
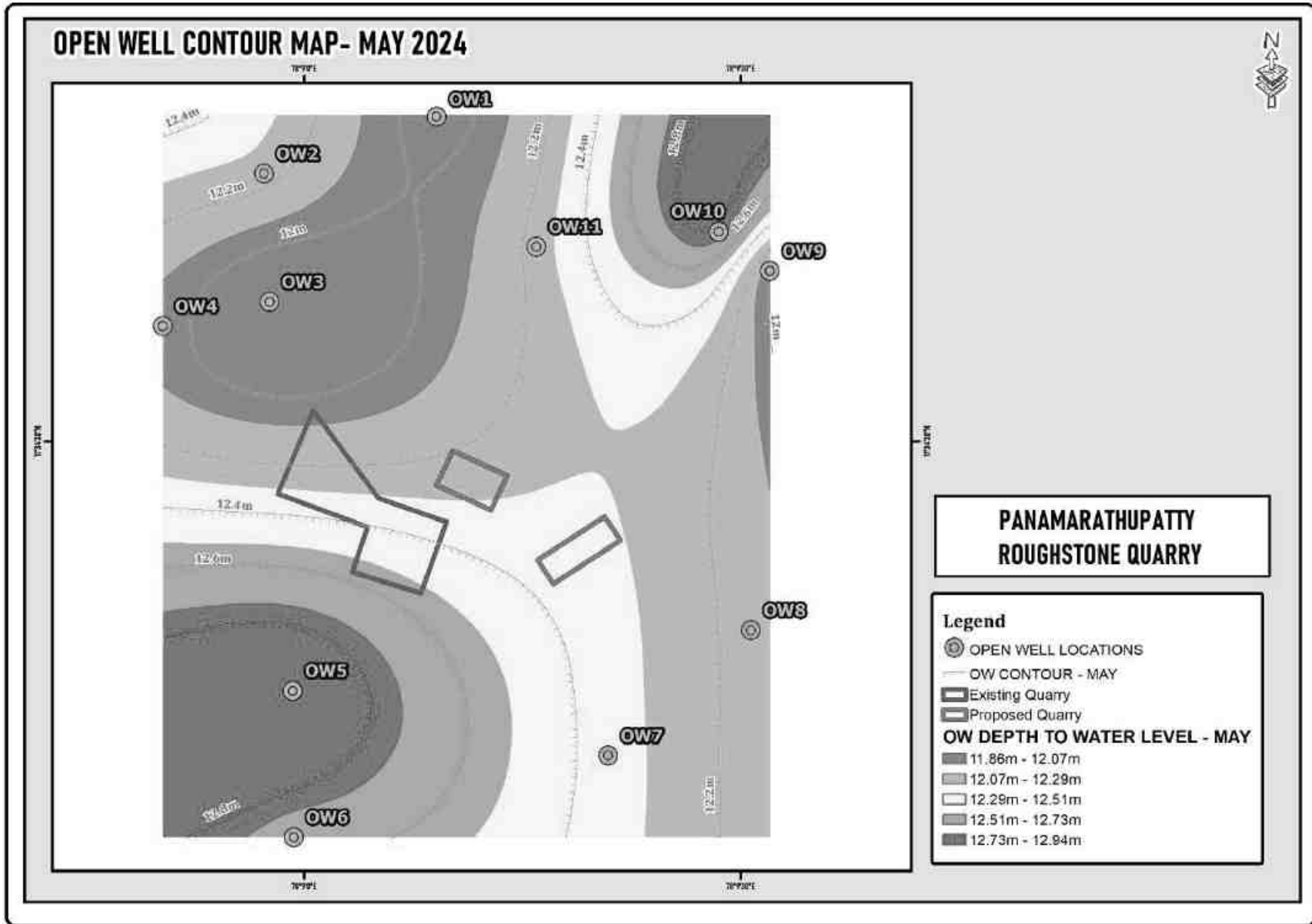


FIGURE 3.11: PRE MONSOON WATER LEVEL OF OPEN WELLS 1 KM RADIUS – MAY 2024



**TABLE 3.13: PRE MONSOON WATER LEVEL OF BORE WELLS 1 KM RADIUS**

S.no	Label	Latitude	Longitude	Depth in Meter		
				March-2024	April -2024	May-2024
1	BW1	11° 34' 33.0008" N	78° 09' 30.1683" E	65.4	66.65	66.85
2	BW2	11° 34' 24.1793" N	78° 09' 29.3010" E	66.2	67.45	67.65
3	BW3	11° 34' 11.6637" N	78° 09' 26.4591" E	65.8	67.05	67.25
4	BW4	11° 34' 08.8124" N	78° 08' 54.4633" E	65.3	66.55	66.75
5	BW5	11° 34' 16.0751" N	78° 08' 48.9478" E	65.8	67.05	67.25
6	BW6	11° 34' 41.4425" N	78° 08' 52.4505" E	65.7	66.95	67.15
7	BW7	11° 34' 49.5124" N	78° 09' 09.4534" E	66.4	67.65	67.85

Source: Field Monitoring Data

FIGURE 3.13: PRE- MONSOON WATER LEVEL OF BORE WELLS 1 KM RADIUS – MAR 2024

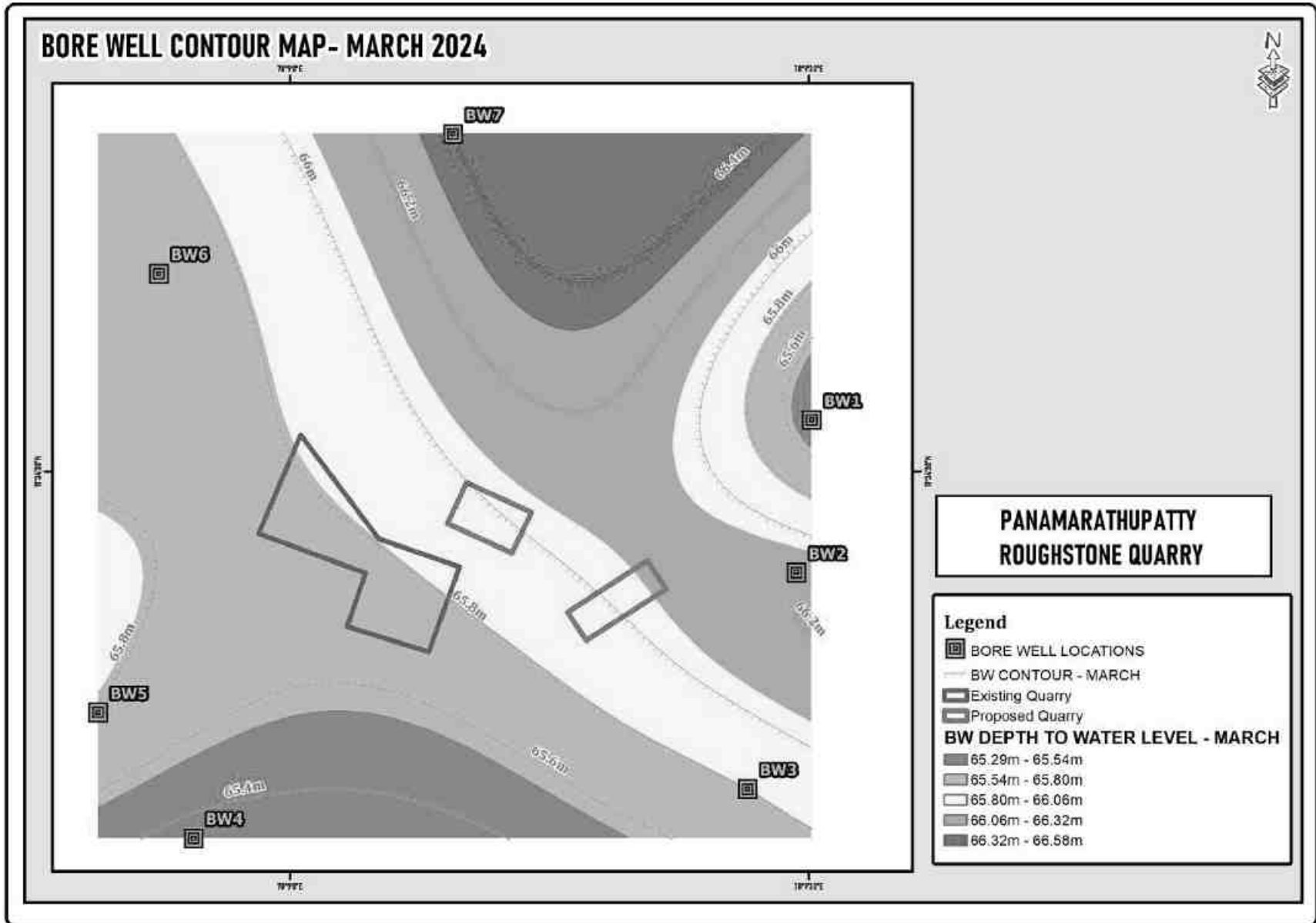


FIGURE 3.14: PRE- MONSOON WATER LEVEL OF BORE WELLS 1 KM RADIUS – APR 2024

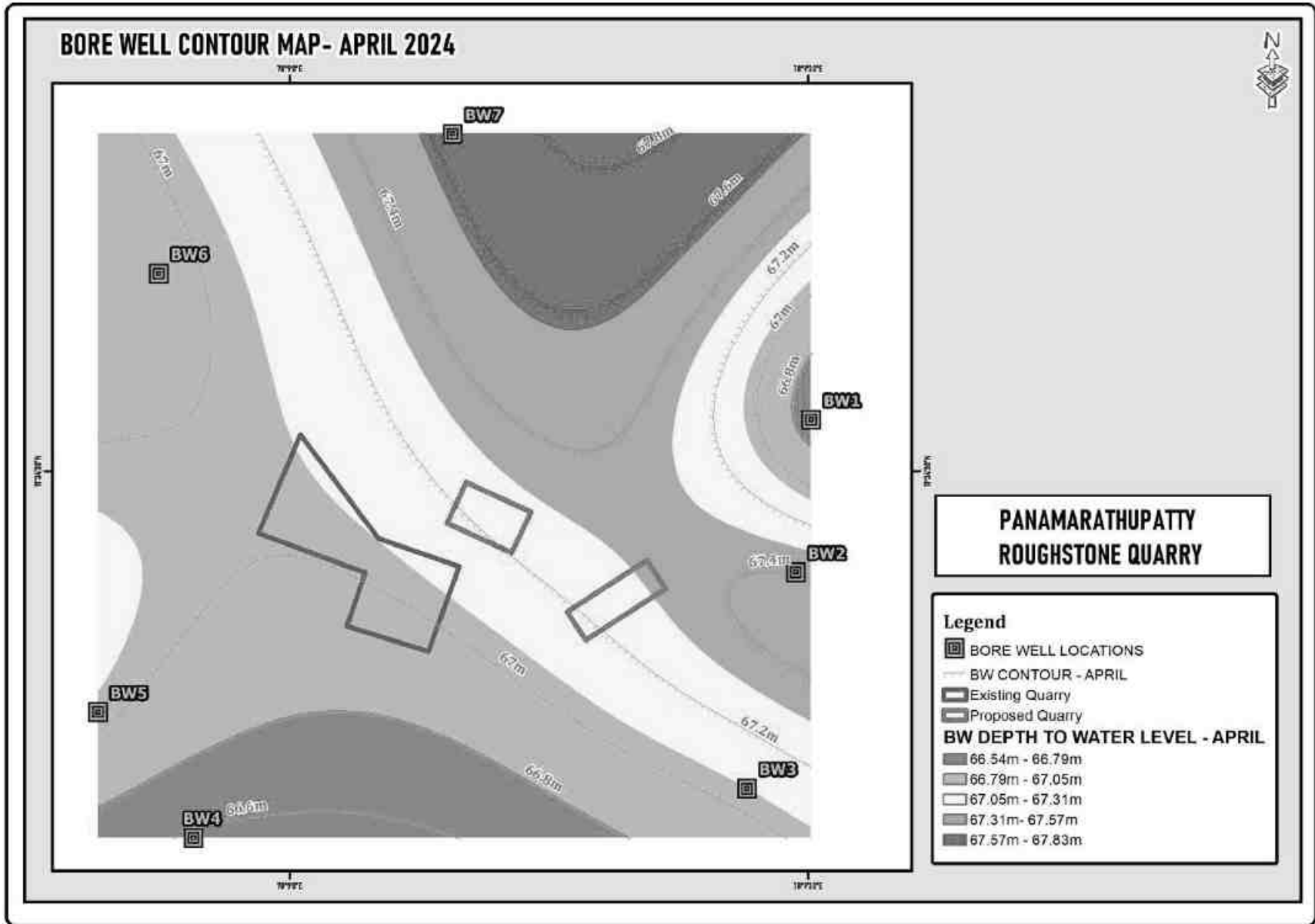
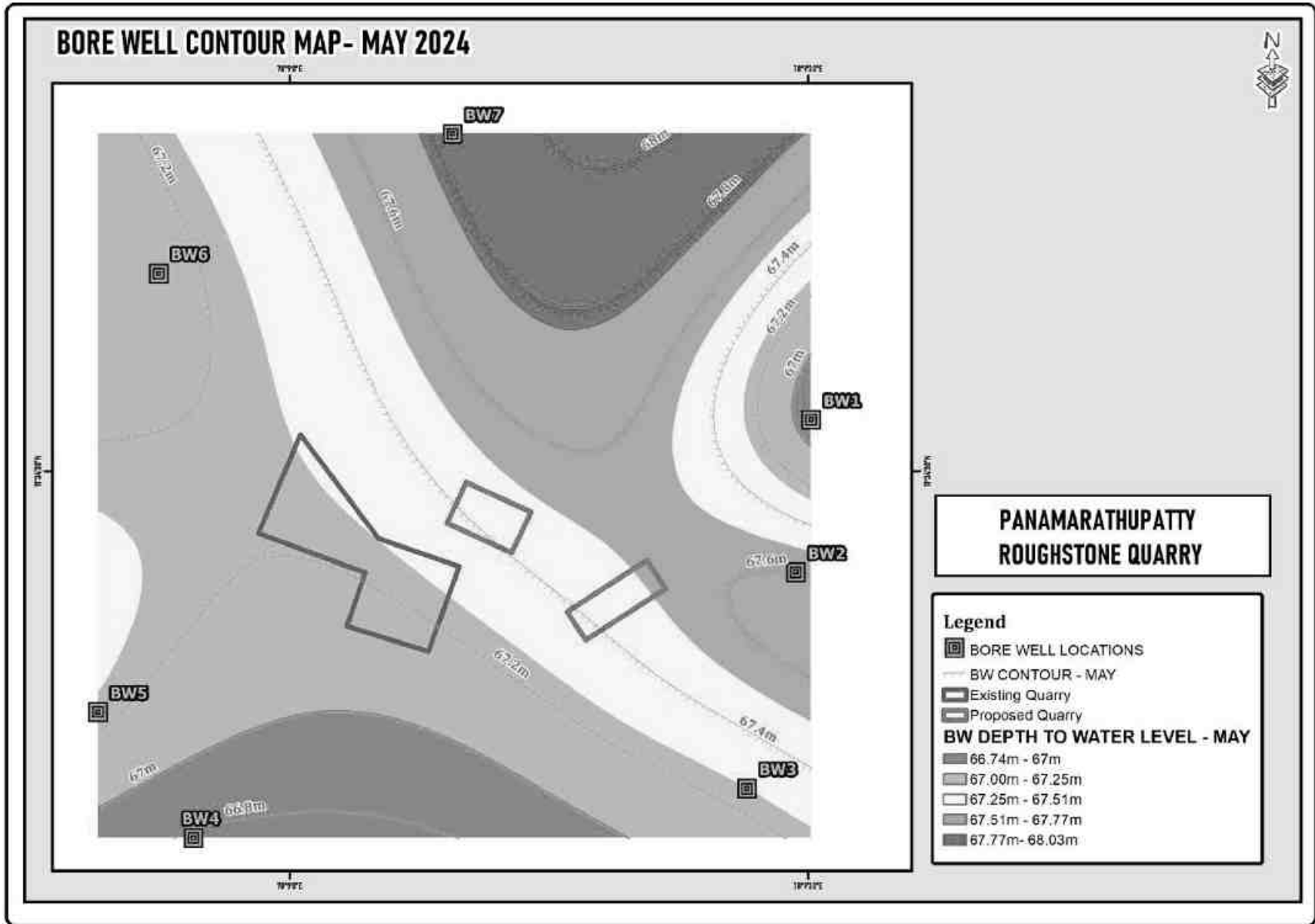




FIGURE 3.15: PRE- MONSOON WATER LEVEL OF BORE WELLS 1 KM RADIUS – MAY 2024



### 3.2.5.3 GEOPHYSICAL SURVEY

Geophysical prospecting was carried out in that area by SSRMP-80 Instrument by qualified Geo physicist with the help of IGIS software and it was inferred that the low resistance encountered at the depth between 56 -60m bgl. The quarrying operations is restricted upto 56 m (46m agl + 10m bgl). Hence there is no possibilities of water table intersection during the entire mine life period besides it is also inferred topographically that there are no major water bodies intersecting the project area. There is no necessity of stream, channel diversion due to this proposed project.

During the rainy season there is a possibility of collection of seepage water from the subsurface levels this is due to the fracture and fissures at a depth of 20 m to 30 m. Since the total mining depth is 56 m (55m + 1m), the water seepage from the fractured zone is not anticipated.

#### 3.2.5.3.1 Methodology and Data Acquisition

Electric Resistivity Method is well established for delineating lateral as well vertical discontinuities in the resistive structure of the Earth's subsurface. The present study makes use of vertical electric sounding (VES) to delineate the Vertical Resistivity structure at depth. Schlumberger electrode set up was employed for making sounding measurements. Since it is least influenced by lateral in homogeneities and is capable of providing higher depth of investigation. This is four electrodes collinear set up where in the outer electrodes send current into the ground and the inner electrodes measure the potential difference.

The present study utilizes maximum current electrode separation AB/2. The data from this survey are commonly arranged and contoured in the form of Pseudo-section that gives an approximate of the subsurface resistivity. This technique is used for the inversion of Schlumberger VES data to predict the layer parameter namely layer resistivity and Geo electric layer thickness. The main goal of the present study is to search the vertical in homogeneities that is consistent with the measured data.

For a Schlumberger among the Apparent resistivity can be calculated as follows

$$\rho_a = \frac{G\Delta V}{I}$$

$\Delta V$  = potential difference between receiving electrodes

$G$  = Geometric Factor.

Rocks show wide variation in resistivity ranging from 10-8 more than 10+14 ohmmeter. On a broad classification, one can group the rocks falling in the range of 10-8 to 1 ohmmeter as good conductors. 1 to 106 ohmmeter as intermediate conductors and 106 to 1012 ohmmeter as more as poor conductor. The resistivity of rocks and subsurface lithology, which is mostly dependent on its porosity and the pore fluid resistivity is defined by Archie's Law,

$$\rho_r = F\rho_w = a \emptyset^m \rho_w$$

$\rho_r$  = Resistivity of Rocks

$\rho_w$  = Resistivity of water in pores of rock

$F$  = Formation Factor

$\emptyset$  = Fractional pore volume

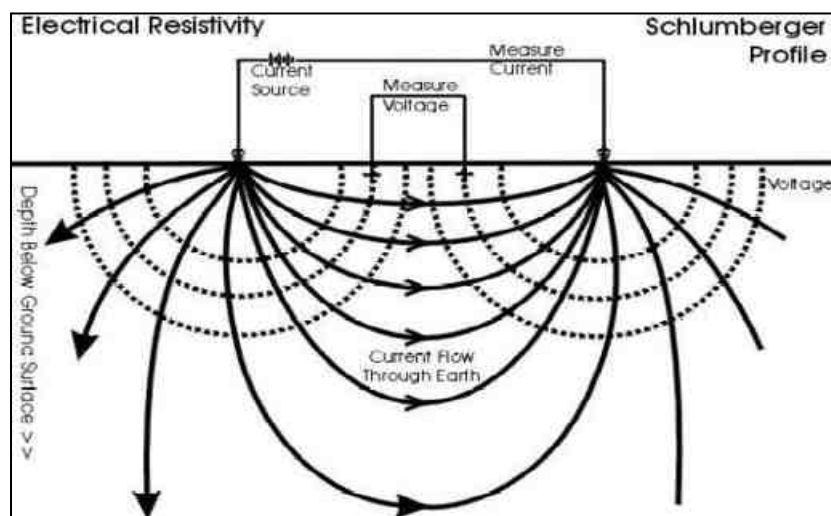
$A$  = Constants with values ranging from 0.5 to 2.5

### 3.2.5.3.2 Survey Layout

The layout for a resistivity survey depends on the choice of the current and potential electrode arrangement, which is called electrode array. Here the present study is considered with Schlumberger array. In which the distance may be used for current electrode separation while potential electrode separation is kept on third to one fifth of the same. One interesting aspect in VES is the principle of reciprocity, which permits interchange of the potential and current electrode without any effect on the measured apparent resistivity.

The field equipment deployed for the study is in a deep resistivity meter with a model of SSR – MP – AT. This Signal stacking Resistivity meter is a high quality data acquisition system incorporating several innovation features for Earth resistivity. In the presence of random earth Noises the signal to noise ration can be enhanced by  $\sqrt{N}$  where N is the number of stacked readings. This SSR meter in which running averages of measurements  $[1, (1+2)/2, (1+2+3)/3 \dots (1+2\dots+16/16)]$  up to the chosen stacks are displayed and the final average is stored automatically, in memory utilizing the principles of stacking to achieve the benefit of high signals to noise ratio. Based on these above significations the signal stacking resistivity meter was used for (VES) Vertical Electric Resistivity Sounding.

**FIGURE 3.16: RESISTIVITY SURVEY PROFILE**



Measurements of ground Resistivity is essentially done by sending a current through two electrodes called current electrodes (C<sub>1</sub>& C<sub>2</sub>) and measuring the resulting potential by two other electrodes called potential electrode (P<sub>1</sub>& P<sub>2</sub>). The amount of current required to be sent into the ground depends on the contact resistance at the current electrode, the ground resistivity and the depth of interest.

### 3.2.5.3 Data Presentation

It was inferred that the low resistance encountered at the depth between 56-60m. The maximum depth of this proposed project is 66m (46m AGL + 20m BGL). Hence there is no possibilities of water table intersection during the entire mine life period besides it is also inferred topographically that there are no major water bodies intersecting the project area.

### 3.2.5.3.4 Geophysical Data Interpretation

The geophysical data's was obtained to study the lateral variations, vertical in homogeneities in the sub-surface with respect to the availability of groundwater. From the interpreted data, it has inferred that the area has moderate groundwater potential in the investigated area. This small quarrying operation is above ground level and topography is hilly and will not have any significant impact on the Ground Water.

### 3.3 AIR ENVIRONMENT:

The existing ambient air quality of the area is important for evaluating the impact of mining activities on the ambient air quality.

The baseline studies on air environment include identification of specific air pollution parameters and their existing levels in ambient air. The ambient air quality with respect to the study zone of 10 km radius around the proposed quarry forms the baseline information. The sources of air pollution in the region are mostly due to existing quarries, vehicular traffic, dust arising from unpaved village road and domestic & agricultural activities. The prime objective of the baseline air quality study was to establish the existing ambient air quality of the study area. These will also be useful for assessing the conformity to standards of the ambient air quality during the operation of proposed mine.

This section describes the identification of sampling locations, methodology adopted during the monitoring period and sampling frequency.

#### 3.3.1 Meteorology & Climate

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

A temporary meteorological station was installed near the project site. The station was installed at a height of 4 m above the ground level in such a way that there are no obstructions facilitating flow of wind, wind speed, wind direction, humidity and temperature are recorded on hourly basis.

#### Regional Climate:

- The Salem lies on 278 m above sea level. It has a Tropical climate.
- The average annual temperature is 32.6 C | 90.6°F.
- The annual rainfall here is around 770 mm | 30.3 inches.
- The driest month is January with 9mm |0.3 inch of rainfall.
- The greatest amount of precipitation occurs in October, with an average of 180mm | 7.0 inch.
- The warmest month of the year is April, with an average temperature of 37.3°C | 99.14°F. The lowest average temperatures in the year occur in December, when it is around 28.4°C | 83.1 °F.
- The difference in precipitation between the driest month and the wettest month is 197 mm |The variation in annual temperatures throughout the year is 9.5°C | 49.1 °F.

(Source: <https://www.weather-atlas.com/en/india/salem-climate#temperature> )

#### Regional Rainfall –

**TABLE 3.14: RAINFALL DATA**

Actual Rainfall in mm						Normal Rainfall in mm
2013	2014	2015	2016	2017	2018	
830.80	857.70	1135.50	577.5	1006.5	712.9	997.9

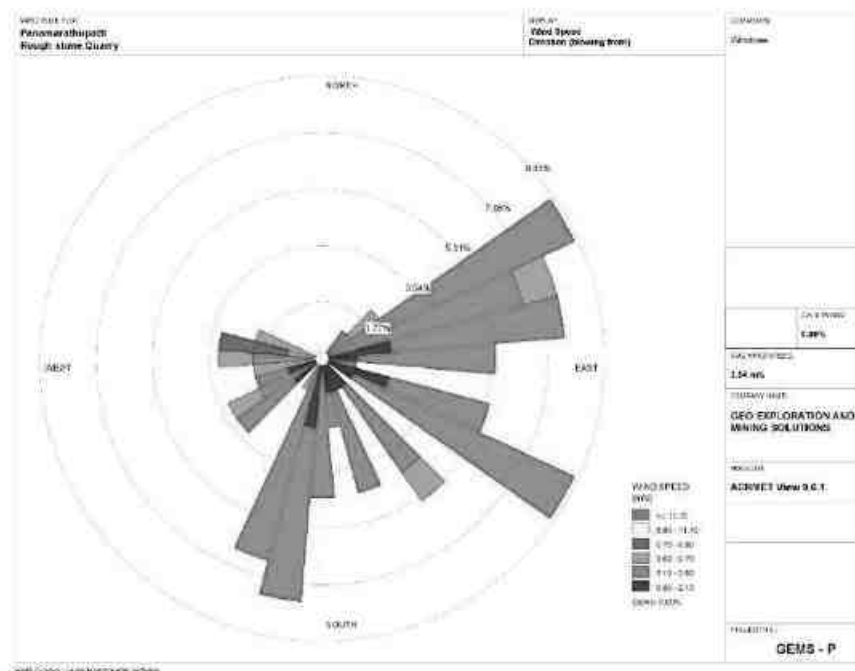
**TABLE 3.15: METEOROLOGICAL DATA RECORDED AT SITE**

S.No	Parameters		Mar-2024	April- 2024	May-2024
1	Temperature (°C)	Max	31.4	33.4	33.5
		Min	27.6	28.8	28.1
		Avg	29.5	31.1	30.8
2	Relative Humidity (%)	Avg	64.4	61.3	62.9
3	Wind Speed (m/s)	Max	4.723	3.681	6.944
		Min	1.458	1.250	1.458
		Avg	3.090	2.465	4.201
4	Cloud Cover (OKTAS)		0-8	0-8	0-8
5	Wind Direction		ENE,E	ENE,E	E,ENE

Source: On-site monitoring/sampling by EHS 360 LABS PRIVATE LIMITED in association with GEMS

### Correlation Between secondary and primary data

- The meteorological data collected at the site is almost similar to that of secondary data collected from IMD Local Weather Report and Forecast For: Salem.
- A comparison of site data generated during the three months with that of IMD, Local Weather Report and Forecast For: Salem, reveals the following:
  - The average maximum and minimum temperatures of IMD, Salem showed a higher in respect of on-site data i.e. in Panamaratupatti village.
  - The relative humidity levels were lesser at site as compared to IMD, Local Weather Report and Forecast For: Salem.
  - The wind speed and direction at site shows mostly similar trend that of IMD, Local Weather Report and Forecast For: Salem.
  - Windrose diagram of the study site is depicted in Figure 3.21. Predominant downwind direction of the area during study season is South-East to North West.

**FIGURE 3.17: WIND ROSE**

Source: Wind Rose plot view, Lake Environmental Software

In the abstract of collected data wind rose were drawn on presented in Figure No.3.21 during the monitoring period in the study area

1. Predominant winds were from NE- SW
2. Wind velocity readings were recorded between 2.4 to 4.2 m/s
3. Calm conditions were recorded as 0.00% of the monitoring period
4. Temperature readings ranging from 29.5 to 31.1°C
5. Relative humidity ranging from 61.3 to 64.4 %
6. The monitoring was carried out continuously for three months

### 3.3.2 Methodology and Objective

The prime objective of the ambient air quality study is to assess the existing air quality of study area and its conformity to NAAQS. The observed sources of air pollution in the study area are industrial, traffic and domestic activities. The baseline status of the ambient air quality has been established through a scientifically designed ambient air quality monitoring network considering the followings:

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

### 3.3.3 Sampling and Analytical Techniques

**TABLE 3.16: METHODOLOGY AND INSTRUMENT USED FOR AIR QUALITY MONITORING**

Parameter	Method	Instrument
PM <sub>2.5</sub>	Gravimetric Method Beta attenuation Method	Fine Particulate Sampler Make – Thermo Environmental Instruments – TEI 121
PM <sub>10</sub>	Gravimetric Method Beta attenuation Method	Respirable Dust Sampler Make –Thermo Environmental Instruments – TEI 108
SO <sub>2</sub>	IS-5182 Part II (Improved West &Gaeke method)	Respirable Dust Sampler with gaseous attachment
NO <sub>x</sub>	IS-5182 Part II (Jacob &Hochheise rmodified method)	Respirable Dust Sampler with gaseous attachment
Free Silica	NIOSH – 7601	Visible Spectrophotometry

Source: Sampling Methodology followed by EHS 360 LABS PRIVATE LIMITED in association with GEMS

Filter papers 8 x 10 inch (20.3 x 25.4 cm) were used for the collection of PM<sub>10</sub>& PM<sub>2.5</sub>. SO<sub>2</sub> was collected by drawing air at a flow-rate of 0.5 liters per minute (lpm) through an absorbing solution i.e., Sodium tetrachloromercurate (TCM) (West and Gaek Method) and, NO<sub>2</sub> were collected by drawing air at a flow rate of 0.4 liters per minute (lpm) through the mixture of absorbing solutions i.e. sodium hydroxide and sodium arsenite (Jacobs and Hochheiser Method). The details of National Ambient Air Quality Standards are described in below Table 3.25.

**TABLE 3.17: NATIONAL AMBIENT AIR QUALITY STANDARDS**

Sl. No.	Pollutant	Time Weighted Average	Concentration in ambient air	
			Industrial, Residential, Rural & other areas	Ecologically Sensitive area (Notified by Central Govt.)
1	Sulphur Dioxide ( $\mu\text{g}/\text{m}^3$ )	Annual Avg.* 24 hours**	50.0 80.0	20.0 80.0
2	Nitrogen Dioxide ( $\mu\text{g}/\text{m}^3$ )	Annual Avg. 24 hours	40.0 80.0	30.0 80.0
3	Particulate matter (size less than $10\mu\text{m}$ ) $\text{PM}_{10}$ ( $\mu\text{g}/\text{m}^3$ )	Annual Avg. 24 hours	60.0 100.0	60.0 100.0
4	Particulate matter (size less than $2.5\mu\text{m}$ ) $\text{PM}_{2.5}$ ( $\mu\text{g}/\text{m}^3$ )	Annual Avg. 24 hours	40.0 60.0	40.0 60.0

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

\*Annual Arithmetic mean of minimum 104 measurements in a year taken twice a Week 24 hourly at uniform interval

\*\* 24 hourly / 8 hourly or 1 hourly monitored value as applicable shall be complied with 98 % of the time in a year. However, 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

### 3.3.4 Frequency & Parameters for Sampling

Ambient air quality monitoring has been carried out with a frequency of two samples per week at Eight (8) locations, adopting a continuous 24 hourly (3 shift of 8-hour) schedule for the period March - May, 2024. The baseline data of ambient air has been generated for  $\text{PM}_{10}$ ,  $\text{PM}_{2.5}$ , Sulphur Dioxide ( $\text{SO}_2$ ) & Nitrogen Dioxide ( $\text{NO}_2$ ) Monitoring has been carried out as per the CPCB, MoEF guidelines and notifications.

It was ensured that the equipment was placed preferably at a height of at least  $3 \pm 0.5\text{m}$  above the ground level at each monitoring station, for negating the effects of wind-blown ground dust. The equipment was placed at open space free from trees and vegetation which otherwise act as a sink of pollutants resulting in lower levels in monitoring results.

### 3.3.5 Ambient Air Quality Monitoring Stations

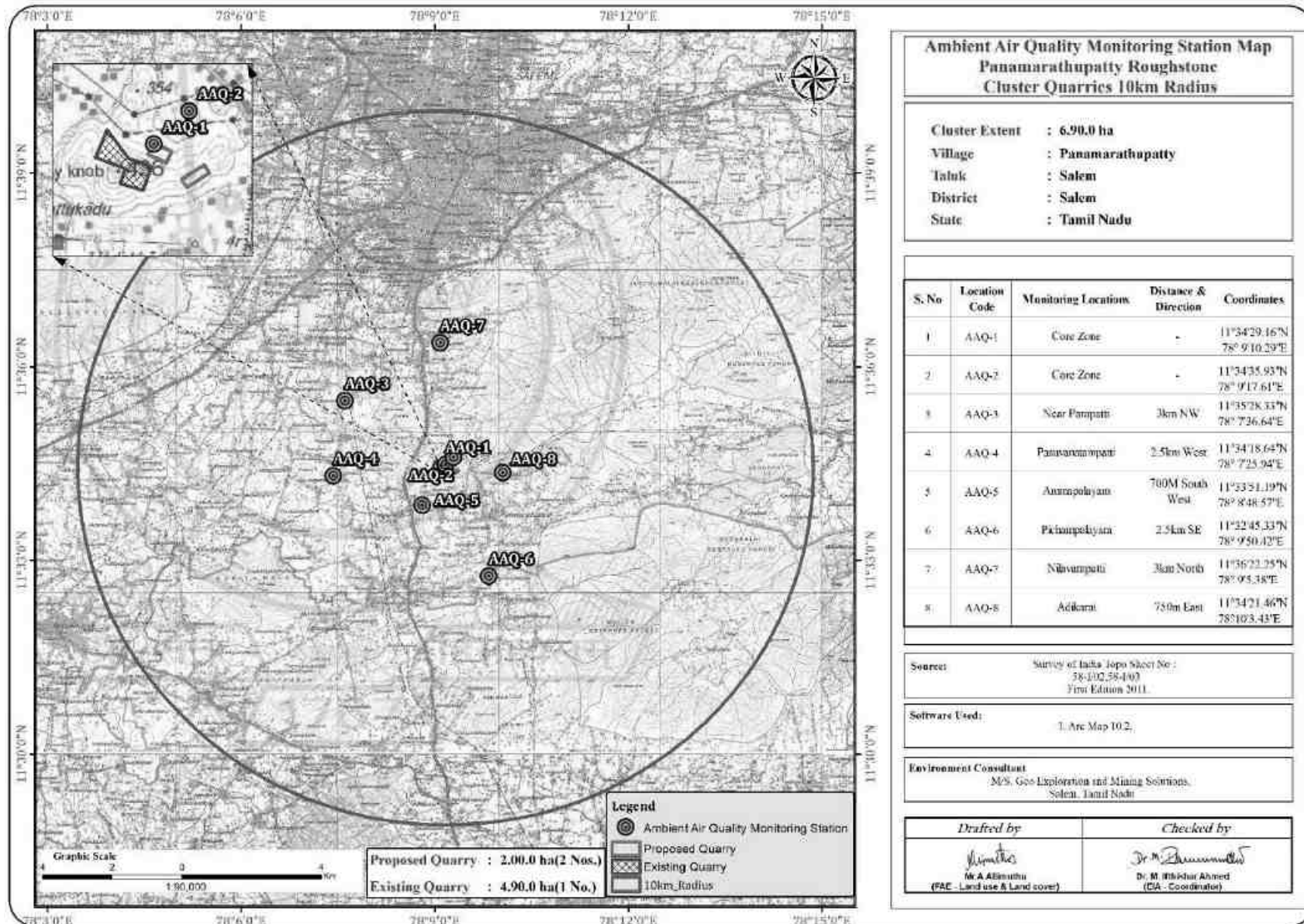
Eight (8) monitoring stations were set up in the study area as depicted in Figure 3.22 for assessment of the existing ambient air quality. Details of the sampling locations are as per given below.

**TABLE 3.18: AMBIENT AIR QUALITY (AAQ) MONITORING LOCATIONS**

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	AAQ1	Core Zone	-	11°34'29.16"N 78° 9'10.29"E
2	AAQ2	Core Zone	-	11°34'35.93"N 78° 9'17.61"E
3	AAQ3	Near Parapatti	3km NW	11°35'28.33"N 78° 7'36.64"E
4	AAQ4	Pasuvanatampatti	2.5km West	11°34'18.64"N 78° 7'25.94"E
5	AAQ5	Ammapalayam	700M South West	11°33'51.19"N 78° 8'48.57"E
6	AAQ6	Pichampalayam	2.5km SE	11°32'45.33"N 78° 9'50.42"E
7	AAQ7	Nilavarapatti	3km North	11°36'22.25"N 78° 9'5.38"E
8	AAQ8	Adikarai	750m East	11°34'21.46"N 78°10'3.43"E

Source: On-site monitoring/sampling by EHS 360 LABS PRIVATE LIMITED in association with GEMS

FIGURE 3.18: AMBIENT AIR QUALITY LOCATION MAP





**TABLE 3.19 AMBIENT AIR QUALITY RESULTS – AAQ1**

Period: March 2024 – May 2024

Location: AAQ1- Core Zone

Sampling Time: 24-hourly

Monitoring		Particulates, $\mu\text{g}/\text{m}^3$			Gaseous Pollutants, $\mu\text{g}/\text{m}^3$					Other Pollutants (Particulate Phase), $\mu\text{g}/\text{m}^3$				
Date	Period, hrs.	SPM	PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	O <sub>3</sub> (8-hly Avg.)	CO (8-hly Avg.)	Pb, $\mu\text{g}/\text{m}^3$	As, $\text{ng}/\text{m}^3$	Ni, $\text{ng}/\text{m}^3$	C <sub>6</sub> H <sub>6</sub> , $\text{ng}/\text{m}^3$	BaP, $\text{ng}/\text{m}^3$
NAAQ Norms*		(24 hrs)	60(24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
03.03.2024	07.00-07.00	64.8	22.7	41.9	9.6	26.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
04.03.2024	07.15-07.15	64.9	23.5	45.3	10.2	24.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.03.2024	07.00-07.00	65.9	24.4	44.2	10.3	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
11.03.2024	07.15-07.15	63.8	23.2	43.2	9.5	25.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.03.2024	07.00-07.00	64.9	26.9	42.7	9.7	25.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
18.03.2024	07.15-07.15	65.5	25.4	41.9	9.6	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.03.2024	07.00-07.00	62.9	23.8	45.4	8.3	25.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
25.03.2024	07.15-07.15	65.5	24.7	42.3	8.7	26.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.03.2024	07.00-07.00	63.7	22.9	46.7	9.6	25.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
01.04.2024	07.15-07.15	66.5	25.1	42.5	9.2	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.04.2024	07.00-07.00	64.8	25.3	41.9	10.1	26.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
08.04.2024	07.15-07.15	63.9	23.8	42.5	10.3	26.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.04.2024	07.00-07.00	64.8	23.7	43.8	9.9	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
15.04.2024	07.15-07.15	62.8	25.4	44.1	9.7	26.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.04.2024	07.00-07.00	63.8	24.9	43.2	10.3	25.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
22.04.2024	07.15-07.15	64.9	23.6	43.7	10.8	26.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
28.04.2024	07.00-07.00	65.4	24.5	41.5	9.3	25.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
29.04.2024	07.15-07.15	63.7	22.5	42.3	9.4	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
05.05.2024	07.00-07.00	65.9	23.8	43.8	9.2	26.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.05.2024	07.15-07.15	65.3	26.5	41.7	9.2	25.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.05.2024	07.00-07.00	64.9	24.9	43.2	9.0	24.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.05.2024	07.15-07.15	63.5	26.7	41.5	8.6	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.05.2024	07.00-07.00	62.3	28.4	43.8	8.7	22.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.05.2024	07.15-07.15	64.7	25.8	41.5	8.6	21.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

Source: Lab Analysis Results

**TABLE 3.20 AMBIENT AIR QUALITY RESULTS – AAQ2**

Period: March 2024 – May 2024

Location: AAQ2- Core Zone

Sampling Time: 24-hourly

Monitoring		Particulates, µg/m <sup>3</sup>			Gaseous Pollutants, µg/m <sup>3</sup>					Other Pollutants (Particulate Phase) , µg/m <sup>3</sup>				
Date	Period, hrs.	SPM	PM2.5	PM10	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	O <sub>3</sub> (8-hly Avg.)	CO (8-hly Avg.)	Pb, µg/m <sup>3</sup>	As, ng/m <sup>3</sup>	Ni, ng/m <sup>3</sup>	C <sub>6</sub> H <sub>6</sub> , ng/m <sup>3</sup>	BaP, ng/m <sup>3</sup>
NAAQ Norms*		(24 hrs)	60(24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
03.03.2024	07.15-07.15	64.5	24.2	44.3	8.6	24.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
04.03.2024	07.30-07:30	62.3	23.5	43.5	8.6	22.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.03.2024	07.15-07.15	65.5	24.2	44.1	9.2	25.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
11.03.2024	07.30-07:30	63.9	22.6	42.9	9.4	26.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.03.2024	07.15-07.15	64.4	21.7	44.7	8.3	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
18.03.2024	07.30-07:30	62.8	25.9	42.3	8.7	25.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.03.2024	07.15-07.15	65.6	23.2	43.6	8.6	27.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
25.03.2024	07.30-07:30	63.6	21.8	41.5	9.2	23.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.03.2024	07.15-07.15	65.2	25.5	43.2	9.7	25.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
01.04.2024	07.30-07:30	64.7	23.6	42.7	8.8	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.04.2024	07.15-07.15	65.5	24.7	41.6	8.3	24.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
08.04.2024	07.30-07:30	62.3	24.3	42.3	8.1	23.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.04.2024	07.15-07.15	65.5	26.9	41.7	9.3	25.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
15.04.2024	07.15-07.15	65.3	23.5	44.2	9.7	24.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.04.2024	07.00-07.00	64.9	22.6	43.2	9.5	26.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
22.04.2024	07.15-07.15	65.1	23.2	41.8	9.6	22.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
28.04.2024	07.00-07.00	63.8	22.8	44.7	8.2	26.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
29.04.2024	07.15-07.15	64.7	25.4	41.5	8.6	26.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
05.05.2024	07.00-07.00	61.3	21.7	43.9	9.3	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.05.2024	07.15-07.15	65.2	23.9	42.5	9.1	25.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.05.2024	07.00-07.00	64.7	24.5	41.5	9.7	21.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.05.2024	07.15-07.15	63.2	23.1	43.9	8.2	22.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.05.2024	07.00-07.00	61.5	21.7	42.5	8.6	21.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.05.2024	07.15-07.15	62.7	23.6	43.2	9.3	25.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

Source: Lab Analysis Results

**TABLE 3.21 AMBIENT AIR QUALITY RESULTS – AAQ3**

Period: March 2024 – May 2024

Location: AAQ3- Near Parapatti (NW)

Sampling Time: 24-hourly

Monitoring		Particulates, $\mu\text{g}/\text{m}^3$			Gaseous Pollutants, $\mu\text{g}/\text{m}^3$					Other Pollutants (Particulate Phase) , $\mu\text{g}/\text{m}^3$				
Date	Period, hrs.	SPM	PM2.5	PM10	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	O <sub>3</sub> (8-hly Avg.)	CO (8-hly Avg.)	Pb, $\mu\text{g}/\text{m}^3$	As, $\text{ng}/\text{m}^3$	Ni, $\text{ng}/\text{m}^3$	C <sub>6</sub> H <sub>6</sub> , $\text{ng}/\text{m}^3$	BaP, $\text{ng}/\text{m}^3$
NAAQ Norms*		(24 hrs.)	60 (24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
03.03.2024	07.15-07.15	65.7	22.5	43.9	8.3	22.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
04.03.2024	07.30-07:30	62.9	21.9	42.7	8.2	21.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.03.2024	07.15-07.15	61.3	24.9	41.8	8.6	25.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
11.03.2024	07.30-07:30	63.6	22.6	43.2	8.4	23.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.03.2024	07.15-07.15	64.2	23.3	42.5	8.3	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
18.03.2024	07.30-07:30	63.9	24.4	43.6	8.6	22.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.03.2024	07.15-07.15	64.2	23.9	44.9	7.6	23.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
25.03.2024	07.30-07:30	63.5	21.5	43.5	7.2	22.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.03.2024	07.15-07.15	61.8	22.9	41.8	7.8	21.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
01.04.2024	07.30-07:30	63.3	23.7	42.3	7.9	23.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.04.2024	07.15-07.15	62.5	24.4	43.5	8.3	22.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
08.04.2024	07.30-07:30	64.9	21.6	44.9	8.1	21.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.04.2024	07.15-07.15	62.3	23.5	43.1	8.6	21.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
15.04.2024	07.15-07.15	64.7	21.6	42.9	8.7	23.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.04.2024	07.00-07.00	63.9	23.8	44.5	8.4	21.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
22.04.2024	07.15-07.15	62.8	22.6	43.6	8.3	22.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
28.04.2024	07.00-07.00	64.2	23.4	42.5	8.9	21.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
29.04.2024	07.15-07.15	62.3	21.5	41.9	8.1	23.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
05.05.2024	07.00-07.00	64.9	23.9	43.3	7.3	21.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.05.2024	07.15-07.15	63.8	25.4	41.5	7.6	23.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.05.2024	07.00-07.00	63.7	22.1	42.9	7.8	22.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.05.2024	07.15-07.15	65.9	23.3	43.4	7.1	21.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.05.2024	07.00-07.00	64.3	22.7	41.9	7.8	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.05.2024	07.15-07.15	62.8	21.5	43.5	7.9	22.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

Source: Lab Analysis Results

**TABLE 3.22 AMBIENT AIR QUALITY RESULTS – AAQ4**

Period: March 2024 – May 2024

Location: AAQ4 – Pasuvanatampatti (W)

Sampling Time: 24-hourly

Monitoring		Particulates, µg/m <sup>3</sup>			Gaseous Pollutants, µg/m <sup>3</sup>					Other Pollutants (Particulate Phase) , µg/m <sup>3</sup>				
Date	Period, hrs.	SPM	PM2.5	PM10	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	O <sub>3</sub> (8-hly Avg.)	CO (8-hly Avg.)	Pb, µg/m <sup>3</sup>	As, ng/m <sup>3</sup>	Ni, ng/m <sup>3</sup>	C <sub>6</sub> H <sub>6</sub> , ng/m <sup>3</sup>	BaP, ng/m <sup>3</sup>
NAAQ Norms*		(24 hrs.)	60(24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
03.03.2024	07.00-07.00	65.9	24.1	42.9	6.3	23.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
04.03.2024	07.15-07:15	62.3	23.3	41.7	6.8	22.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.03.2024	07.00-07.00	62.6	21.9	43.6	8.5	23.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
11.03.2024	07.15-07:15	61.4	23.6	41.2	8.7	24.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.03.2024	07.00-07.00	62.3	23.5	42.5	8.9	25.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
18.03.2024	07.15-07:15	61.8	21.4	41.9	9.6	21.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.03.2024	07.00-07.00	62.5	22.8	43.3	9.1	23.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
25.03.2024	07.15-07:15	63.4	23.5	42.7	9.2	21.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.03.2024	07.00-07.00	62.5	22.4	41.5	9.7	23.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
01.04.2024	07.15-07:15	61.9	21.7	42.6	8.6	21.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.04.2024	07.00-07.00	62.3	21.6	43.7	8.2	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
08.04.2024	07.15-07:15	62.5	22.9	41.9	9.3	22.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.04.2024	07.00-07.00	63.9	24.4	43.6	9.4	21.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
15.04.2024	07.15-07:15	64.4	21.9	44.5	9.5	22.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.04.2024	07.00-07.00	63.9	23.1	45.7	9.7	23.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
22.04.2024	07.15-07:15	62.5	21.6	41.9	9.2	21.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
28.04.2024	07.00-07.00	63.8	22.8	43.2	9.8	22.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
29.04.2024	07.15-07:15	61.2	21.4	45.6	8.2	23.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
05.05.2024	07.00-07.00	62.7	23.9	42.9	8.4	21.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.05.2024	07.15-07:15	62.3	21.5	43.1	8.3	23.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.05.2024	07.00-07.00	64.9	23.6	42.7	8.7	23.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.05.2024	07.15-07:15	62.3	21.8	43.8	8.6	21.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.05.2024	07.00-07.00	63.8	24.3	42.6	7.3	22.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.05.2024	07.15-07:15	64.3	21.4	43.1	7.7	25.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

Source: Lab Analysis Results

**TABLE 3.23 AMBIENT AIR QUALITY RESULTS – AAQ5**

Period: March 2024 – May 2024

Location: AAQ5- Ammapalayam (SW)

Sampling Time: 24-hourly

Monitoring		Particulates, µg/m <sup>3</sup>			Gaseous Pollutants, µg/m <sup>3</sup>					Other Pollutants (Particulate Phase) , µg/m <sup>3</sup>				
Date	Period, hrs.	SPM	PM2.5	PM10	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	O <sub>3</sub> (8-hly Avg.)	CO (8-hly Avg.)	Pb, µg/m <sup>3</sup>	As, ng/m <sup>3</sup>	Ni, ng/m <sup>3</sup>	C <sub>6</sub> H <sub>6</sub> , ng/m <sup>3</sup>	BaP, ng/m <sup>3</sup>
NAAQ Norms*		(24 hrs.)	60(24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
03.03.2024	07:30-07:30	61.9	23.7	41.6	8.3	23.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
04.03.2024	07:45-07:45	62.7	21.9	43.2	8.2	21.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.03.2024	07:30-07:30	63.9	23.7	41.7	8.1	22.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
11.03.2024	07:45-07:45	61.5	21.5	42.9	8.6	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.03.2024	07:30-07:30	62.9	23.6	43.6	7.3	22.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
18.03.2024	07:45-07:45	64.2	23.9	42.5	8.2	26.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.03.2024	07:30-07:30	63.9	24.5	41.3	8.8	22.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
25.03.2024	07:45-07:45	61.5	21.2	43.4	7.3	25.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.03.2024	07:30-07:30	62.6	23.6	42.5	7.4	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
01.04.2024	07:45-07:45	63.7	23.5	43.6	7.6	21.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.04.2024	07:30-07:30	61.4	24.7	41.8	7.8	23.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
08.04.2024	07:45-07:45	62.9	21.9	43.5	7.5	24.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.04.2024	07:30-07:30	62.3	23.6	42.7	7.3	21.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
15.04.2024	07:15-07:15	65.5	22.5	41.2	7.6	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.04.2024	07:00-07:00	64.1	23.8	43.6	7.1	23.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
22.04.2024	07:15-07:15	62.9	24.3	43.8	7.8	21.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
28.04.2024	07:00-07:00	63.6	22.5	41.5	8.3	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
29.04.2024	07:15-07:15	62.7	21.9	42.9	8.7	22.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
05.05.2024	07:00-07:00	61.5	23.5	41.2	8.6	21.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.05.2024	07:15-07:15	62.3	21.5	42.3	7.1	24.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.05.2024	07:00-07:00	63.9	23.6	41.9	7.6	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.05.2024	07:15-07:15	62.9	22.8	42.3	7.3	22.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.05.2024	07:00-07:00	63.7	23.5	44.6	7.6	24.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.05.2024	07:15-07:15	61.5	24.8	44.7	7.8	21.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

Source: Lab Analysis Results

**TABLE 3.24 AMBIENT AIR QUALITY RESULTS – AAQ6**

Period: March 2024 – May 2024

Location: AAQ6 – Pitchampalayam (SE)

Sampling Time: 24-hourly

Monitoring		Particulates, µg/m <sup>3</sup>			Gaseous Pollutants, µg/m <sup>3</sup>					Other Pollutants (Particulate Phase), µg/m <sup>3</sup>				
Date	Period, hrs.	SPM	PM2.5	PM10	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	O <sub>3</sub> (8-hly Avg.)	CO (8-hly Avg.)	Pb, µg/m <sup>3</sup>	As, ng/m <sup>3</sup>	Ni, ng/m <sup>3</sup>	C <sub>6</sub> H <sub>6</sub> , ng/m <sup>3</sup>	BaP, ng/m <sup>3</sup>
NAAQ Norms*		(24 hrs.)	60(24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
03.03.2024	08:00-08:00	63.7	21.9	45.3	6.2	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
04.03.2024	08:15-08:15	64.2	23.5	42.6	6.7	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.03.2024	08:00-08:00	61.3	23.6	43.4	7.3	23.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
11.03.2024	08:15-08:15	62.9	21.7	41.8	7.8	23.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.03.2024	08:00-08:00	63.6	21.5	42.3	7.9	26.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
18.03.2024	08:15-08:15	62.5	23.6	43.7	8.3	21.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.03.2024	08:00-08:00	63.8	22.9	41.5	8.4	22.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
25.03.2024	08:15-08:15	64.9	21.4	43.3	8.6	21.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.03.2024	08:00-08:00	62.5	23.5	42.5	8.9	23.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
01.04.2024	08:15-08:15	63.9	23.9	42.6	8.1	24.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.04.2024	08:00-08:00	62.5	21.5	41.4	9.2	21.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
08.04.2024	08:15-08:15	64.7	23.8	45.2	7.6	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.04.2024	08:00-08:00	62.3	24.6	43.2	7.4	25.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
15.04.2024	07:15-07:15	62.9	23.8	41.2	7.2	24.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.04.2024	07:00-07:00	64.5	24.4	42.9	7.6	23.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
22.04.2024	07:15-07:15	63.7	21.6	44.7	7.5	22.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
28.04.2024	07:00-07:00	64.9	23.3	42.5	7.2	25.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
29.04.2024	07:15-07:15	62.3	22.5	45.9	7.6	21.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
05.05.2024	07:00-07:00	62.5	21.7	43.2	6.8	22.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.05.2024	07:15-07:15	63.9	21.3	41.7	6.1	24.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.05.2024	07:00-07:00	62.5	22.4	45.6	6.1	23.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.05.2024	07:15-07:15	63.7	24.3	42.2	6.8	22.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.05.2024	07:00-07:00	64.5	23.5	43.5	7.2	23.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.05.2024	07:15-07:15	64.6	21.3	44.9	7.5	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

Source: Lab Analysis Results

**TABLE 3.25 AMBIENT AIR QUALITY RESULTS – AAQ7**

Period: March 2024 – May 2024

Location: AAQ7 – Nilavarapatti (N)

Sampling Time: 24-hourly

Monitoring		Particulates, µg/m <sup>3</sup>			Gaseous Pollutants, µg/m <sup>3</sup>					Other Pollutants (Particulate Phase) , µg/m <sup>3</sup>				
Date	Period, hrs.	SPM	PM2.5	PM10	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	O <sub>3</sub> (8-hly Avg.)	CO (8-hly Avg.)	Pb, µg/m <sup>3</sup>	As, ng/m <sup>3</sup>	Ni, ng/m <sup>3</sup>	C <sub>6</sub> H <sub>6</sub> , ng/m <sup>3</sup>	BaP, ng/m <sup>3</sup>
NAAQ Norms*		(24 hrs.)	60(24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
03.03.2024	08:00-08:00	65.9	22.8	41.9	6.2	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
04.03.2024	08:15-08:15	64.2	24.6	43.3	6.7	22.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.03.2024	08:00-08:00	63.5	25.3	42.7	6.9	21.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
11.03.2024	08:15-08:15	61.9	21.6	41.5	7.3	25.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.03.2024	08:00-08:00	63.5	23.6	42.6	7.8	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
18.03.2024	08:15-08:15	61.7	22.5	43.3	7.2	22.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.03.2024	08:00-08:00	62.3	23.5	42.6	7.8	21.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
25.03.2024	08:15-08:15	63.6	24.9	44.5	7.4	23.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.03.2024	08:00-08:00	64.9	23.6	43.9	7.6	21.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
01.04.2024	08:15-08:15	62.5	25.5	43.5	7.3	23.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.04.2024	08:00-08:00	61.6	24.7	41.9	7.8	21.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
08.04.2024	08:15-08:15	63.6	25.3	43.6	8.6	23.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.04.2024	08:00-08:00	65.9	25.9	42.8	8.1	24.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
15.04.2024	07:15-07:15	64.2	23.7	43.3	8.6	22.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.04.2024	07:00-07:00	61.3	21.4	44.6	6.7	21.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
22.04.2024	07:15-07:15	63.7	23.7	45.2	7.2	23.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
28.04.2024	07:00-07:00	62.5	23.6	41.7	7.3	25.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
29.04.2024	07:15-07:15	61.9	22.3	43.2	7.5	21.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
05.05.2024	07:00-07:00	63.4	25.8	46.5	7.1	25.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.05.2024	07:15-07:15	62.5	24.4	44.7	7.8	24.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.05.2024	07:00-07:00	62.3	23.7	42.3	6.5	23.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.05.2024	07:15-07:15	62.3	24.5	43.8	6.8	22.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.05.2024	07:00-07:00	64.5	23.7	42.9	6.4	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.05.2024	07:15-07:15	63.8	24.3	43.9	6.7	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

Source: Lab Analysis Results

**TABLE 3.26 AMBIENT AIR QUALITY RESULTS – AAQ8**

Period: March 2024 – May 2024

Location: AAQ8 – Adikarai (E)

Sampling Time: 24-hourly

Monitoring		Particulates, $\mu\text{g}/\text{m}^3$			Gaseous Pollutants, $\mu\text{g}/\text{m}^3$					Other Pollutants (Particulate Phase), $\mu\text{g}/\text{m}^3$				
Date	Period, hrs.	SPM	PM2.5	PM10	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	O <sub>3</sub> (8-hly Avg.)	CO (8-hly Avg.)	Pb, $\mu\text{g}/\text{m}^3$	As, $\text{ng}/\text{m}^3$	Ni, $\text{ng}/\text{m}^3$	C <sub>6</sub> H <sub>6</sub> , $\text{ng}/\text{m}^3$	BaP, $\text{ng}/\text{m}^3$
NAAQ Norms*		(24 hrs.)	60(24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
03.03.2024	08:00-08:00	63.8	21.2	42.3	6.9	22.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
04.03.2024	08:15-08:15	64.2	23.5	45.4	7.5	23.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.03.2024	08:00-08:00	61.9	25.5	45.7	7.8	24.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
11.03.2024	08:15-08:15	62.5	24.8	41.5	7.1	21.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.03.2024	08:00-08:00	65.3	23.9	43.6	7.3	23.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
18.03.2024	08:15-08:15	62.3	24.4	44.7	7.5	22.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.03.2024	08:00-08:00	62.8	25.3	43.2	7.8	24.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
25.03.2024	08:15-08:15	64.4	22.7	42.7	8.3	25.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.03.2024	08:00-08:00	62.3	21.8	44.3	8.1	26.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
01.04.2024	08:15-08:15	65.3	23.6	45.6	8.6	22.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.04.2024	08:00-08:00	66.8	22.5	43.9	8.2	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
08.04.2024	08:15-08:15	62.3	23.9	45.4	8.7	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.04.2024	08:00-08:00	64.7	24.4	44.9	7.3	25.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
15.04.2024	07:15-07:15	65.3	25.3	43.3	8.6	23.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.04.2024	07:00-07:00	62.6	25.2	44.7	8.9	25.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
22.04.2024	07:15-07:15	64.5	23.2	43.5	7.6	21.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
28.04.2024	07:00-07:00	63.9	21.7	42.8	7.2	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
29.04.2024	07:15-07:15	65.2	23.9	44.3	7.4	24.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
05.05.2024	07:00-07:00	65.8	24.5	43.9	7.8	25.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.05.2024	07:15-07:15	61.5	24.1	42.7	6.2	23.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.05.2024	07:00-07:00	63.6	23.6	45.9	6.8	22.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.05.2024	07:15-07:15	63.9	22.8	44.3	6.1	22.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.05.2024	07:00-07:00	64.3	23.4	42.9	6.7	24.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.05.2024	07:15-07:15	64.7	22.4	43.2	6.4	25.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

Source: Lab Analysis Results

Legend: **PM2.5**-Particulate Matter size less than 2.5  $\mu\text{m}$ ; **PM10**-Respirable Particulate Matter size less than 10  $\mu\text{m}$ ; **SO<sub>2</sub>**-Sulphur dioxide; **NO<sub>x</sub>**-Oxides of Nitrogen;**NH<sub>3</sub>**-Ammonia; **O<sub>3</sub>**-Ozone; **CO**-Carbon monoxide; **Pb**-Particulate Lead; **As**-Particulate Arsenic; **Ni**-Particulate Nickel; **C<sub>6</sub>H<sub>6</sub>**-Benzene & **BaP**- Benzo (a) pyrene inparticulate phase **NAAQ Norms**-National Ambient Air Quality Norms- Revised as per **GSR 826(E) dated 16.11.2009** for Industrial, Residential, Rural and other Area.

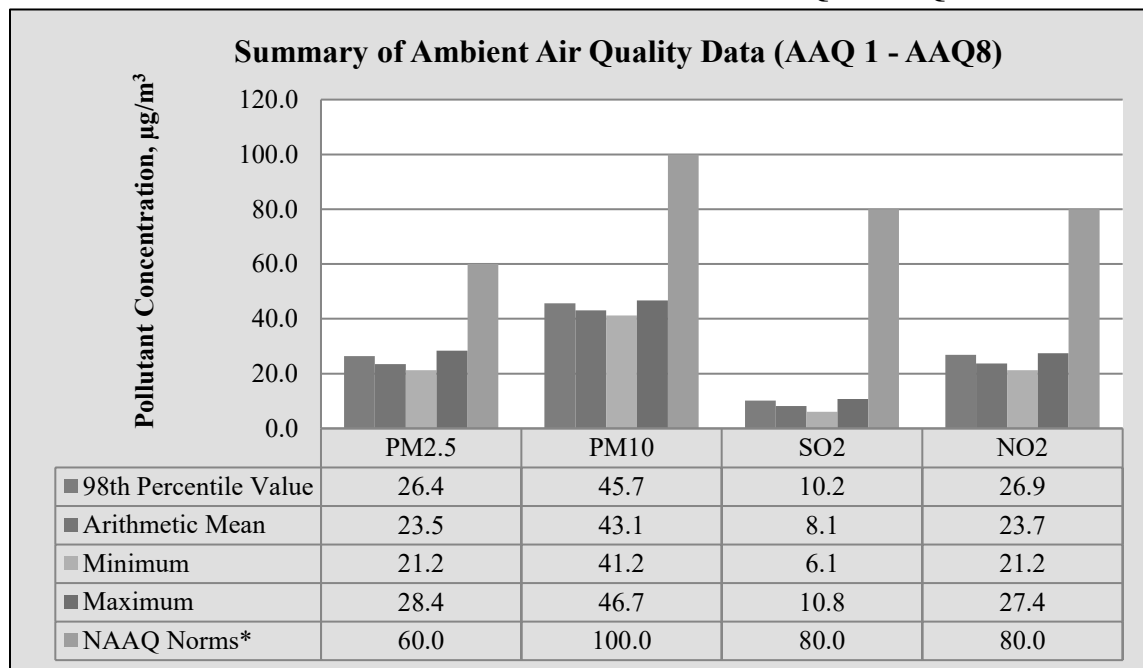


**TABLE 3.27: ABSTRACT OF AMBIENT AIR QUALITY DATA**

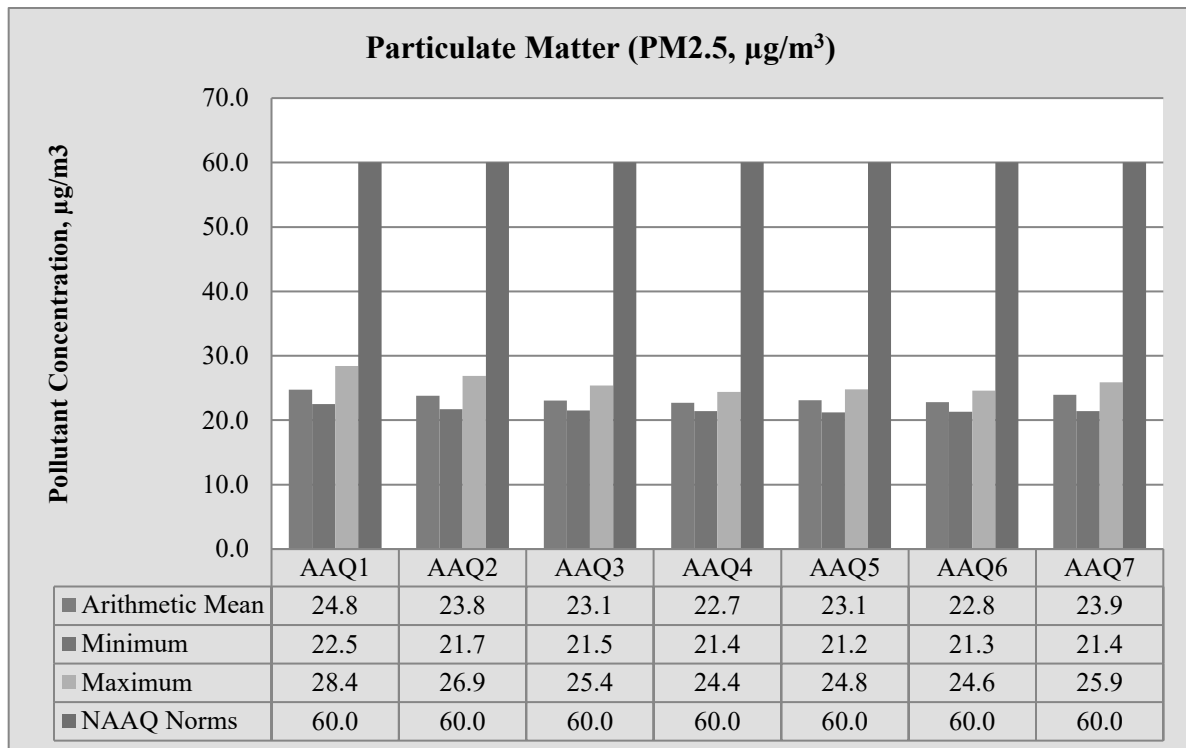
Sl. No.	Parameter	Pollutant Concentration, $\mu\text{g}/\text{m}^3$			
		PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>
1	No. of Observations	208	208	208	208
2	10th Percentile Value	61.9	21.6	41.5	8.3
3	20th Percentile Value	62.3	21.9	41.9	9.3
4	30th Percentile Value	62.5	22.7	42.3	10.4
5	40th Percentile Value	62.9	23.3	42.6	11.2
6	50th Percentile Value	63.7	23.6	42.9	11.7
7	60th Percentile Value	63.9	23.7	43.2	12.5
8	70th Percentile Value	64.2	23.9	43.5	12.9
9	80th Percentile Value	64.8	24.5	43.8	13.6
10	90th Percentile Value	65.3	25.3	44.7	14.5
11	95th Percentile Value	65.6	25.8	45.2	15.4
12	98th Percentile Value	65.9	26.6	45.6	15.6
13	Arithmetic Mean	63.5	23.5	43.0	11.5
14	Geometric Mean	63.5	23.4	43.0	11.2
15	Standard Deviation	1.3	1.4	1.2	2.5
16	NAAQ Norms*	<b>60</b>	<b>100</b>	<b>80</b>	<b>80</b>
17	% Values exceeding Norms*	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

**Legend:** PM<sub>2.5</sub>-Particulate Matter size less than 2.5  $\mu\text{m}$ ; PM<sub>10</sub>-Respirable Particulate Matter size less than 10  $\mu\text{m}$ ; SO<sub>2</sub>-Sulphur dioxide; NO<sub>2</sub>-Nitrogen Dioxide; CO-Carbon monoxide; O<sub>3</sub>-Ozone; NH<sub>3</sub>-Ammonia; Pb-Particulate Lead; As-Particulate Arsenic; Ni-Particulate Nickel; C<sub>6</sub>H<sub>6</sub>-Benzene & BaP- Benzo (a) pyrene in particulate phase levels were monitored below their respective detectable limits.

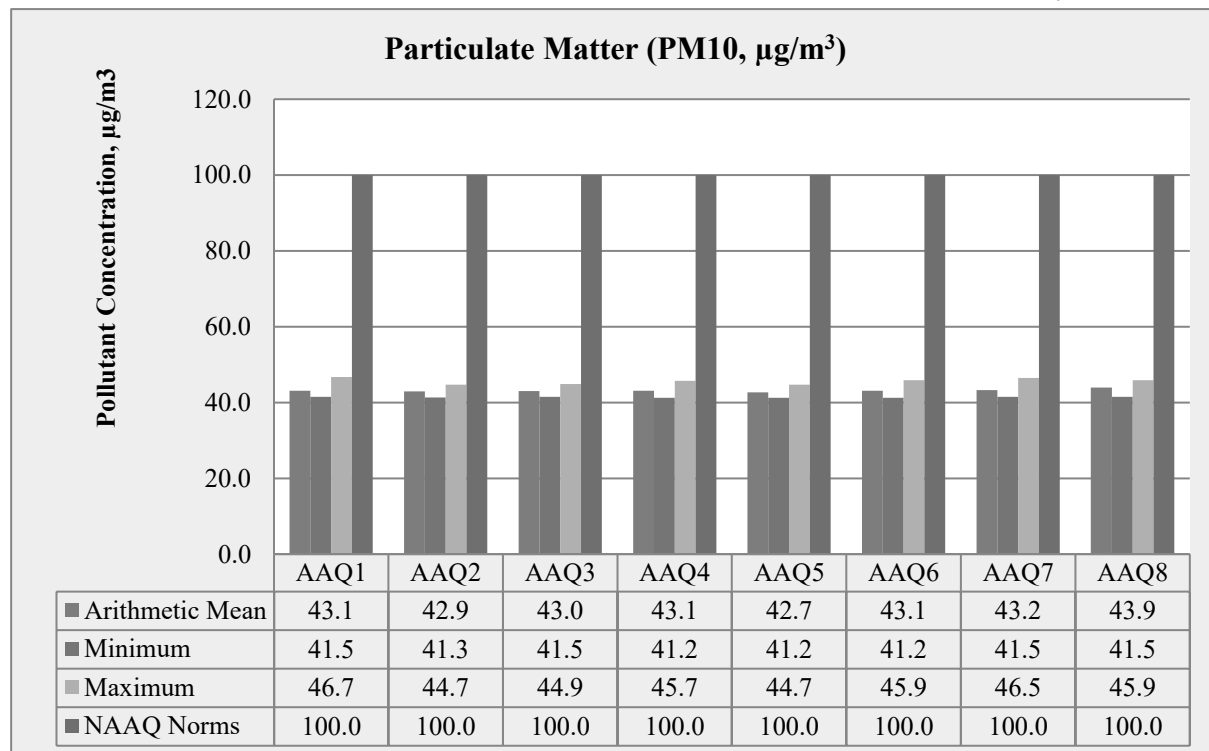
\* NAAQ Norms-National Ambient Air Quality Norms-Revised as per GSR 826(E) dated 16.11.2009 for Industrial, Residential, Rural and other Area.

**FIGURE 3.19: BAR DIAGRAM OF SUMMARY OF AAQ 1 – AAQ 8**

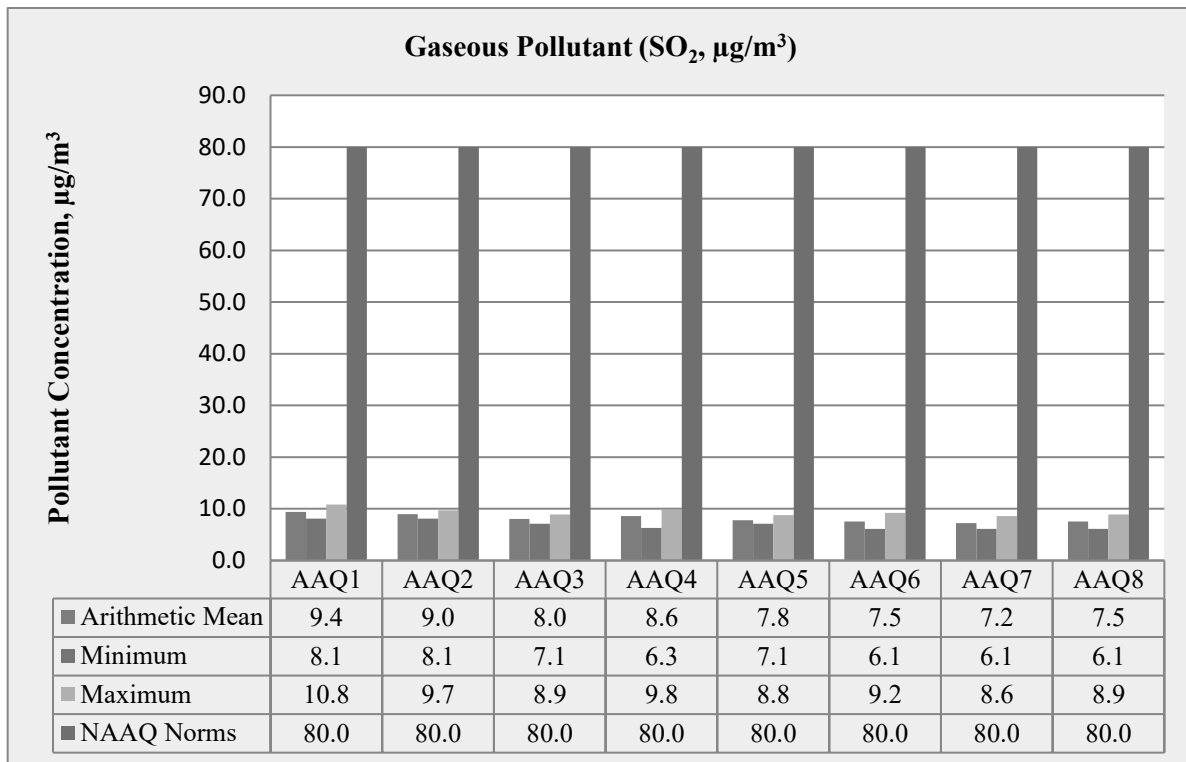
Source: Table 3.39

**FIGURE 3.20: BAR DIAGRAM OF PARTICULATE MATTER PM<sub>2.5</sub>**

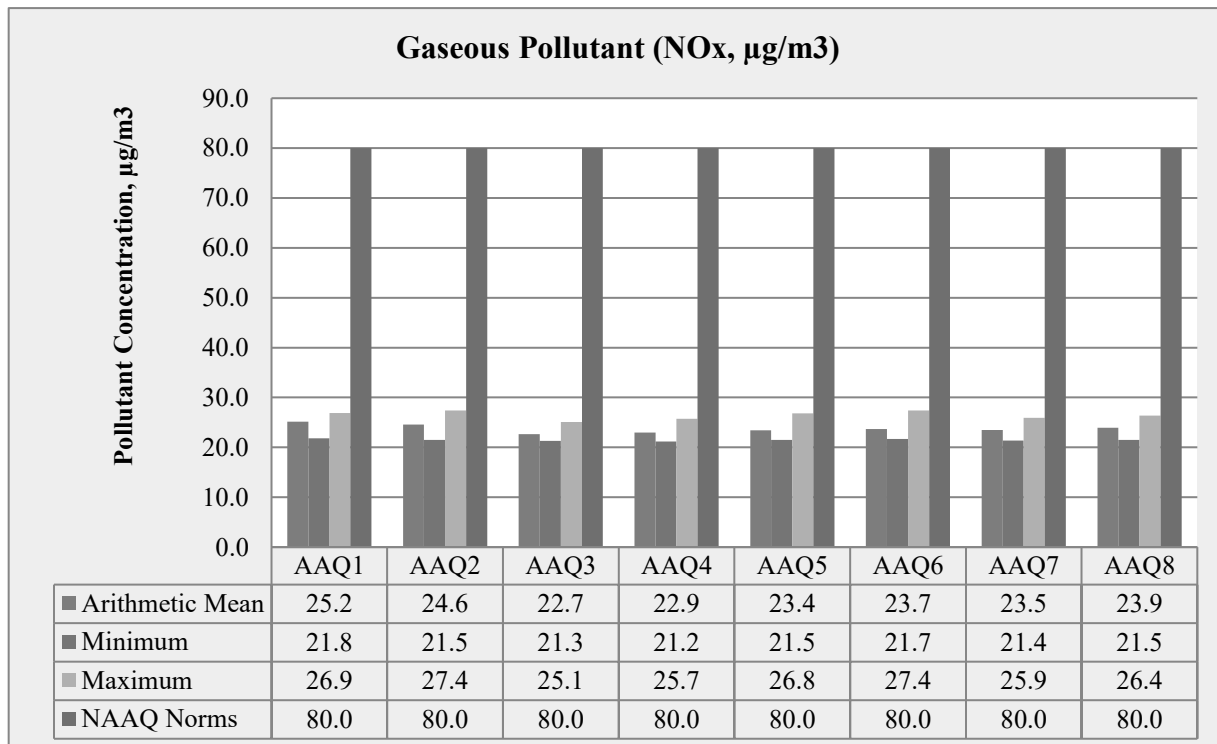
Source: Table 3.27 – 3.34

**FIGURE 3.21: BAR DIAGRAM OF PARTICULATE MATTER PM<sub>10</sub>**

Source: Table 3.27 – 3.34

**FIGURE 3.22: BAR DIAGRAM OF PARTICULATE MATTER SO<sub>2</sub>**

Source: Table 3.27 – 3.34

**FIGURE 3.23: BAR DIAGRAM OF PARTICULATE MATTER NO<sub>x</sub>**

Source: Table 3.27 – 3.34

### 3.3.6 Interpretations & Conclusion

As per monitoring data, PM<sub>10</sub> ranges from 41.2 µg/m<sup>3</sup> to 46.7 µg/m<sup>3</sup>, PM<sub>2.5</sub> data ranges from 21.2 µg/m<sup>3</sup> to 28.4 µg/m<sup>3</sup>, SO<sub>2</sub> ranges from 6.1 µg/m<sup>3</sup> to 10.8 µg/m<sup>3</sup> and NO<sub>2</sub> data ranges from 21.2 µg/m<sup>3</sup> to 27.4 µg/m<sup>3</sup>. The concentration levels of the above criteria pollutants were observed to be well within the limits of NAAQS prescribed by CPCB.

### 3.3.7 FUGITIVE DUST EMISSION –

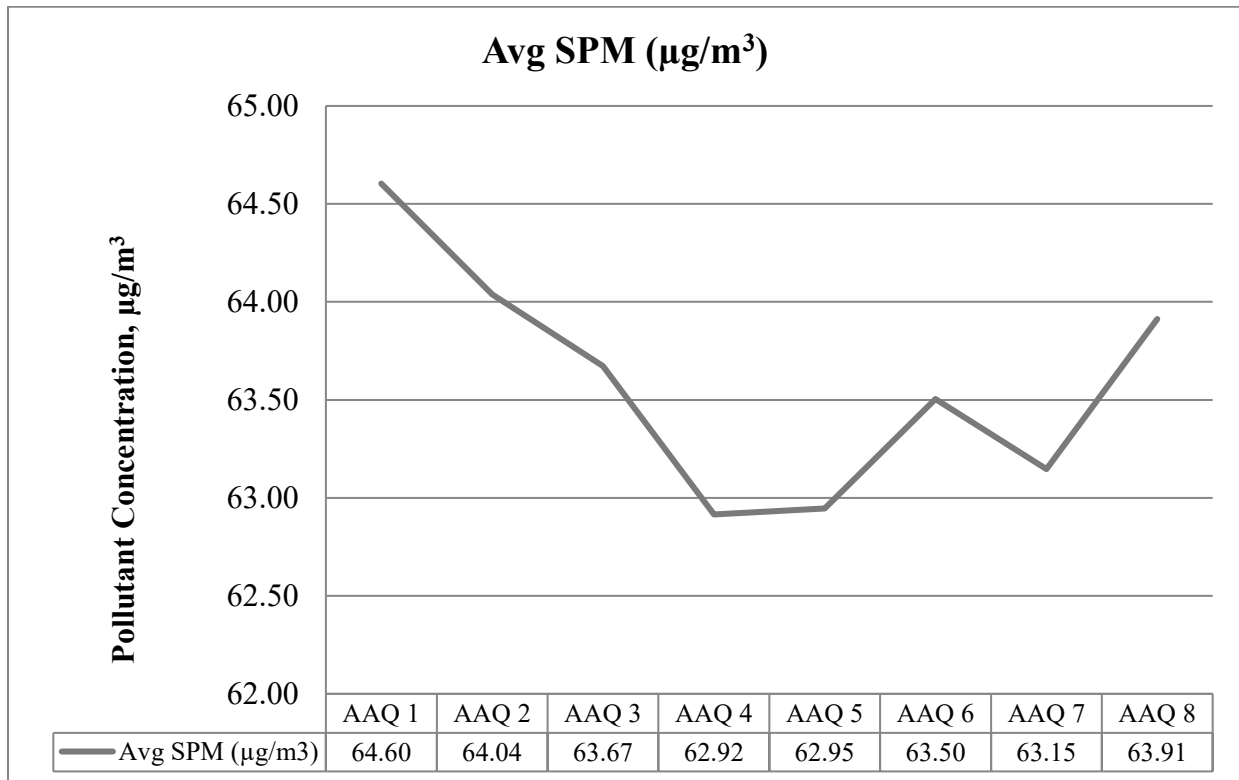
Fugitive dust was recorded at 8 AAQ monitoring stations for 30 days average during the study period.

**TABLE 3.28: AVERAGE FUGITIVE DUST SAMPLE VALUES IN µg/m<sup>3</sup>**

AAQ Locations	Avg SPM (µg/m <sup>3</sup> )
AAQ 1	64.60
AAQ 2	64.04
AAQ 3	63.67
AAQ 4	62.92
AAQ 5	62.95
AAQ 6	63.50
AAQ 7	63.15
AAQ 8	63.91

Source: Onsite monitoring/ sampling by EHS 360 LABS PRIVATE LIMITED in association with GEMS

**FIGURE 3.24: LINE DIAGRAM OF AVERAGE SPM VALUES**



Source: Line Diagram of Table 3.40

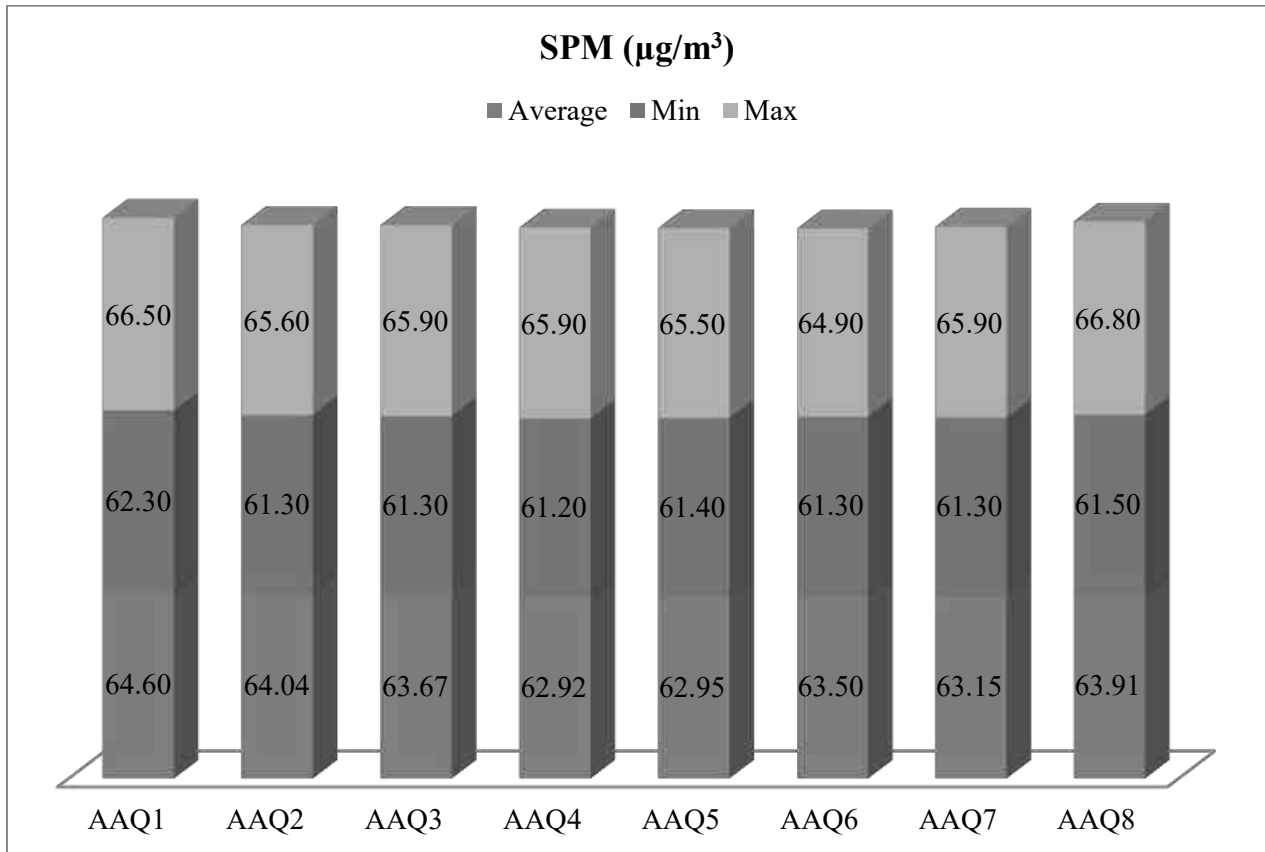
**TABLE 3.29: FUGITIVE DUST SAMPLE VALUES IN µg/m<sup>3</sup>**

SPM (µg/m <sup>3</sup> )	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Average	64.60	64.04	63.67	62.92	62.95	63.50	63.15	63.91

<b>Max</b>	62.30	61.30	61.30	61.20	61.40	61.30	61.30	61.50
<b>Min</b>	66.50	65.60	65.90	65.90	65.50	64.90	65.90	66.80

Source: Calculations from Lab Analysis Reports

**FIGURE 3.25: BAR DIAGRAM OF SPM VALUES**



Source: Table 3.41

### 3.4 NOISE ENVIRONMENT

The existing quarry operations, vehicular movement, HEMM, Drilling & Blasting are the major sources of noise in study area, the environmental assessment of noise from the mining activity and vehicular traffic can be undertaken by taking into consideration various factors like potential damage to hearing, physiological responses, and annoyance and general community responses.

The main objective of noise monitoring in the study area is to establish the baseline noise level and assess the impact of the total noise expected to be generated during the project operations around the project site.

#### 3.4.1 Identification of Sampling Locations

In order to assess the ambient noise levels within the study area, noise monitoring was carried out at Eight (8) locations. The noise level monitoring locations were carried out by covering commercial, residential, rural areas within the radius of 10km. A noise monitoring methodology was chosen such that it best suited the purpose and objectives of the study.

**TABLE 3.30: DETAILS OF SURFACE NOISE MONITORING LOCATIONS**

S. No	Location code	Monitoring Locations	Distance & Direction	Coordinates
1	N-1	Core Zone	-	11°34'29.12"N 78° 9'10.60"E
2	N-2	Core Zone	-	11°34'30.36"N 78° 9'33.12"E
3	N-3	Near Parapatti	3km NW	11°35'28.57"N 78° 7'36.64"E
4	N-4	Pasuvanatampatti	2.5km West	11°34'18.90"N 78° 7'25.87"E
5	N-5	Ammapalayam	700M South West	11°33'48.97"N 78° 8'49.49"E
6	N-6	Pichampalayam	2.5km SE	11°32'45.46"N 78° 9'49.66"E
7	N-7	Nilavarapatti	3km North	11°36'22.43"N 78° 9'05.55"E
8	N-8	Adikarai	750m East	11°34'21.43"N 78°10'03.69"E

Source: On-site monitoring/sampling by EHS 360 LABS PRIVATE LIMITED in association with GEMS

### 3.4.2 Method of Monitoring

Digital Sound Level Meter was used for the study. All reading was taken on the 'A-Weighting' frequency network, at a height of 1.5 meters from ground level. The sound level meter does not give a steady and consistent reading and it is quite difficult to assess the actual sound level over the entire monitoring period. To mitigate this shortcoming, the Continuous Equivalent Sound level, indicated by Leq, is used. Equivalent sound level, 'Leq', can be obtained from variable sound pressure level, 'L', over a time period by using following equation. The equivalent noise level is defined mathematically as

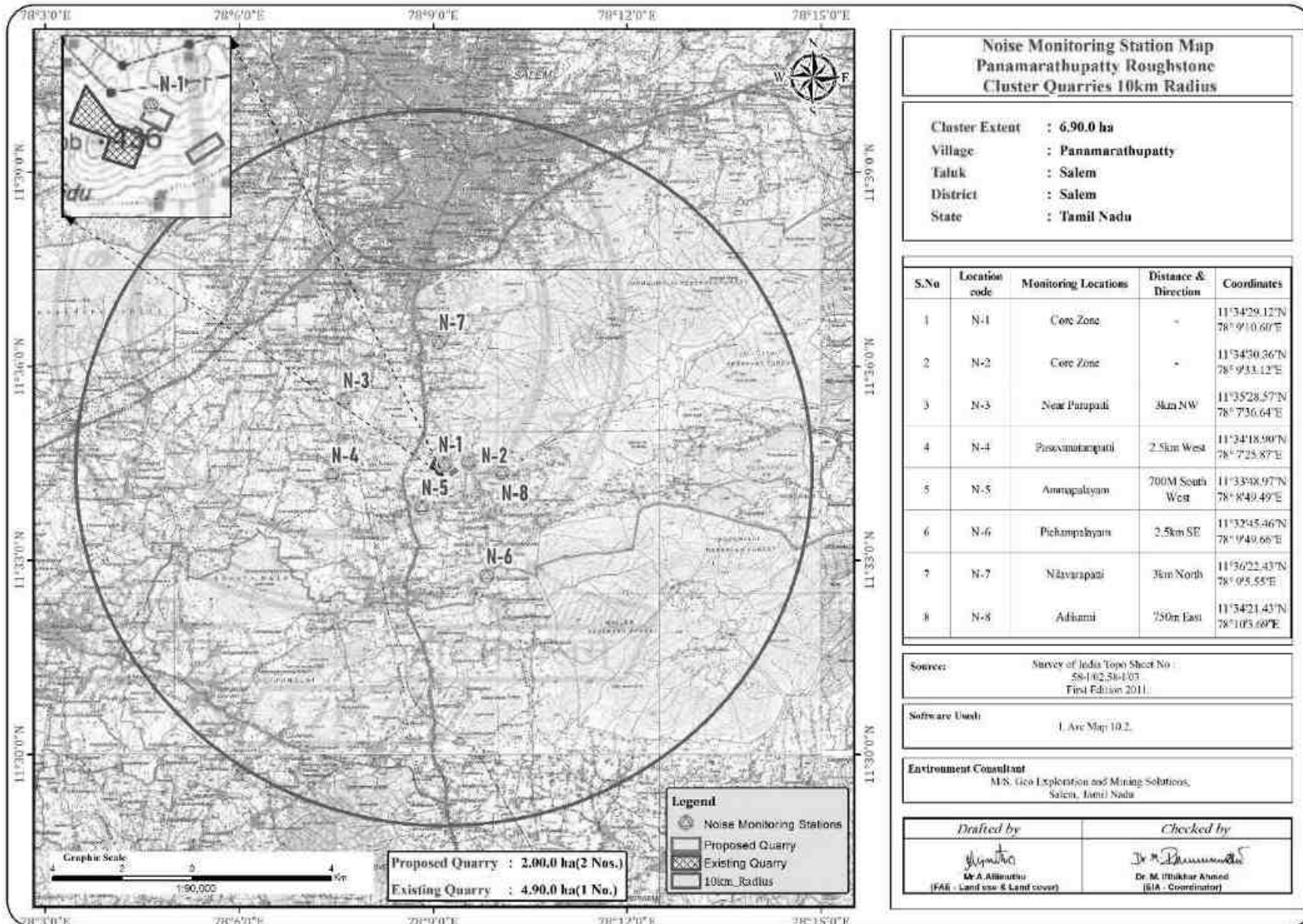
Measured noise levels, displayed as a function of time, is useful for describing the acoustical climate of the community. Noise levels recorded at each station with a time interval of about 60 minutes are computed for equivalent noise levels. Equivalent noise level is a single number descriptor for describing time varying noise levels.

$$Leq = 10 \log L / T \sum (10L_n/10)$$

Where L = Sound pressure level at function of time dB (A)

T = Time interval of observation

FIGURE 3.26: NOISE MONITORING STATIONS IN STUDY AREA



### 3.4.3 Analysis of Ambient Noise Level in the Study Area

The Digital Sound pressure level has been measured by a sound level meter (Model: HTC SL-1352). An analysis of the different Leq data obtained during the study period has been made. Variation was noted during the day-time as well as night-time. The results are presented in below Table 3.43

Day time: 6:00 hours to 22.00 hours.

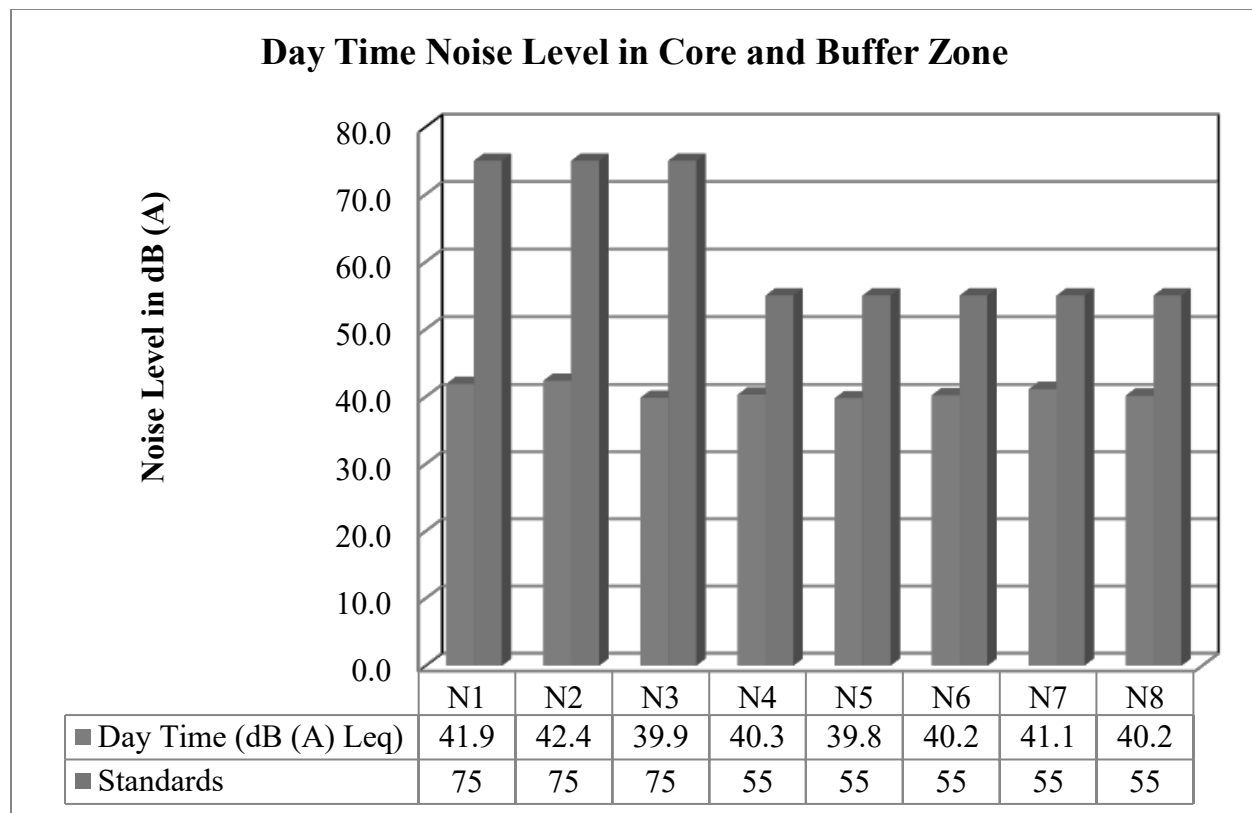
Night time: 22:00 hours to 6.00 hours.

**TABLE 3.31: AMBIENT NOISE QUALITY RESULT**

S. No	Locations	Noise level in dB (A)					
		Leq		Lmin		Lmax	
		Day	Night	Day	Night	Day	Night
1	N1- Project Area	41.9	39.3	32.5	32.5	48.2	44.5
2	N2- Project Area	42.4	38.0	32.7	31.5	48.2	43.2
<b>Ambient Noise Standards (Industrial Area)</b>		<b>75</b>	<b>70</b>				
3	N3-Near Parapatti	39.9	37.8	31.4	31.2	45.4	43.2
4	N4-Pasuvanatampatti	40.3	38.3	31.4	31.5	47.2	42.4
5	N5-Ammapalayam	39.8	37.6	31.7	31.2	46.7	41.5
6	N6-Pichampalayam	40.2	38.8	31.2	31.5	45.8	43.7
7	N7-Nilavarapatti	41.1	39.5	34.6	33.6	43.6	41.9
8	N8-Adikarai	40.2	38.4	31.6	31.2	46.2	42.4
<b>Ambient Noise Standards (Residential Area)</b>		<b>55</b>	<b>45</b>				

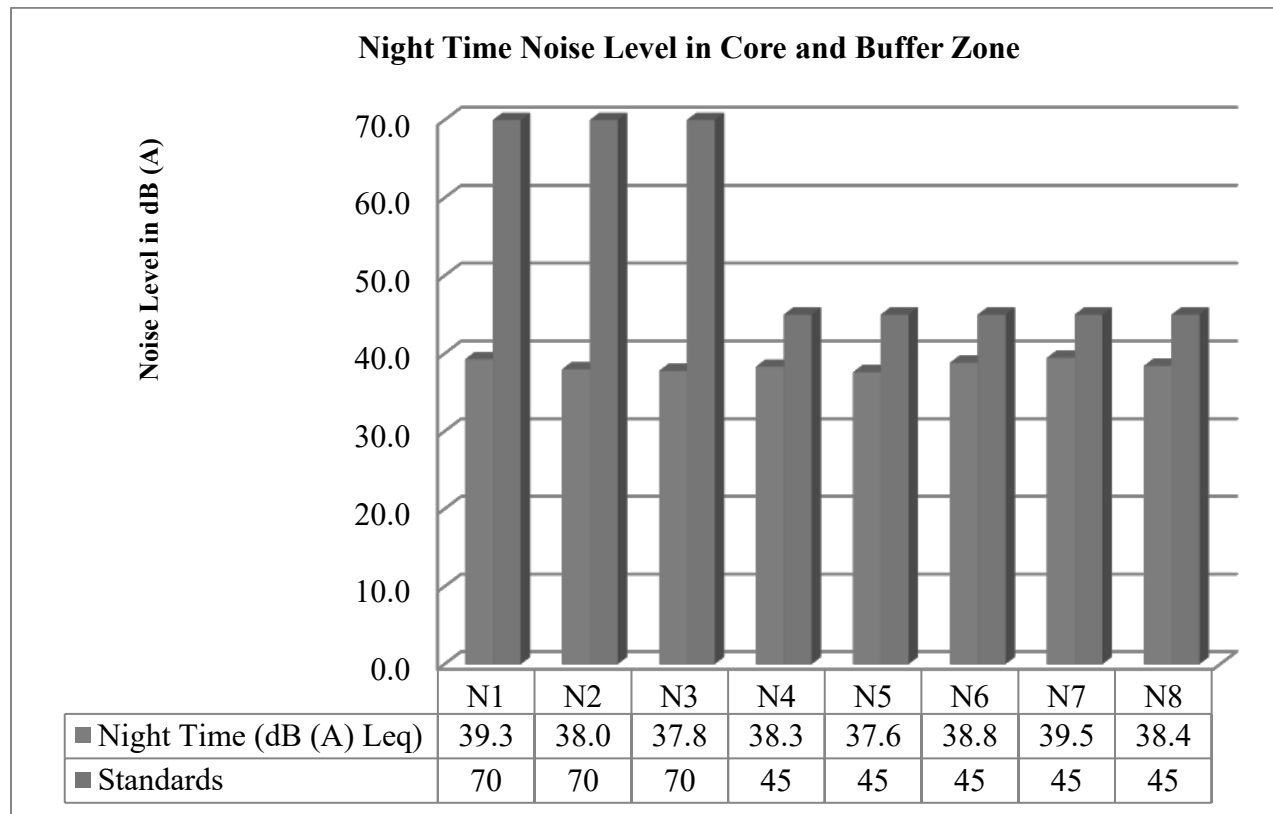
Source: On-site monitoring/sampling by EHS 360 LABS PRIVATE LIMITED in association with GEMS

**FIGURE 3.27: DAY TIME NOISE LEVELS IN CORE AND BUFFER ZONE**



Source: Table 3.43



**FIGURE 3.28: NIGHT TIME NOISE LEVELS IN CORE AND BUFFER ZONE**

Source: Table 3.43

#### 3.4.4 Interpretation & Conclusion:

- Ambient noise levels were measured at 8 (eight) locations around the proposed project area.
- Noise levels recorded in core zone during day time were from 41.9 – 42.4 dB (A) Leq and during night time were from 38.0 – 39.3 dB (A) Leq.
- Noise levels recorded in buffer zone during day time were from 39.8 – 41.1 dB (A) Leq and during night time were from 37.6 – 39.5 dB (A) Leq.

The noise level for Industrial and Residential area meets the requirements of The Noise Pollution (Regulation and Control) Rules, 2000; (The Principal Rules were published in the Gazette of India, vide S.O. 123(E), dated 14.2.2000 and subsequently amended vide S.O. 1046(E), dated 22.11.2000, S.O. 1088(E), dated 11.10.2002, S.O. 1569 (E), dated 19.09.2006 and S.O. 50 (E) dated 11.01.2010 under the Environment (Protection) Act, 1986.)

### 3.5 ECOLOGICAL ENVIRONMENT

Ecology is a branch of science which dealing the relations and interactions between organisms and their environment. An ecological survey of the study area was conducted, particularly with reference to listing of species and assessment of the existing baseline ecological conditions in the study area. The main objective of biological study is to collect the baseline data regarding flora and fauna in the study area. Data has been collected through extensive survey of the area with reference to flora and fauna. Information is also collected from different sources i.e. government departments such as District Forest Office, Government of Tamil Nadu. On the basis of onsite observations as well as forest department records the checklist of flora and fauna was prepared.

#### 3.5.1 Scope of Work

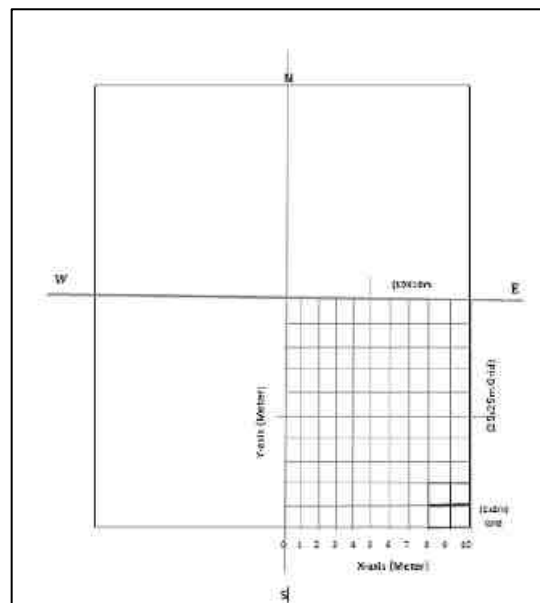
Scope of work for this study includes identification of ecologically sensitive receptors, based on literature survey, field investigations and their mitigation with conservation action plan. The study was carried out in the core as well as buffer zone of the Proposed Rough stone quarry. The study was carried out systematically and scientifically using primary and secondary data in order to bring out factual information on the ecological conditions of the mine site and 10 km radius study area.

The study involved assessment of general habitat type, vegetation pattern, preparation of inventory of flora and fauna of terrestrial ecosystem within 10 km radius from the boundary of Proposed Mine site. Biological assessment of the site was done to identify ecologically sensitive areas and whether there are any rare, endangered, endemic or threatened (REET) species of flora & fauna in the core area as well its buffer zone to be impacted. The study also designed to suggest suitable mitigation measures if necessary for protection of wildlife habitats and conservation of REET species if any.

#### 3.5.2 Study Area Ecology

The Core mining area is dry land which exhibits hilly terrain. whereas in buffer zone some agricultural land is dominated. The following methods were applied during the baseline study of flora, fauna and diversity assessment.

**FIGURE 3.29: SCHEMATIC DIAGRAM FOR FLORAL RANDOM SAMPLING**



### 3.5.3 Objectives of Biological Studies

The present study was undertaken with the following objectives:

- To study the likely impact of the proposed mining project on the local biodiversity and to suggest mitigation measure, if required, for vulnerable biota.
- To assess the nature and distribution of vegetation (Terrestrial and Aquatic) in and around the mining activity.
- Detail of flora and fauna, Endemic, Rare, Endangered and Threatened (RET Species) separately for core and buffer area based on such primary field survey and clearly indicating the Schedule of fauna present. In case of any schedule- 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.
- Devise management & conservation measures for biodiversity.

### 3.5.4 Methodology of Sampling

The present study was carried out in given steps

1. Field survey was conducted by visual encounter survey for flora present within the 10 km radius study area of proposed mine site.
2. After surveying the core and buffer areas, a detailed floral inventory has been compiled. List of all plants of the study area was prepared and their habitats were recorded.
3. Verification of Rare, Endangered and Threatened Flora species from IUCN Red Data Book.
4. Plants and Animals communities were noted.

Survey and sampling of plant species diversity

1. Site selection criteria: The core study area is located at Village: Panamarathupaati, Taluk: Salem, District: Salem, Tamil Nadu. The buffer study area comprises of 10 km radius from the proposed Rough stone quarry area.
2. Selection of sampling locations was made with reference to topography, land use, vegetation pattern, etc. The observations were taken on natural vegetation, roadside plantation and nonforest area (agricultural field, in plain areas, village wasteland, etc.) for quantitative representation of different species.
3. The core study area is located at Village: Panamarathupatti, Taluk: Salem, now at Salem Taluk District: Salem, Tamil Nadu. The buffer study area comprises of 10 km radius from the proposed Rough stone quarry area.
4. In order to provide representative ecological status for the study area, the 10-km buffer zone has been divided into four quartiles for biodiversity sampling, i.e., NE (Quartile-1), NW (Quartile-2) SW (Quartile-3) and SE (Quartile-4) is given in Fig. 3.1. Each of the quartiles have been examined for representative flora on randomly sampled quadrats for trees (25x25-m), shrubs (10x10-m) and herbs (2x2-m) depending upon prevailing geographical conditions and bio-diversity aspects of study area.

### Phyto-sociological Survey Method

Phyto-sociological parameters, viz., Abundance, Density, Frequency (%) were measured. A total of 10 quadrats were laid down randomly within core area and 40 quadrats were laid down within four quartiles randomly (10/quartile) in buffer area. In core area 10 quadrats were laid randomly to enumerated trees, shrubs, and herbs as per the Following formulae used for calculating the frequency (%), abundance and density of the floral species encountered in the 10 quadrats studied.

### Quadrats Method

Quadrats of 25 × 25-m were laid down randomly within core and 5-km buffer area; each quadrat was laid to assess the trees (>5 cm GBH) and one, 10 × 10-m sub-quadrat nested within the quadrat for shrubs. The quadrats were laid randomly to cover the area to maximize the sampling efforts and minimize the species homogeneity, such as small stream area, trees in agricultural bunds, tank bunds, farm forestry plantations, wildlife areas, natural forest area, avenue plantations, house backyards, etc. In each quadrat individuals belonging to tree (25 × 25-m) and shrub (10 × 10-m) were recorded separately and have been identified on the field. Quadrates sampling methods is given in Fig no.3.33.

### 3.5.5 Flora in Core Zone

Taxonomically a total of 16 species belonging to 13 families have been recorded from the core mining lease area. Based on habitat classification of the enumerated plants the majority of species were Tree 4 (25%) followed by Shrubs 5 (31%), Herbs 5 (31%) and Climber 2 (13%). Baseline study of cluster area showed that very low species richness. Details of flora with the scientific name were mentioned in Table No. 3.1. The result of core zone of flora studies shows that Fabaceae and Lamiaceae are the main dominating species in the study area it mentioned in Table No.3.1 and the details of diversity of flora family's pattern are given in Fig No.3.6. No species found as threatened category (Table No. 3.1).

**TABLE 3.32: FLORA IN CORE ZONE**

Sl. No.	English Name	Vernacular Name	Scientific Name	Family Name
<b>TREES</b>				
1	Acacia	Karuvelai	Vachellianilotica	Fabaceae
2	Noni	Nuna	Morinda tinctoria	Rubiaceae
3	Neem	Vembu	Azadirachta indica	Meliaceae
<b>SHRUBS</b>				
4	Touch-me-not	Thottalchinungi	Mimosa pudica	Mimosaceae
5	Milk Weed	Erukku	Calotropis gigantea	Apocynaceae
<b>HERBS</b>				
6	Tridax daisy	Veetukaayapoondy	Tridax procumbens	Asteraceae
7	Indian doab	Arugampul	Cytodon dactylon	Poaceae
8	Mountain knotgrass	Poolaiapoondy	Aerva lanata	Amaranthaceae
9	Common leucas	Thumbai	Leucasaspera	Lamiaceae
10	Yellow-fruit Nightshade	Kantangkathri	Solanumxanthocarpum	Solanaceae
11	Devil's thorn	Nerunji	Tribulus terrestris	Zygophyllaceae

### 3.5.6. Flora in Buffer Zone

Similar type of environment also in buffer area but with more flora diversity compare than core zone area because nearby some agriculture land. It contains a total of 45 species belonging to 29 families have been recorded from the buffer zone. The floral (45) varieties among them twenty-two trees (22), nine shrubs (9) and ten herbs (10) and Climbers four (4) were identified. The result of buffer zone of flora studies shows that Fabaceae and Myrtaceae, Asteraceae are the main dominating species in the study area it mentioned in Table No.3.45.

There is no Rare, Endangered and Threatened Flora species in mining area and their surrounding area. Details of flora with the scientific name were mentioned in Table No.3.45. The diversity of flora families is given in Fig No.3.34.

TABLE 3.33: FLORA IN BUFFER ZONE

SI.No	English Name	Vernacular Name	Scientific Name	Family Name	Resource use type *(E,M,EM)
<b>TREES</b>					
1	Gum arabic tree	Karuvelam	<i>Acacia nilotica</i>	Mimosaceae	NE
2	Neem or Indian lilac	Vembu	<i>Azadirachta indica</i>	Meliaceae	M
3	Noni	Nuna maram	<i>Morinda citrifolia</i>	Rubiaceae	M
4	Pongamia pinnata	Pongam	<i>Millettia pinnata</i>	Fabaceae	M
5	Mango	Manga	<i>Mangifera indica</i>	Anacardiaceae	E
6	Eucalyptus	Thailam maram	<i>Eucalyptus tereticornis</i>	Myrtaceae	M
7	Indian fig tree	Athi	<i>Ficus recemosa</i>	Moraceae	EM
8	Chebolicmyrobalan	Kadukkai	<i>Terminaliachebula</i>	Combretaceae	EM
9	Black plum	Navalmaram	<i>Sygygium cumini</i>	Myrtaceae	EM
10	Banyan tree	Alamaram	<i>Ficus benghalensis</i>	Moraceae	E
11	Guava	Koyya	<i>Psidium guajava</i>	Myrtaceae	EM
12	Coconut	Thennai maram	<i>Cocos nucifera</i>	Arecaceae	EM
13	Teak	Thekku	<i>Tectona grandis</i>	Verbenaceae	E
14	Drumstick tree	Murunga maram	<i>Moringa oleifera</i>	Moringaceae	EM
15	Jack fruit	Palamaram	<i>Artocarpus heterophyllus</i>	Moraceae	E
16	Henna	Marudaani	<i>Lawsonia inermis</i>	Lythraceae	EM
17	Lemon	Ezhumuchaipalam	<i>Citrus lemon</i>	Rutaceae	EM
18	Papaya	Pappali maram	<i>Carica papaya L</i>	Caricaceae	EM
19	Indian fir tree	Nettilinkam	<i>Polylathia longifolia</i>	Annonaceae	E
20	Acacia Nilotica	Karuvelam maram	<i>Vachellia nilotica</i>	Fabaceae	M
21	Tamarind	Puliyamaram	<i>Tamarindus indica</i>	Legumes	EM
22	Asian Palmyra palm	Panai maram	<i>Borassus flabellifer</i>	Arecaceae	E
23	Manilkara zapota	Sapota	<i>Manilkara zapota</i>	Sapotaceae	E
24	Custard apple	Seethapazham	<i>Annona reticulata</i>	Annonaceae	E
25	Curry tree	Velipparuthi	<i>Murraya koenigii</i>	Asclepiadaceae	EM
26	Banana tree	Vazhaimaram	<i>Musa</i>	Musaceae	EM
<b>SHRUBS</b>					
27	Avaram	Avarai	<i>Senna auriculata</i>	Fabaceae	M
28	Indian mallow	Thuthi	<i>Abutilon indicum</i>	Meliaceae	M
29	Shoe flower	Chemparuthi	<i>Hibiscu rosa-sinensis</i>	Malvaceae	EM
30	Rosary pea	Kundumani	<i>Abrus precatorius</i>	Fabaceae	M
31	Milk Weed	Erukku or Crown flower	<i>Calotropis gigantea</i>	Apocynaceae	M
32	Indian Oleander	Arali	<i>Nerium indicum</i>	Apocynaceae	M
33	Touch-me-not	Thottalchinungi	<i>Mimosa pudica</i>	Mimosaceae	M
<b>HERBS</b>					
34	Carrot grass	Partiniyam	<i>Parthenium hysterophorus</i>	Asteraceae	NE
35	Indian doab	Arugampul	<i>Cynodon dactylon</i>	Poaceae	E

36	Holy basil	Thulasi	<i>Ocimum tenuiflorum</i>	Lamiaceae	M
37	Common leucas	Thumbai	<i>Leucas aspera</i>	Lamiaceae	M
38	Indian Copperleaf	Kuppaimeni	<i>Acalypha indica</i>	Euphorbiaceae	M
39	Red Hogweed	Mukurattai	<i>Boerhavia diffusa</i>	Nyctaginaceae	M
40	Tridax daisy	Veetukaayapoondu	<i>Tridax procumbens</i>	Asteraceae	M
41	European black nightshade	Manathakkali	<i>Solanumnigrum</i>	Solanaceae	EM
<b>CLIMBER</b>					
42	Ivy gourd	Kovai	<i>Coccinia grandis</i>	Cucurbitaceae	M
43	Pointed gourd	Kovakkai	<i>Trichosanthes dioica</i>	Cucurbitaceae	EM
44	Bottle Guard	Sorakkai	<i>Lagenaria siceraria</i>	Cucurbitaceae	EM
45	stemmed vine	Perandai	<i>Cissus quadrangularis</i>	Vitaceae	M
46	Indian sarsparilla	Nannari	<i>Hemidesmus indicus</i>	Asclepiadaceae	M
47	wild water lemon	Sirupunaikkali	<i>Passiflora foetida</i>	Passifloraceae	M

**\*E- Economical, M- Medicinal, EM- Both Economical and Medicinal, NE- Not evaluated.**

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### 3.5.7 Fauna

The faunal survey has been carried out as per the methodology cited and listed out Mammals, birds, Reptiles, Amphibians and Butterflies. All the listed species were compared with Red Data Book and Indian Wildlife Protection Act, 1972. There are no rare, endangered, threatened (RET) and endemic species present in core area.

### 3.5.8 Fauna methodology

The study of fauna takes substantial amount of time to understand the specific faunal characteristics of the area. The assessment of fauna has been done on the bases of primary data collected from the lease sites. The presence was also confirmed from the local inhabitants depending on the animal sightings and the frequency of their visits in the project area. In addition, officials, local peoples were another source of information for studying the fauna of the area. Field activities are physical/active search, covering rocks, burrows, hollow inspection and location of nesting sites and habitat assessment etc. Taxonomical identification was done by the field guide book and wildlife envis data base ([wiienviis.nic.in/Database/Schedule Species Database](http://wiienviis.nic.in/Database/Schedule%20Species%20Database)) and Zoological Survey of India (ZSI). Detailed faunas are mentioned in the Table No. 3.46 and 3.47.

#### Survey and Monitoring of Mammals

Intensive survey has been done by line transect methods (Walking and in vehicle) for all major habitats for surveying of mammals by direct and indirect evidence. Indirect methods such as faecal matter (i.e., scat) and pug mark by establishing 10 × 100-m linear transects depending on the habitat (i.e., existing wildlife game routes/forest trails used).

Direct observation technique has been used for surveying large and medium sized mammals. But this technique is perfectly suitable for surveying of diurnal mammals; however, good photographs were also taken for species identification.

#### Survey and Monitoring of Birds

Birds are sampled by using point count methods, and opportunistic bird sightings. By this bird vocal sounds and photographs, the species were identified in consultation with village local people.

Point count: in these methods, the observer will stand in a randomly chosen point and birds seen or heard in 50m radius are recorded for 5-min. this observation is repeated in another point at least 30m from the first point. We have enumerated 20 point – counts in each quartile, which constitute a total of 80 points-count (20 x 4) within 10 km radius area.

Opportunistic bird sightings: while traveling in study area, many bird species will be detected in survey time. Such species are recoded by their appearance or by their call.

#### Survey and Monitoring of reptiles

Several survey techniques such as standard walk transect visual encounter survey methods were used to sampling reptiles in each and every habitat of the study area. While doing this survey, photographs were taken for identification of species. Species identification was done by using standard field guides in consultation with village people expert.

The butterfly was enumerated by 2 linear transects of 10 × 100 m were laid within each quartile at minimum interval of 1 km. Further, amphibians and fishes documented in existing literature and secondary information in consultation with local people and wildlife experts.

### 3.5.9 Fauna in Core Zone

A total of 18 varieties of species observed in the Core zone of Panamaratupatti Village, Rough stone quarry (Table No.3.6). Among them numbers of Insects 9 (50%), Reptiles 3 (17%), Mammals 1 (5%) and Avian 5 (28%). A total of 18 species belonging to 14 families have been recorded from the core mining lease area. None of these species are threatened or endemic in the study area and surroundings. There is no Schedule I species and four species are under schedule IV according to Indian wild life Act 1972. A total five species of bird were sighted in the mining lease area.

There are no critically endangered, endangered, vulnerable and endemic species were observed. Details of fauna in core zone with the scientific name were mentioned in Table No. 3.6.

**TABLE 3.34: FAUNA IN CORE ZONE**

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

\*NL- Not listed, LC- Least Concern

### 3.5.10. Fauna in Buffer Zone

Taxonomically a total of 33 species belonging to 25 families have been recorded from the buffer mining lease area. Based on habitat classification the majority of species were Insects 13 (40%), followed by Birds 11 (33%), Mammals 3 (9%) and Reptiles 4 (12%). There are one Schedule II species and fourteen species are under schedule IV according to Indian wild life Act 1972. A total 11 species of bird were sighted in the buffer zone area. There are no critically endangered, endangered, vulnerable and endemic species were observed.

Dominant species are mostly insects and birds, three amphibians were observed during the extensive field visit (Hoplobatrachus tigerinus), (Rana hexadactyla).

The result of core & Buffer zone of fauna studies shows that Nymphalidae and Agamidae, Mantidae are the main dominating species in the study area, it is mentioned in Table No.3.6.and 3.7. There is no schedule I Species in study area. A detail of fauna diversity of family's pattern is given in Fig No.3.9. There are no critically

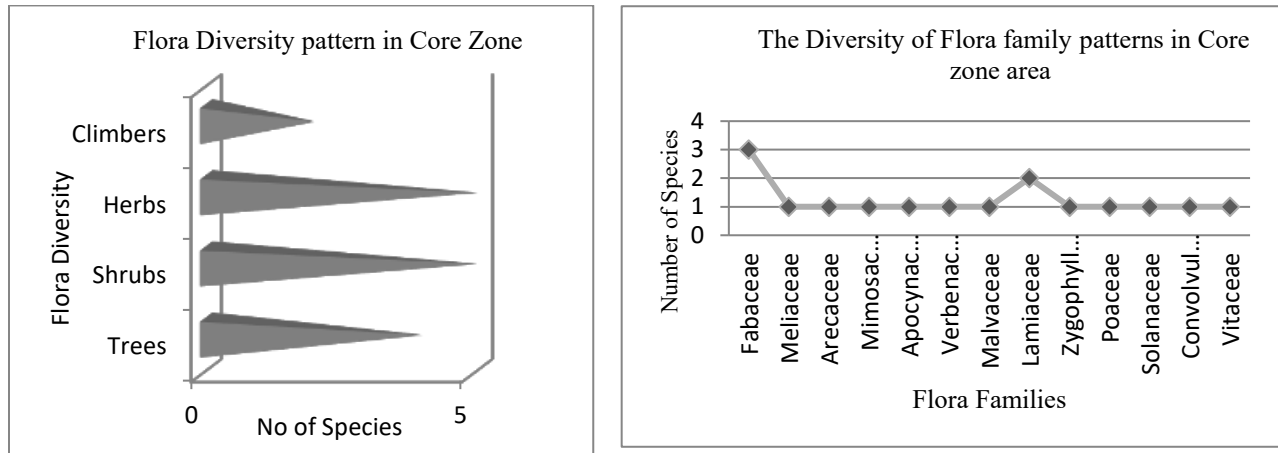


endangered, endangered, vulnerable and endemic species were observed. Details of faunal diversity in buffer zone are given in Table No.3.7.

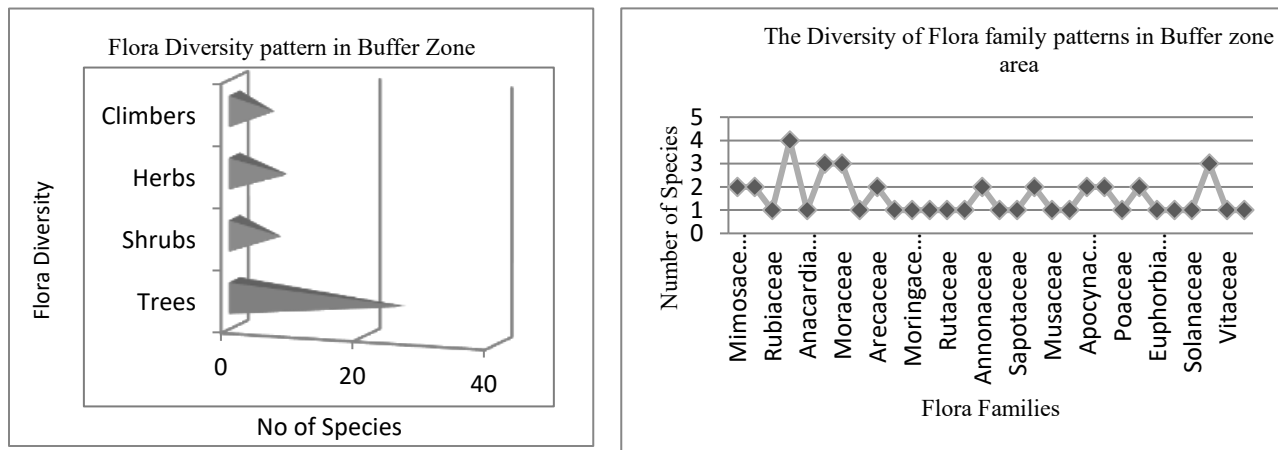
**TABLE 3.35: FAUNA IN BUFFER ZONE**

Sl.No.	Common Name/English Name	Family Name	Scientific Name	Schedule list wildlife Protection act 1972	IUCN Red List data
<b>INSECTS</b>					
1	Red-veined darter	Libellulidae	Sympetrum fonscolombii	NL	LC
2	Tawny coster	Nymphalidae	Danaus chryseippus	Schedule IV	LC
3	Green marsh hawk	Libellulidae	Orthetrum sabina	NL	LC
4	Blue tiger	Nymphalidae	Tirumala limniace	Schedule IV	LC
5	Common Tiger	Nymphalidae	Danaus genutia	Schedule IV	LC
6	Mottled emigrant	Peridae	Catopsilia pyranthe	NL	LC
7	Striped tiger	Nymphalidae	Danaus plexippus	Schedule IV	LC
8	Ant	Formicidae	Camponotus Vicinus	NL	NL
9	Common Indian crow	Nymphalidae	Euploea core	Schedule IV	LC
10	Lesser grass blue	Lycaenidae	Zizina Otis indica	Schedule IV	LC
11	Praying mantis	Mantidae	mantis religiosa	NL	NL
12	Grasshopper	Acrididae	Hieroglyphus sp	NL	LC
13	Milkweed butterfly	Nymphalidae	Danainae	NL	LC
<b>REPTILES</b>					
14	Garden lizard	Agamidae	Calotes versicolor	NL	LC
15	Indian cobra	Elapide	Naja naja	Schedule II (Part II)	LC
16	Common house gecko	Gekkonidae	Hemssidactylus frenatus	NL	LC
17	Fan-Throated Lizard	Agamidae	Sitanaponticeriana	NL	LC
<b>MAMMALS</b>					
18	Indian palm squirrel	Sciuridae	Funambulus palmarum	Schedule IV	LC
19	Indian Field Mouse	Muridae	Mus booduga	Schedule IV	LC
20	Home mouse	Muridae	Mus musculus tyleri	NL	LC
<b>AVES</b>					
21	Koel	Cucalidae	Eudynamys	Schedule IV	LC
22	Cattle egret	Ardeidae	Bubulcus ibis	NL	LC
23	Red-vented Bulbul	Pycnonotidae	Pycnonotuscafer	Schedule IV	LC
24	Rose-ringed parakeet	Psittaculidae	Psittacula krameri	NL	LC
25	House crow	Corvidae	Corvus splendens	NL	LC
26	Common myna	Sturnidae	Acridotheres tristis	NL	LC
27	Shikra	Accipitridae	Accipiter badius	NL	LC
28	Asian green bee-eater	Meropidae	Merops orientalis	NL	LC
29	Red-vented Bulbul	Pycnonotidae	Pycnonotuscafer	Schedule IV	LC
30	Black drongo	Dicruridae	Dicrurus macrocercus	Schedule IV	LC
31	White-breasted waterhen	Rallidae	Amaurornis phoenicurus	NL	LC
<b>AMPHIBIANS</b>					
32	Indian Burrowing frog	Dicroglossidae	Sphaerotheca breviceps	Schedule IV	LC
33	Green Pond Frog	Ranidae	Rana hexadactyla	Schedule IV	LC

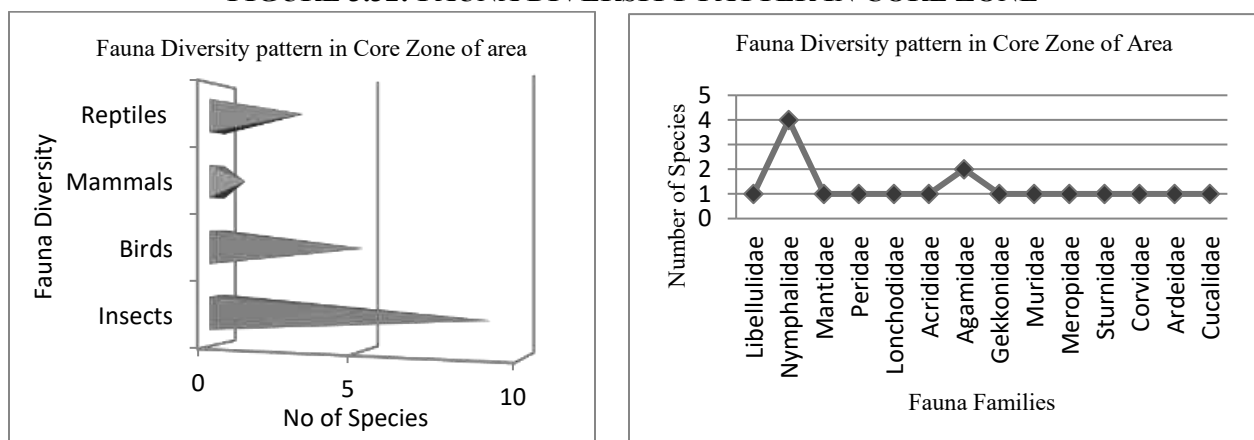
**FIGURE 3.30: FLORA DIVERSITY PATTERN IN CORE ZONE**

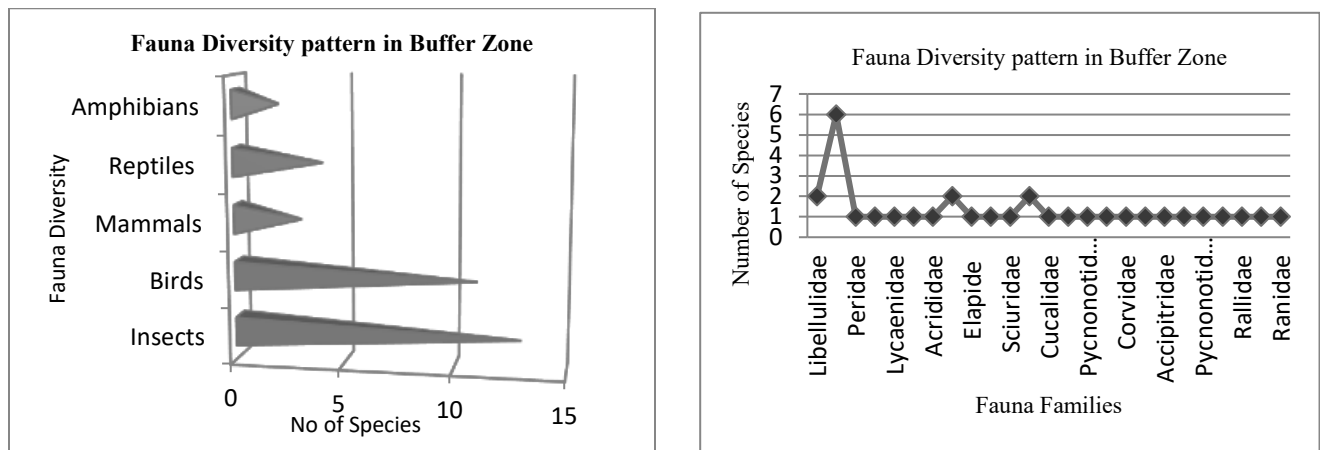


**FIGURE 3.31: FLORA DIVERSITY PATTERN IN BUFFER ZONE**



**FIGURE 3.32: FAUNA DIVERSITY PATTERN IN CORE ZONE**



**FIGURE 3.33: FAUNA DIVERSITY PATTERN IN BUFFER ZONE**

### 3.6 SOCIO ECONOMIC ENVIRONMENT:

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

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

#### 3.6.1 Objectives of the Study

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

- To study the socio-economic status of the people living in the study area of the proposed mining project
- To assess the impact of the project on Quality of life of the people in the study area
- To recommend Community Development measures needs to be taken up in the study Area.

#### 3.6.2 Scope of Work

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

#### 3.6.3 Administrative Setup of Salem District

Salem district has 4 revenue divisions, 13 taluks, 1 municipal corporation, 4 municipalities, 21 revenue blocks, and 32 town panchayats. In 2011, Salem had population of 3,482,056 of which male and female were 1,781,571 and 1,700,485 respectively. In 2001 census, Salem had a population of 3,016,346 of which males were 1,563,633 and remaining 1,452,713 were females. Salem District population constituted 4.83 percent of total Maharashtra population. In 2001 census, this figure for Salem District was at 4.83 percent of Maharashtra population.

There was change of 15.44 percent in the population compared to population as per 2001. In the previous census of India 2001, Salem District recorded increase of 17.20 percent to its population compared to 1991.

### 3.6.4 Study area

#### Panamarathupatti Village –

Panamarathupatti is a Town Panchayat city in district of Salem, Tamil Nadu. The Panamarathupatti city is divided into 15 wards for which elections are held every 5 years. The Panamarathupatti Town Panchayat has population of 9,368 of which 4,663 are males while 4,705 are females as per report released by Census India 2011.

Population of Children with age of 0-6 is 906 which is 9.67 % of total population of Panamarathupatti (TP). In Panamarathupatti Town Panchayat, Female Sex Ratio is of 1009 against state average of 996. Moreover Child Sex Ratio in Panamarathupatti is around 953 compared to Tamil Nadu state average of 943. Literacy rate of Panamarathupatti city is 75.17 % lower than state average of 80.09 %. In Panamarathupatti, Male literacy is around 82.78 % while female literacy rate is 67.68 %.

Panamarathupatti Town Panchayat has total administration over 2,468 houses to which it supplies basic amenities like water and sewerage. It is also authorize to build roads within Town Panchayat limits and impose taxes on properties coming under its jurisdiction.

Panamarathupatti town of SALEM district has civic type is TP. Teshil name of Panamarathupatti is SALEM 005. District name of Panamarathupatti town/city is SALEM (TAMIL NADU). Data Reference year is 2009 of Census 2011. Sub District HQ name of Panamarathupatti is Salem and Sub District HQ Distance is 15 Km from Panamarathupatti. District Head Quarter name is Salem and it's distance from the town is 15KM. As per census 2011 town code of Panamarathupatti is 803465.

**TABLE 3.36: OVERVIEW OF PANAMARATHUPATTI VILLAGE DATA**

Particulars	Total	Male	Female
Total No. of Houses	2,468	-	-
Population	9,368	4,663	4,705
Child (0-6)	906	464	442
Schedule Caste	2,331	1,174	1,157
Schedule Tribe	17	9	17
Literacy	75.17%	82.78%	67.68%
Total Workers	4,442	2,886	1,536
Main Worker	4,234	2,787	1,447
Marginal Worker	188	99	89

Source: <https://www.census2011.co.in/data/town/803465-panaimarathupatti-tamil-nadu.html>

#### Caste Factor –

Schedule Caste (SC) constitutes 24.88 % while Schedule Tribe (ST) were 0.28 % of total population in Panamarathupatti (TP).

#### Work Profile –

Out of total population, 4,422 were engaged in work or business activity. Of this 2,886 were males while 1,536 were females. In census survey, worker is defined as person who does business, job, service, and cultivator and labour activity. Of total 4422 working population, 95.75 % were engaged in Main Work while 4.25 % of total workers were engaged in Marginal Work.

TABLE 3.37: POPULATION DATA OF STUDY AREA

Sl.No.	Village Name	NO HH	Total Population	Male	Female	Total Literate Population	Male Literate	Female Literate	Total Illiterate Population	Male Illiterate	Female Illiterate
1	Agraharapalaveri	777	2986	1528	1458	1767	1036	731	1219	492	727
2	Akkaraipalayam	576	1972	1012	960	1066	643	423	906	369	537
3	Alampatti	480	1638	833	805	1034	601	433	604	232	372
4	Alavaipatti	1392	5025	2541	2484	3513	1964	1549	1512	577	935
5	Ammapalayam	620	2230	1102	1128	1387	795	592	843	307	536
6	Anandagoundempalayam	280	986	517	469	607	368	239	379	149	230
7	Andipatti-Sowdapuram	1499	5987	3149	2838	3231	1849	1382	2756	1300	1456
8	Annamalaipatti	388	1406	699	707	788	445	343	618	254	364
9	Ariyampalayam	338	1155	602	553	721	445	276	434	157	277
10	Attavanaipulaveri	285	1131	597	534	698	428	270	433	169	264
11	Bairoji	947	3567	1857	1710	2060	1234	826	1507	623	884
12	Basuvanathampatti	337	1162	618	544	676	416	260	486	202	284
13	Errachinnampatti	313	1095	583	512	507	312	195	588	271	317
14	Erumanayakanpalayam	202	768	392	376	493	282	211	275	110	165
15	Eruvadipettampatti	156	557	290	267	383	232	151	174	58	116
16	Gajallnayakkanpatti	1259	4997	2548	2449	3275	1884	1391	1722	664	1058
17	Jerugumalai	188	824	431	393	351	232	119	473	199	274
18	Kallankulam	437	1645	879	766	1100	661	439	545	218	327
19	Keeranur	721	5818	3569	2249	4668	3091	1577	1150	478	672
20	Kilur	73	260	145	115	109	72	37	151	73	78
21	Konamaduvu	286	997	503	494	565	327	238	432	176	256
22	Kumarapalayam	1238	4460	2227	2233	2623	1505	1118	1837	722	1115
23	kuralnatham	532	1792	921	871	970	572	398	822	349	473
24	Kuttaladampatti	378	1399	720	679	966	538	428	433	182	251
25	Malaiyampalayam	206	805	398	407	343	189	154	462	209	253
26	Melur	22	72	33	39	23	12	11	49	21	28
27	Minnakkal Agraharam	1511	5420	2848	2572	3116	1893	1223	2304	955	1349
28	Mukkuthipalayam	236	1042	549	493	541	323	218	501	226	275
29	Nallarayampatti	507	1960	1018	942	1140	646	494	820	372	448
30	Nallikkalpatti	1885	7080	3694	3386	4275	2551	1724	2805	1143	1662
31	Nilavarapatti (Part)	1297	4859	2441	2418	3232	1823	1409	1627	618	1009
32	Nuleathukombai	156	520	267	253	254	150	104	266	117	149
33	Palanthinnipatti	247	850	428	422	559	320	239	291	108	183
34	<b>Panamarathupatti</b>	<b>25381</b>	<b>95579</b>	<b>48792</b>	<b>46787</b>	<b>58889</b>	<b>33706</b>	<b>25183</b>	<b>36690</b>	<b>15086</b>	<b>21604</b>
35	Parappatti	1061	4014	2078	1936	2036	1227	809	1978	851	1127
36	Ponparappatti	185	636	334	302	300	181	119	336	153	183
37	Pudupalayam	1650	5642	2867	2775	3734	2111	1623	1908	756	1152
38	Sandiyur	460	1741	898	843	1128	658	470	613	240	373
39	Sandiyur Attayampatti	1034	3961	2003	1958	2530	1431	1099	1431	572	859
40	Sittaneri	97	327	164	163	219	123	96	108	41	67
41	Thammanayakkanpatti	1081	4256	2244	2012	2536	1502	1034	1720	742	978
42	Thengalpalayam	670	2467	1206	1261	1646	899	747	821	307	514
43	Tippampatti	880	3156	1611	1545	1972	1148	824	1184	463	721
44	Udayapatti	2046	7888	3944	3944	5268	2868	2400	2620	1076	1544
45	Uthamasolapuram	1193	4259	2211	2048	2727	1593	1134	1532	618	914
46	Vadapatty	137	466	241	225	221	130	91	245	111	134
47	Valakuttapatti	605	2193	1135	1058	1255	745	510	938	390	548
48	Vaniyampadi	636	2267	1169	1098	1303	787	516	964	382	582
49	Veerapandi	1548	5811	3005	2806	3821	2225	1596	1990	780	1210

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

TABLE 3.38: WORKERS PROFILE OF STUDY AREA

Sl.No.	Village Name	Total Workers Population	Male Workers	Female Workers	Total Main Workers	Main Workers Male	Main Workers Female	Main Cultivation Workers	Main Agriculture Workers	Main Other Workers	Total Margin Workers	Margin Cultivation Workers	Margin House Hold Workers	Margin Other Workers	Non Worker Population
1	Agraharapulaveri	1499	959	540	1493	958	535	323	312	604	6	2	0	0	1487
2	Akkaraiपालायाम	1070	652	418	1054	648	406	208	365	311	16	4	1	11	902
3	Alampatti	925	522	403	852	472	380	111	453	283	73	1	0	66	713
4	Alavaipatti	2698	1548	1150	2648	1528	1120	296	547	1053	50	13	15	14	2327
5	Ammapalayam	1155	706	449	1128	698	430	92	322	690	27	2	2	8	1075
6	Anandagoundempalayam	568	307	261	564	304	260	138	291	117	4	0	0	4	418
7	Andipatti-Sowdapuram	3029	1970	1059	2927	1912	1015	76	71	1382	102	3	27	71	2958
8	Annamalaipatti	770	427	343	737	415	322	158	354	210	33	1	0	10	636
9	Ariyampalayam	671	388	283	660	385	275	322	113	219	11	0	0	2	484
10	Attavanaipulaveri	505	367	138	503	366	137	48	63	245	2	1	0	0	626
11	Bairoji	1899	1182	717	1778	1170	608	404	629	503	121	2	2	6	1668
12	Basuvanathampatti	611	394	217	596	387	209	166	158	234	15	0	2	9	551
13	Errachinnampatti	654	381	273	613	370	243	123	201	118	41	2	4	34	441
14	Erumanayakanpalayam	422	236	186	420	236	184	86	319	13	2	0	0	0	346
15	Eruvadipettampatti	278	174	104	278	174	104	55	120	90	0	0	0	0	279
16	Gajallnayakkanpatti	2406	1554	852	1977	1423	554	113	631	1199	429	2	3	146	2591
17	Jerugumalai	261	254	7	251	250	1	1	242	8	10	1	0	4	563
18	Kallankulam	966	516	450	961	512	449	286	367	279	5	0	0	3	679
19	Keeranur	1619	860	759	1576	837	739	264	824	466	43	0	0	14	4199
20	Kilur	181	105	76	181	105	76	138	40	3	0	0	0	0	79
21	Konamaduvu	661	336	325	659	336	323	174	342	140	2	1	0	1	336
22	Kumarapalayam	2484	1458	1026	2439	1434	1005	234	986	760	45	5	7	20	1976
23	kuralnatham	1085	596	489	1054	586	468	206	609	227	31	0	1	12	707
24	Kuttaladampatti	890	460	430	889	459	430	339	408	135	1	0	0	1	509
25	Malaiyampalayam	509	253	256	349	230	119	182	79	87	160	9	0	7	296
26	Melur	52	27	25	52	27	25	40	12	0	0	0	0	0	20
27	Minnakkal Agraharam	3254	1813	1441	3225	1799	1426	555	911	1171	29	3	2	14	2166
28	Mukkuthipalayam	521	360	161	503	349	154	29	175	294	18	0	1	13	521
29	Nallarayampatti	840	596	244	701	482	219	95	154	301	139	14	21	11	1120
30	Nalikkalpatti	3587	2311	1276	3494	2265	1229	292	944	1721	93	4	20	36	3493
31	Nilavarapatti (Part)	2130	1455	675	2116	1450	666	288	291	1307	14	2	6	4	2729
32	Nuleathukombai	362	175	187	362	175	187	300	48	14	0	0	0	0	158
33	Palanthinnipatti	661	339	322	594	301	293	186	137	176	67	4	11	37	189
34	<b>Panamarathupatti</b>	<b>48475</b>	<b>30559</b>	<b>17916</b>	<b>45757</b>	<b>29359</b>	<b>16398</b>	<b>6475</b>	<b>11200</b>	<b>22061</b>	<b>2718</b>	<b>181</b>	<b>236</b>	<b>1261</b>	<b>47104</b>
35	Parappatti	2381	1318	1063	2360	1313	1047	628	1078	582	21	3	0	16	1633
36	Ponparappipatti	402	216	186	401	215	186	91	197	110	1	0	0	1	234
37	Pudupalayam	2894	1698	1196	2755	1639	1116	589	360	1258	139	2	59	63	2748
38	Sandiyur	908	542	366	857	529	328	139	178	502	51	0	13	18	833
39	Sandiyur Attayampatti	2040	1230	810	1805	1096	709	175	784	823	235	104	0	16	1921
40	Sittaneri	212	114	98	211	114	97	146	48	9	1	0	0	1	115
41	Thammanayakanpatti	2014	1346	668	1984	1343	641	122	151	1050	30	1	3	22	2242
42	Thengalpalayam	1495	772	723	1477	767	710	532	599	341	18	0	1	12	972
43	Tippampatti	1865	1042	823	1846	1030	816	352	924	556	19	2	0	15	1291
44	Udayapatti	3552	2367	1185	3354	2300	1054	366	658	2198	198	12	14	75	4336
45	Uthamasolapuram	1914	1303	611	1780	1237	543	443	346	776	134	7	2	62	2345
46	Vadapatty	280	158	122	271	155	116	163	49	59	9	1	0	3	186
47	Valakuttapatti	1271	709	562	1263	705	558	525	416	272	8	0	2	4	922
48	Vaniyampadi	1190	724	466	1090	700	390	182	529	361	100	2	2	12	1077
49	Veerapandi	3040	1872	1168	2997	1852	1145	443	1463	980	43	5	4	16	2771

TABLE 3.39: COMMUNICATION &amp; TRANSPORT FACILITIES IN THE STUDY AREA

Sl	Village Name	PO	SPO	PTO	T	PCO	MP	IC / CSC	PCF	BS	PBS	RS	NH	SH	MDR	BTR	GR	NWR	FP
1	Agraharapulaveri	2	1	2	1	1	1	2	2	1	2	2	2	1	1	1	1	2	1
2	Akkaraipalaiyam	2	1	2	1	1	1	2	2	1	1	2	2	2	2	1	1	2	1
3	Alampatti	2	2	2	1	1	1	2	2	1	1	2	2	1	1	1	1	2	1
4	Alavaipatti	2	1	2	1	1	1	2	2	1	1	2	2	1	2	1	1	2	1
5	Ammapalayam	2	2	2	1	2	2	2	2	1	1	2	1	1	2	1	1	2	1
6	Anandagoundempalayam	1	2	1	1	2	1	2	2	1	1	2	2	2	2	2	1	2	1
7	Andipatti-Sowdapuram	1	1	1	1	1	1	1	2	1	1	2	2	2	1	1	1	2	1
8	Annamalaipatti	2	2	2	1	2	1	2	2	2	2	2	2	2	2	1	1	2	1
9	Ariyampalayam	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1
10	Attavanaipulaveri	2	1	2	1	1	1	2	2	1	2	2	2	2	2	1	1	2	1
11	Bairoji	2	1	2	1	1	1	2	2	1	1	2	1	1	1	1	1	2	1
12	Basuvanathampatti	2	2	2	1	1	1	2	2	1	1	2	2	2	2	1	1	2	1
13	Errachinnampatti	2	2	2	1	1	1	2	2	1	2	2	2	2	2	1	1	2	1
14	Erumapalayam	2	2	2	2	2	2	2	2	1	1	2	2	2	1	2	1	2	1
15	Eruvadipettampatti	2	1	2	1	1	1	2	2	1	1	2	2	2	2	1	1	2	1
16	Gajalnayakkanpatti	2	1	2	1	1	1	2	2	1	1	2	1	1	1	1	1	2	1
17	Jerugumalai	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	1
18	Kallankulam	2	2	2	1	1	1	2	2	1	1	2	2	2	1	1	1	2	1
19	Keeranur	2	1	2	1	2	1	2	2	2	2	2	1	1	1	1	1	2	1
20	Kilur	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	1	2	1
21	Konamaduvu	2	2	2	1	1	1	2	2	1	1	2	2	1	1	1	1	2	1
22	Kumarapalayam	2	1	2	1	2	1	2	2	1	1	2	1	1	1	1	2	2	1
23	kuralnatham	2	1	2	1	1	1	2	2	1	1	2	2	1	1	1	1	2	1
24	Kuttaladampatti	2	1	2	1	1	1	2	2	1	2	2	2	2	2	2	1	2	1
25	Malaiyampalayam	2	2	2	1	1	1	2	2	1	2	2	2	2	2	1	1	2	1
26	Melur	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	1	2	1
27	Minnakkal Agraharam	1	2	1	1	1	1	2	1	1	1	2	1	1	1	1	1	2	1
28	Mukkuthipalayam	2	1	2	1	1	1	2	2	1	2	2	2	2	2	1	1	2	1
29	Nallarayampatti	2	1	2	1	1	1	1	2	1	1	1	1	1	1	1	1	2	1
30	Nallikkalpatti	2	1	2	1	1	2	2	2	1	1	2	2	2	2	1	1	2	1
31	Nilavarapatti (Part)	2	1	2	1	1	2	2	2	1	1	2	1	1	1	1	1	2	1
32	Nuleathukombai	2	2	2	1	2	1	2	2	2	2	2	2	2	2	1	1	2	1
33	Palanthinnipatti	2	1	2	1	1	1	2	2	1	1	2	2	1	1	1	1	2	1
34	Parappatti	2	1	2	1	1	1	2	2	1	2	2	2	2	2	1	1	2	1
35	Ponparappipatti	2	2	2	2	2	1	2	2	1	1	2	2	2	2	1	1	2	1
36	Pudupalayam	2	1	2	1	1	1	2	2	1	1	2	2	2	1	1	1	2	1
37	Sandiyur	2	2	2	1	2	1	2	2	1	1	2	1	1	2	1	1	2	1
38	Sandiyur Attayampatti	2	1	2	1	1	1	2	2	2	2	2	1	1	2	1	1	2	1
39	Sittaneri	2	2	2	1	1	1	2	2	1	2	2	2	2	2	1	1	2	1



40	Thammanayakkanpatti	1	1	1	1	1	1	2	2	2	1	2	2	2	2	1	1	2	1
41	Thengalpalayam	2	2	2	1	1	1	2	2	1	2	2	2	1	1	1	1	2	1
42	Tippampatti	2	1	2	1	1	1	2	2	1	1	2	2	2	1	1	1	2	1
43	Udayapatti	1	1	1	1	1	1	2	2	1	1	2	1	1	1	1	1	2	1
44	Uthamasolapuram	2	1	2	1	1	1	2	2	1	1	2	1	1	1	1	1	2	1
45	Vadapatty	2	2	2	1	2	1	2	2	2	2	2	2	2	2	1	1	2	1
46	Valakuttapatti	2	2	2	2	2	1	2	2	1	1	2	2	2	1	1	1	2	1
47	Vaniyampadi	2	2	2	1	1	1	2	2	1	1	2	2	2	2	1	1	2	1
48	Veerapandi	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	2	1

Abbreviations - MP - Mobile Phone Coverage; RS - Railway Station; GR - Gravel Roads ; IC / CSC - Internet Cafe/Common Service Centre; NH - National Highways; NWR - Navigate waterways River; PCF - Private Courier Facility; SH - State Highways; FP - Foot path; BS - Public Bus Service; MDR - Major District Road; PBS - Private Bus Service ; BTR - Black Topped (Pucca Roads)

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

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

TABLE 3.40: WATER &amp; DRAINAGE FACILITIES IN THE STUDY AREA

Sl	Village Name	TP	CW	UCW	HP	TW/BH	S	R/C	T/P/L	CD	OD	CT
1	Agraharapulaveri	1	2	1	1	1	2	2	2	1	1	1
2	Akkaraipalayam	1	2	1	2	2	2	2	2	1	1	1
3	Alampatti	1	2	1	1	1	2	2	2	1	1	1
4	Alavaipatti	1	1	1	1	2	2	2	2	1	1	2
5	Ammapalayam	1	2	1	2	1	2	2	2	1	1	2
6	Anandagoundempalayam	1	1	1	1	1	2	2	2	1	1	2
7	Andipatti-Sowdapuram	1	1	1	1	1	1	2	2	1	1	1
8	Annamalaipatti	1	2	1	1	1	1	2	2	2	1	2
9	Ariyampalayam	1	1	1	2	1	2	2	2	1	1	2
10	Attavanaipulaveri	1	2	1	2	1	2	2	2	1	1	2
11	Bairoji	1	1	1	1	1	2	2	2	1	1	2
12	Basuvanathampatti	1	1	1	1	1	2	2	2	1	1	2
13	Errachinnampatti	1	1	1	1	1	2	2	2	1	1	2
14	Erumapalayam	1	1	1	1	2	2	2	2	1	2	2
15	Eruvadipettampatti	1	2	1	2	2	2	2	2	1	2	2
16	Gajallnayakkanpatti	1	1	1	2	1	1	2	2	1	1	2
17	Jerugumalai	2	2	1	1	1	2	2	2	2	2	2
18	Kallankulam	1	2	1	1	1	2	2	1	1	1	1
19	Keeranur	1	1	1	1	1	1	2	2	1	1	2
20	Kilur	2	1	1	2	2	1	2	2	2	2	2
21	Konamaduvu	1	2	1	2	1	2	2	2	1	1	1
22	Kumarapalayam	1	1	1	1	1	2	2	2	1	1	2
23	kuralnatham	1	2	1	2	1	2	2	2	1	1	2
24	Kuttaladampatti	1	1	1	1	1	2	2	2	1	1	2
25	Malaiyampalayam	1	2	1	1	2	2	2	2	2	1	2
26	Melur	2	2	2	2	2	2	2	1	2	2	2
27	Minnakkal Agraharam	1	1	1	1	1	2	2	2	1	1	2
28	Mukkuthipalayam	1	2	2	1	2	2	2	2	1	1	2
29	Nallarayampatti	1	1	1	2	1	2	2	2	1	1	2
30	Nalikkalpatti	1	1	1	2	1	2	2	2	1	1	2
31	Nilavarapatti (Part)	1	1	1	2	1	1	2	2	1	1	2
32	Nuleathukombai	1	2	1	2	2	2	2	2	1	1	2
33	Palanthinnipatti	1	1	1	1	2	2	2	2	1	1	1
34	Parappatti	1	2	1	2	1	2	2	2	1	1	1
35	Ponparappipatti	1	2	1	1	1	2	2	2	2	2	2
36	Pudupalayam	1	1	1	1	1	2	2	1	1	1	1
37	Sandiyur	1	2	1	2	1	2	2	2	1	1	2
38	Sandiyur Attayampatti	1	2	1	2	1	2	2	2	1	1	2
39	Sittaneri	1	2	1	2	2	2	2	2	1	2	2
40	Thammanayakkanpatti	1	2	1	2	1	2	2	2	1	1	1

41	Thengalpalayam	1	1	1	1	1	2	2	2	1	1	1
42	Tippampatti	1	1	1	1	1	2	2	2	1	1	2
43	Udayapatti	1	1	1	1	1	1	2	2	1	1	2
44	Uthamasolapuram	1	1	1	1	1	2	2	1	1	1	1
45	Vadapatty	2	2	1	2	2	2	2	2	2	1	2
46	Valakuttapatti	1	1	1	2	1	2	2	2	1	1	2
47	Vaniyampadi	1	1	1	2	1	1	2	2	1	1	1
48	Veerapandi	1	1	1	1	1	2	1	2	1	1	2

TABLE 3.41: OTHER FACILITIES IN THE STUDY AREA

Sl	Village Name	ATM	CB	COB	ACS	SHG	PDS	RM	AMS	NC	NC-AC	CC	SF	PL	NPS	APS	BDRO	PS
1	Agraharapulaveri	2	2	2	2	1	1	2	2	1	1	1	2	1	1	1	1	1
2	Akkaraipalaiyam	2	2	2	2	1	1	2	2	1	1	1	2	2	1	2	2	1
3	Alampatti	2	2	2	2	1	1	2	2	2	1	1	1	1	1	1	1	1
4	Alavaipatti	2	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1
5	Ammapalayam	2	2	2	2	1	1	2	2	1	1	1	1	1	1	1	1	1
6	Anandagoundempalayam	2	2	2	2	1	1	2	2	1	1	1	1	2	1	1	1	1
7	Andipatti-Sowdapuram	2	2	2	2	1	1	2	2	1	1	1	1	2	1	1	1	1
8	Annamalaipatti	2	2	2	2	1	1	2	2	2	1	2	2	2	2	2	2	1
9	Ariyampalayam	2	2	2	2	1	1	2	2	1	1	2	2	2	1	1	1	1
10	Attavanaipulaveri	2	2	1	2	1	1	2	2	1	1	2	1	2	1	1	2	1
11	Bairoji	2	2	2	2	1	1	2	2	1	1	1	1	1	1	1	1	1
12	Basuvanathampatti	2	2	2	2	2	1	2	2	1	1	1	2	2	2	2	2	1
13	Errachinnampatti	2	2	2	2	1	1	2	2	2	2	2	2	2	1	2	2	1
14	Erumapalayam	2	2	2	2	2	1	2	2	1	1	2	2	2	1	2	2	1
15	Eruvadipettampatti	2	2	2	2	2	1	2	2	1	1	2	1	2	1	1	1	1
16	Gajallnayakkanpatti	1	2	1	2	1	1	2	2	1	1	2	2	1	1	1	1	1
17	Jerugumalai	2	2	2	2	2	1	2	2	1	1	2	2	2	2	1	2	1
18	Kallankulam	2	2	2	2	1	1	2	2	1	1	1	1	1	1	1	1	1
19	Keeranur	2	2	2	1	1	1	2	2	1	1	1	1	1	1	1	1	1
20	Kilur	2	2	2	2	1	2	2	2	2	2	2	2	2	2	1	2	2
21	Konamaduvu	2	2	2	1	1	1	2	2	1	1	1	2	1	1	1	1	1
22	Kumarapalayam	2	2	2	2	1	1	1	2	2	1	2	1	1	1	1	1	1
23	kuralnatham	2	2	2	1	1	1	2	2	1	1	1	1	2	1	1	1	1
24	Kuttaladampatti	2	2	2	2	1	1	2	2	1	1	1	1	1	1	1	1	1
25	Malaiyampalayam	2	2	2	2	1	1	2	2	1	1	2	1	2	1	2	1	1
26	Melur	2	2	2	2	1	2	2	2	2	2	2	2	2	2	1	2	2
27	Minnakkal Agraharam	2	2	2	2	1	1	1	2	2	1	1	1	2	1	1	1	1
28	Mukkuthipalayam	2	2	2	2	1	1	2	2	1	1	1	2	1	1	1	1	1
29	Nallarayampatti	2	2	2	2	1	1	2	2	1	1	2	2	2	1	1	2	1
30	Nallikkalpatti	2	2	2	2	1	1	2	2	1	1	2	2	2	1	1	1	1
31	Nilavarapatti (Part)	2	2	1	2	1	1	2	2	1	1	2	2	1	1	1	1	1
32	Nuleathukombai	2	2	2	2	1	1	2	2	1	1	2	2	2	1	2	2	1
33	Palanthinnipatti	2	2	2	2	1	1	2	2	2	1	2	1	1	1	1	1	1
34	Parappatti	2	2	2	2	1	1	2	2	1	1	1	1	1	1	1	1	1
35	Ponparappipatti	2	2	2	1	1	1	2	2	2	1	1	1	1	1	1	1	1
36	Pudupalayam	2	2	1	2	1	1	2	2	1	1	1	1	1	1	1	1	1
37	Sandiyur	2	2	2	2	1	1	2	2	1	1	1	2	1	1	1	1	1
38	Sandiyur Attayampatti	2	2	1	2	1	1	2	2	1	1	2	2	1	1	1	1	1
39	Sittaneri	2	2	2	2	1	2	2	2	2	2	2	2	2	1	2	2	1

40	Thammanayakkanpatti	2	2	2	2	1	1	2	2	1	1	2	1	1	1	1	1	1
41	Thengalpalayam	2	2	2	2	1	1	2	2	2	1	2	1	1	1	1	1	1
42	Tippampatti	2	2	2	2	1	1	1	2	1	1	1	1	1	1	1	1	1
43	Udayapatti	2	1	2	1	1	1	2	2	1	1	1	1	1	1	1	1	1
44	Uthamasolapuram	2	2	2	2	1	1	1	1	1	1	2	2	2	1	1	2	1
45	Vadapatty	2	2	2	2	1	1	2	2	1	1	2	2	2	1	2	2	1
46	Valakuttapatti	2	2	2	2	1	1	2	2	1	1	1	1	2	1	1	1	1
47	Vaniyampadi	2	2	2	2	1	1	2	2	1	1	2	2	2	1	1	1	1
48	Veerapandi	2	1	2	2	1	1	2	2	1	1	1	2	1	1	1	1	1

Abbreviations: ATM - Automatic Teller Machine; PDS - Public Distribution System (Shop); CB - Commerical Bank; RM - Regular Market; COB - Co-operative Bank; AMS - Agricultural Market Society; ACS - Agricultural Credit Societies; NC - Nutritional Centres; SHG - Self Help Group; NC-AC - Nutritional Centres - Anganwadi Centre; DBRO - Birth & Death Registration Office; PS - Power Supply  
Note – 1 - Available within the village; 2 - Not available

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

TABLE 3.42: EDUCATIONAL FACILITIES IN THE STUDY AREA

Sl	Village Name	PPS		PS		MS		SS		SSS		DC		EC		MC		MI		PT		VTS		SSD		
		G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G
1	Agraharapulaveri	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
2	Akkaraipalayam	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3	Alampatti	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4	Alavaipatti	1	2	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
5	Ammapalayam	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2
6	Anandagoundempalayam	1	2	1	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2
7	Andipatti-Sowdapuram	1	1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
8	Annamalaipatti	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
9	Ariyampalayam	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
10	Attavanaipulaveri	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
11	Bairoji	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	1	2	2	2
12	Basuvanathampatti	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
13	Errachinnampatti	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
14	Erumapalayam	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
15	Eruvadipettampatti	1	1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
16	Gajallnayakkanpatti	1	2	1	1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2
17	Jerugumalai	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
18	Kallankulam	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
19	Keeranur	1	2	1	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
20	Kilur	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
21	Konamaduvu	2	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
22	Kumarapalayam	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
23	kuralnatham	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
24	Kuttaladampatti	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
25	Malaiyampalayam	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
26	Melur	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
27	Minnakkal Agraharam	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
28	Mukkuthipalayam	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2
29	Nallarayampatti	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

30	Nallikkalpatti	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
31	Nilavarapatti (Part)	1	2	1	2	1	2	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2
32	Nuleathukombai	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
33	Palanthinnipatti	1	1	1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
34	Parappatti	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
35	Ponparappipatti	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
36	Pudupalayam	1	1	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
37	Sandiyur	1	2	1	2	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	1	2	2
38	Sandiyur Attayampatti	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
39	Sittaneri	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
40	Thammanayakkanpatti	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1
41	Thengalpalayam	1	1	1	2	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
42	Tippampatti	1	2	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
43	Udayapatti	1	2	1	1	1	1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
44	Uthamasolapuram	1	1	1	1	1	1	2	1	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2
45	Vadapatty	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
46	Valakuttapatti	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
47	Vaniyampadi	1	2	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
48	Veerapandi	1	1	1	2	1	2	1	2	1	2	2	2	2	2	2	1	2	2	2	1	2	2	2

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

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

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

TABLE 3.43: MEDICAL FACILITIES IN THE STUDY AREA

Sl. No.	Village Name	CHC	PHC	PHSC	MCW	TBC	HA	HAM	D	VH	MHC	FWC	NGM-I/O
1	Agraharapulaveri	0	1	2	1	1	0	0	1	2	0	1	
2	Akkaraipalaiyam	0	0	0	0	0	0	0	0	0	0	0	a
3	Alampatti	0	0	0	0	0	0	0	0	0	0	0	a
4	Alavaipatti	0	0	3	0	0	0	0	0	1	0	0	a
5	Ammapalayam	0	0	1	0	0	0	0	0	0	0	0	a
6	Anandagoundempalayam	0	0	1	0	0	0	0	0	0	0	0	b
7	Andipatti-Sowdapuram	0	0	1	1	0	0	0	0	0	0	0	a
8	Annamalaipatti	0	0	1	0	0	0	0	0	0	0	0	a
9	Ariyampalayam	0	0	0	0	0	0	0	0	0	0	0	a
10	Attavanaipulaveri	0	0	0	0	0	0	0	0	0	0	0	a
11	Bairoji	0	0	1	0	0	0	0	0	0	0	0	a
12	Basuvanathampatti	0	0	0	0	0	0	0	0	0	0	0	a
13	Errachinnampatti	0	0	0	0	0	0	0	0	0	0	0	a
14	Erumapalayam	0	0	0	0	0	0	0	0	0	0	0	a
15	Eruvadipettampatti	0	0	0	0	0	0	0	0	0	0	0	a
16	Gajallnayakkanpatti	0	0	1	1	0	0	0	0	1	0	0	a
17	Jerugumalai	0	0	0	0	0	0	0	0	0	0	0	b
18	Kallankulam	0	1	1	1	1	0	0	1	0	0	1	
19	Keeranur	0	0	1	1	0	0	0	0	0	0	0	a
20	Kilur	0	0	0	0	0	0	0	0	0	0	0	b
21	Konamaduvu	0	0	1	0	0	0	0	0	0	0	0	a
22	Kumarapalayam	0	0	1	0	0	0	0	0	0	0	0	a
23	kuralnatham	0	0	0	0	0	0	0	0	1	0	0	a
24	Kuttaladampatti	0	0	0	0	0	0	0	0	0	0	0	a
25	Malaiyampalayam	0	0	0	0	0	0	0	0	0	0	0	a
26	Melur	0	0	0	0	0	0	0	0	0	0	0	b
27	Minnakkal Agraharam	0	1	1	1	1	0	0	1	0	0	1	
28	Mukkuthipalayam	0	0	0	0	0	0	0	0	0	0	0	a
29	Nallarayampatti	0	0	0	0	0	0	0	0	0	0	0	a



30	Nalikkalpatti	0	0	1	0	0	0	0	0	1	0	0	a
31	Nilavarapatti (Part)	0	0	1	0	0	0	0	0	0	0	0	a
32	Nuleathukombai	0	0	0	0	0	0	0	0	0	0	0	a
33	Palanthinnipatti	0	0	0	0	0	0	0	0	0	0	0	a
34	Parappatti	0	1	1	1	1	0	0	1	0	0	1	
35	Ponparappipatti	0	0	0	0	0	0	0	0	0	0	0	b
36	Pudupalayam	0	0	1	1	0	0	0	0	0	0	0	a
37	Sandiyur	0	0	1	0	0	0	0	0	0	0	0	a
38	Sandiyur Attayampatti	0	0	1	0	0	0	0	0	0	0	0	a
39	Sittaneri	0	0	0	0	0	0	0	0	0	0	0	a
40	Thammanayakkanpatti	0	0	1	0	0	0	0	0	0	0	0	a
41	Thengalpalayam	0	0	1	0	0	0	0	0	0	0	0	a
42	Tippampatti	0	0	1	0	0	0	0	0	0	0	0	a
43	Udayapatti	0	0	3	0	0	0	0	0	0	0	0	a
44	Uthamasolapuram	0	0	1	0	0	0	0	0	0	0	0	a
45	Vadapatty	0	0	0	0	0	0	0	0	0	0	0	b
46	Valakuttapatti	0	0	1	1	0	0	0	0	0	0	0	a
47	Vaniyampadi	0	0	0	0	0	0	0	0	1	0	0	b
48	Veerapandi	0	1	1	1	1	0	0	1	1	0	1	

Abbreviations: CHC-Community Health Centre; TBC-TB Clinic; VH- Veternity Hospital; PHC-Primary Health Centre; HA-Aallopathic Hospital; FWC-Family Welfare Centre; PHSC-Primary Health Sub Centre; HAM-Alternative Medicine Hospital; MH-Mobile Health Clinic; MCW-Maternity and Child Welfare Centre; D-Dispensary; NGM-I/O-Non Government Medical Facilities In & Out Patient  
 Note – 1 - Available within the village; 2 - Not available a-facility available at <5kms b-facility available at>10kms

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

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### 3.6.5 Recommendation and Suggestion

- Awareness program to be conducted to make the population aware to get education and a better livelihood.
- Health care center and ambulance facility can be provided to the population to get easy and accessible medical facilities.
- Vocational training programme can be organized to make the people self - employed, particularly for women and unemployed youth.
- On the basis of qualification and skills local community may be preferred.
- Long term and short-term employments can be generated.
- Maternity facility should be made available at the place to avoid going too far off places for treatment which involves risks. Apart from that as these areas are prone to various diseases a hospital with modern facilities should be opened on a priority basis in a central place to provide better health facilities to the villagers around the project.
- While developing an Action Plan, it is very important to identify the population who falls under the marginalized and vulnerable groups. So that special attention can be given to these groups with special provisions while making action plans.

### 3.6.6 Conclusion

The socio-economic study of surveyed villages gives a clear picture of its population, average household size, literacy rate and sex ratio etc. It is also found that a part of population is suffering from lack of permanent job to run their day-to-day life. Their expectation is to earn some income for their sustainability on a long-term basis.

The proposed project will aim to provide preferential employment to the local people there by improving the employment opportunity in the area and in turn the social standards will improve.

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## CHAPTER 4: ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

### 4.0 GENERAL

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

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

Several scientific techniques and methodologies are available to predict impacts of physical environment. Mathematical models are the best tools to quantitatively describe the cause-and-effect relationships between sources of pollution and different components of environment. In cases where it is not possible to identify and validate a model for a particular situation, predictions have been arrived at based on logical reasoning / consultation / extrapolation.

The following parameters are of significance in the Environmental Impact Assessment and are being discussed in detail

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

Based on the baseline environmental status at the project site, the environmental factors that are likely to be affected (Impacts) are identified, quantified and assessed.

### 4.1 LAND ENVIRONMENT:

#### 4.1.2 Anticipated Impact

- Permanent or temporary change on land use and land cover.
- Change in Topography: Topography of the ML area will change at the end of the life of the mine.
- Movement of heavy vehicles sometimes cause problems to agricultural land, human habitations due to dust, noise and it also causes traffic hazards.
- Due to degradation of land by pitting the aesthetic environment of the core zone may be affected.
- Earthworks during the rainy season increase the potential for soil erosion and sediment laden water entering the water ways.
- If no due care is taken wash off from the exposed working area may choke the water course & can also causes the siltation of water course

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#### 4.1.2 Mitigation measures

- The mining activity will be gradual confined in blocks and excavation will be undertaken progressively along with other mitigative measures like phase wise development of greenbelt etc.
- Construction of garland drains all around the quarry pits and construction of check dam at strategic location in lower elevations to prevent erosion due to surface runoff during rainfall and also to collect the storm water for various uses within the proposed area
- Green belt development along the boundary within safety zone. The small quantity of water stored in the mined out pit will be used for greenbelt
- Thick plantation will be carried out on unutilized area, top benches of mined out pits, on safety barrier, etc.,
- At conceptual stage, the land use pattern of the quarry will be changed into Greenbelt area and temporary reservoir
- In terms of aesthetics, natural vegetation surrounding the quarry will be retained (such as in a buffer area i.e., 7.5 m safety barrier and other safety provided) so as to help minimise dust emissions.
- Proper fencing will be carried out at the conceptual stage, Security will be posted round the clock, to prevent inherent entry of the public and cattle

#### 4.1.3 Soil Environment

The area is covered by thin layer of topsoil formation and the average thickness is about 1 m, the excavated topsoil will be dumped separately at 7.5 m and 10m safety barrier zone and subsequently will be utilized in spreading over reclaimed areas for plantation. Precautions will be taken to limit the height of the topsoil dump from 3 to 4 meters in order to preserve its fertility and shelf life. It will be suitably protected from soil erosion and infertility by constructing a retaining wall at the foot wall side and by planting fodder grass and leguminous plants during temporary storage.

#### 4.1.4 Impact on Soil Environment

- **Erosion and Sedimentation** (Removal of protective vegetation cover; Exposure of underlying soil horizons that may be less pervious, or more erodible than the surface layers; Reduced capacity of soils to absorb rainfall; Increased energy in storm-water runoff due to concentration and velocity; and Exposure of subsurface materials which are unsuitable for vegetation establishment).
- Site preparation will entail stripping and removal of the topsoil which contains most of the nutrients and organisms that give soil a living character and productivity
- However, as the project design takes into account the preservation of the top soil and it's subsequently use for topping up of the rehabilitated land. The impact on soil quality will be insignificant considering the mitigation measures proposed to be implemented.

#### 4.1.5 Mitigation measures for Soil Conservation

- Run-off diversion – Garland drains will be constructed all around the project boundary to prevent surface flows from entering the quarry works areas. And will be discharged into vegetated natural drainage lines, or as distributed flow across an area stabilised against erosion.
- Sedimentation ponds - Run-off from working areas will be routed towards sedimentation ponds. These trap sediment and reduce suspended sediment loads before runoff is discharged from the quarry site. Sedimentation ponds should be designed based on runoff, retention times, and soil characteristics. There may be a need to provide a series of sedimentation ponds to achieve the desired outcome.
- Retain vegetation – Retain existing or re-plant the vegetation at the site wherever possible.
- Monitoring and maintenance – Weekly monitoring and daily maintenance of erosion control systems so that they perform as specified specially during rainy season

### 4.1.6 Waste Dump Management

There is no waste anticipated in this Rough Stone quarrying operation. The entire quarried out materials will be utilized (100%).

## 4.2 WATER ENVIRONMENT

### 4.2.1 Anticipated Impact

- The major sources of water pollution normally associated due to mining and allied operations are:
  - Generation of waste water from vehicle washing.
  - Washouts from surface exposure or working areas
  - Domestic sewage
  - Disturbance to drainage course in the project area
  - Mine Pit water discharge
- Increase in sediment load during monsoon in downstream of lease area
- This being a mining project, there will be no process effluent. Waste from washing of machinery may result in discharge of Oil & grease, suspended solids.
- The sewage from soak pit may percolate to the ground water table and contaminate it.
- Surface drainage may be affected due to Mining
- Abstraction of water may lead to depletion of water table

Detail of water requirements in KLD as given below:

**TABLE 4.1: WATER REQUIREMENTS**

Purpose	Quantity	Source
Dust Suppression	3.6 KLD	Rainwater accumulated in Mine Pit/ Water Tanker
Green Belt development	1.8 KLD	Rainwater accumulated in Mine Pit/ Water Tanker
*Domestic purpose	0.72 KLD	Water Tankers
<b>Total</b>	<b>6.12 KLD</b>	
Purpose	Quantity	Source
Dust Suppression	1.0 KLD	Rainwater accumulated in Mine Pit/ Water Tanker
Green Belt development	0.5 KLD	Rainwater accumulated in Mine Pit/ Water Tanker
*Domestic purpose	0.5 KLD	Water Tankers
<b>Total</b>	<b>2.0 KLD</b>	

\* Water for drinking purpose will be brought from approved water vendors

Source: Approved Mining Plan Pre-Feasibility Report

### 4.2.2 Mitigation measures

- Garland drain, settling tank will be constructed along the proposed mining lease area. The Garland drain will be connected to settling tank and sediments will be trapped in the settling traps and only clear water will be discharged out to the natural drainage
- Rainwater will be collected in sump in the mining pits and will be allowed to store and pumped out to surface setting tank of 15 m x 10m x 3m to remove suspended solids if any. This collected water will be judiciously used for dust suppression and such sites where dust likely to be generated and for developing green belt. The proponent will collect and judiciously utilize the rainwater as part of rainwater harvesting system.
- Providing benches with inner slopes and through a system of drains and channels, allowing rain water to descent into surrounding drains, so as to minimize the effects of erosion & water logging arising out of uncontrolled descent of water.
- Reuse the water collected during storm for dust suppression and greenbelt development within the mines
- Installing interceptor traps/oil separators to remove oils and greases. Water from the tipper wash-down facility and machinery maintenance yard will pass through interceptor traps/oil separators prior to its reuse;
- Using flocculating or coagulating agents to assist in the settling of suspended solids during monsoon seasons;
- Periodic (every 6 month once) analysis of quarry pit water and ground water quality in nearby villages
- Domestic sewage from site office & urinals/latrines provided in ML is discharged in septic tank followed by soak pits
- Waste water discharge from mine will be treated in settling tanks before using for dust suppression and tree plantation purposes
- De-silting will be carried out before and immediately after the monsoon season
- Regular monitoring (every 6 month once) and analysing the quality of water in open well, bore wells and surface water

## 4.3 AIR ENVIRONMENT

### 4.3.1. Anticipated Impact

- During mining, at various stages activities such as excavation, drilling, blasting, and transportation of materials, particular matter (PM), gases such as Sulphur dioxide, oxides of Nitrogen from vehicular exhaust are the main air pollutants.
- Emissions of noxious gases due to incomplete detonation of explosive may sometimes pollute the air.
- The fugitive dust released from the mining operations may cause effect on the mine workers who are directly exposed to the fugitive dust.
- Simultaneously, the air-borne dust may travel to longer distances and settle in the villages located near the mine lease area.

#### 4.3.1.1. Modelling of Incremental Concentration

Wind erosion of the exposed areas and the air borne particulate matter generated by quarrying operation, and transportation are mainly PM<sub>10</sub> & PM<sub>2.5</sub> and emissions of Sulphur dioxide (SO<sub>2</sub>) & Oxides of Nitrogen (NO<sub>x</sub>) due to excavation/loading equipment and vehicles plying on haul roads are the cause of air pollution in the project area.

Similarly, loading - unloading and transportation of Rough Stone, wind erosion of the exposed area and movement of light vehicles causes of pollution. This leads to a impact on the ambient air environment around the project area.

Anticipated incremental concentration due to this quarrying activity and net increase in emissions due to quarrying activities within 500 meters around the project area is predicted by Open Pit Source modelling using AERMOD Software.

The impact on Air Environment is due to the mining and allied activities during Land Development phase, Mining process and Transportation. The emissions of Sulphur dioxide (SO<sub>2</sub>), Oxides of Nitrogen (NO<sub>x</sub>) due to excavation/loading equipment and vehicles plying on haul roads are marginal. Loading - unloading and transportation of Rough Stone, wind erosion of the exposed area and movement of light vehicles will be the main polluting source in the mining activities releasing Particulate Matter (PM<sub>10</sub>) affecting Ambient Air of the area. Prediction of impacts on air environment has been carried out taking into consideration cumulative production three proposed quarries. Air environment and net increase in emissions by Open pit source modelling in AERMOD Software.

#### 4.3.2.1 Emission Estimation

An emissions factor is a representative value that attempts to relate the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant.

The general equation for emissions estimation is:

$$E = A \times EF \times (1-ER/100)$$

Where:

E = emissions;

A = activity rate;

EF = emission factor, and

ER =overall emission reduction efficiency, %

The proposed mining activity includes various activities like ground preparation, excavation, handling and transport of Rough Stone. These activities have been analysed systematically basing on USEPA-Emission Estimation Technique Manual, for Mining AP-42, to arrive at possible emissions to the atmosphere and estimated emissions are given in Table 4-2.

**TABLE 4.2: ESTIMATED EMISSION RATE FOR PM<sub>10</sub>**

Activity	Source type	P1	P2	Unit
Drilling	Point Source	0.077294620	0.078015948	g/s
Blasting	Point Source	0.000667361	0.000699087	g/s
Mineral Loading	Point Source	0.041032962	0.040438583	g/s
Haul Road	Line Source	0.002489236	0.002488275	g/s
Overall Mine	Area Source	0.039085368	0.038973305	g/s

**TABLE 4.3: ESTIMATED EMISSION RATE FOR SO<sub>2</sub>- P1**

Activity	Source type	P1	P2	Unit
Overall Mine	Area Source	0.000448083	0.000400917	g/s

**TABLE 4.4: ESTIMATED EMISSION RATE FOR NO<sub>x</sub>- P1**

Activity	Source type	P1	P2	Unit
Overall Mine	Area Source	0.000010851	0.000009690	g/s

### 4.3.2 Frame work of Computation & Model details

By using the above-mentioned inputs, ground level concentrations due to the quarrying activities have been estimated to know the incremental concentration in ambient air quality and impact in the study area. The effect of air pollutants upon receptors are influenced by concentration of pollutants and their dispersion in the atmosphere. Air quality modelling is an important tool for prediction, planning and evaluation of air pollution control activities besides identifying the requirements for emission control to meet the regulatory standards and to apply mitigation measures to reduce impact caused by quarrying activities. Suspended Particulate Matter (SPM) is the major pollutant occurred during quarrying activities. The prediction included the impact of Excavation, Drilling, Blasting (Occasionally), loading and movement of vehicles during transportation and meteorological parameters such as wind speed, wind direction, temperature, rainfall, humidity and Cloud cover.

Impact was predicted over the distance of 10 km around the source to assess the impact at each receptor separately at the various locations and maximum incremental GLC value at the project site. Maximum impact of PM<sub>10</sub> was observed close to the source due to low to moderate wind speeds. Incremental value of PM<sub>10</sub> was superimposed on the base line data monitored at the proposed site to predict total GLC of PM<sub>10</sub> due to combined impacts.

FIGURE 4.1: AERMOD TERRAIN MAP

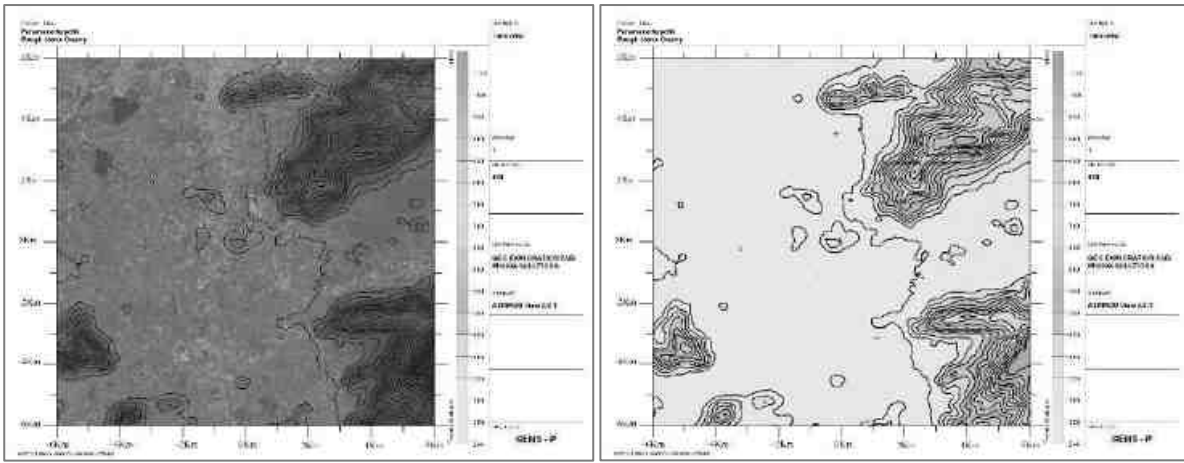


FIGURE 4.2: PREDICTED INCREMENTAL CONCENTRATION OF PM<sub>10</sub>

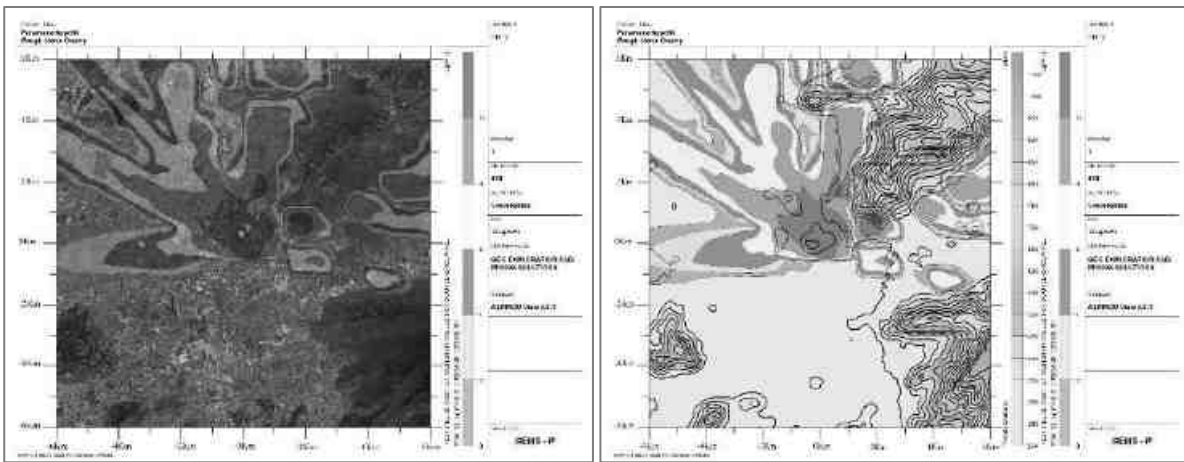
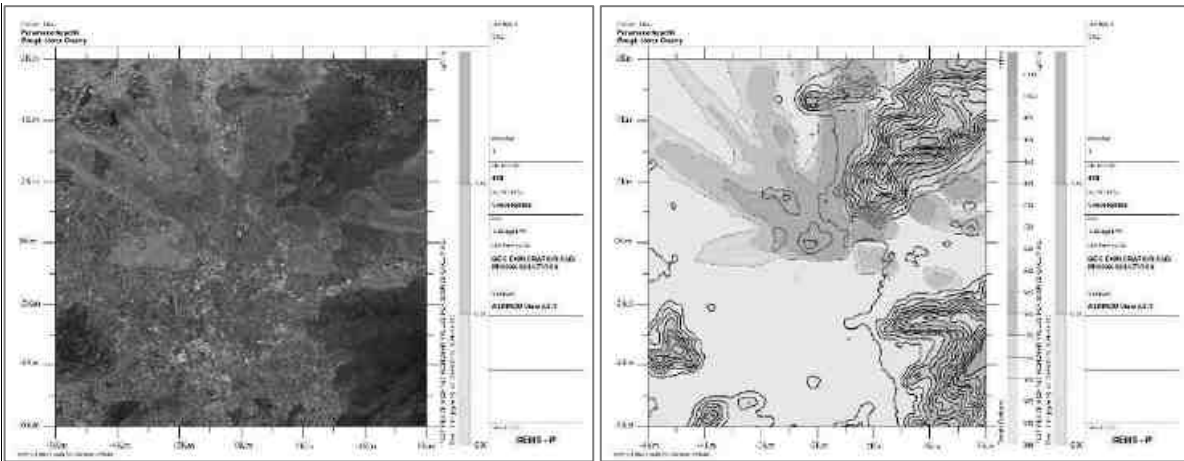
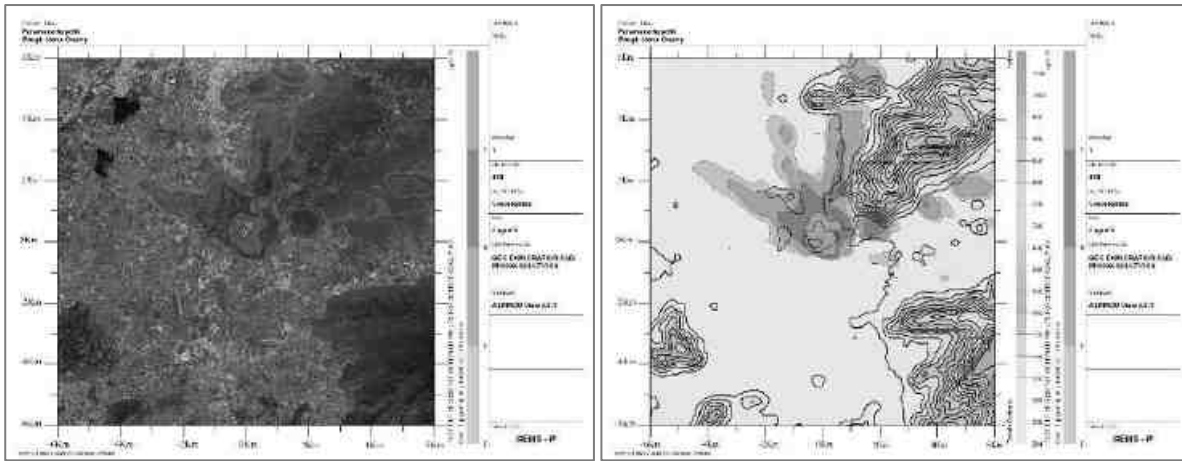
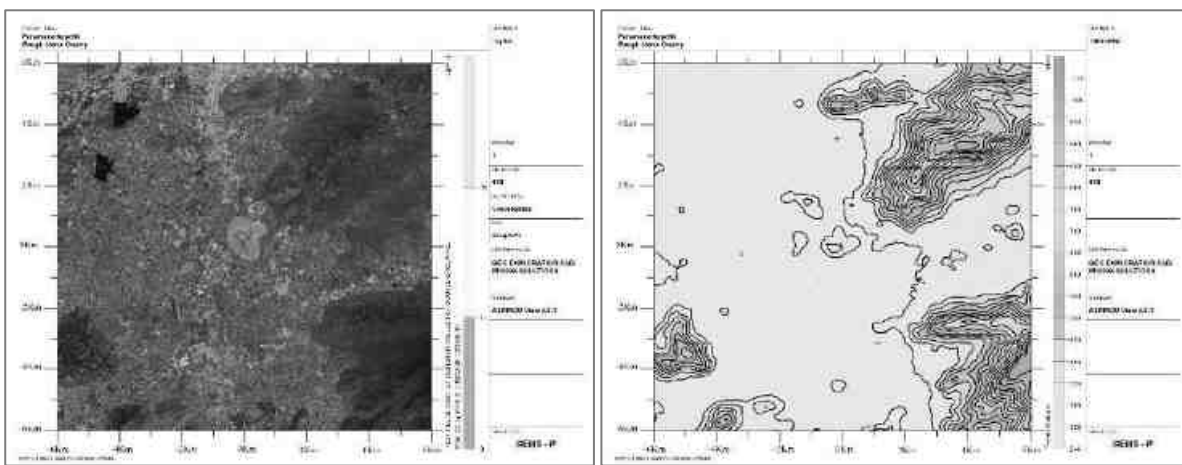


FIGURE 4.3: PREDICTED INCREMENTAL CONCENTRATION OF SO<sub>2</sub>





**FIGURE 4.4: PREDICTED INCREMENTAL CONCENTRATION OF NO<sub>x</sub>****FIGURE 4.5: PREDICTED INCREMENTAL CONCENTRATION OF FUGITIVE DUST**

#### 4.3.2.1 Model Results

The post project Resultant Concentrations of PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>& NO<sub>x</sub> (GLC) is given in Table below:

**TABLE 4.5: INCREMENTAL & RESULTANT GLC OF PM<sub>10</sub>**

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM <sub>10</sub> (µg/m <sup>3</sup> )	Incremental value of PM <sub>10</sub> due to mining (µg/m <sup>3</sup> )	Total PM <sub>10</sub> (µg/m <sup>3</sup> )
AAQ1	11°34'29.16"N 78° 9'10.29"E	-64	53	43.10	12.99	56.09
AAQ2	11°34'35.93"N 78° 9'17.61"E	156	262	42.90	12.1	55.00
AAQ3	11°35'28.33"N 78° 7'36.64"E	-2924	1895	42.98	10.88	53.86
AAQ4	11°34'18.64"N 78° 7'25.94"E	-3249	-272	43.08	5.11	48.19
AAQ5	11°33'51.19"N 78° 8'48.57"E	-727	-1130	42.69	0	42.69
AAQ6	11°32'45.33"N 78° 9'50.42"E	1158	-3173	43.13	0	43.13
AAQ7	11°36'22.25"N 78° 9'5.38"E	-214	3564	43.23	3.04	46.27
AAQ8	11°34'21.46"N 78°10'3.43"E	1552	-189	43.92	7.96	51.88

**TABLE 4.6: INCREMENTAL & RESULTANT GLC OF PM<sub>2.5</sub>**

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM <sub>2.5</sub> (µg/m <sup>3</sup> )	Incremental value of PM <sub>2.5</sub> due to mining (µg/m <sup>3</sup> )	Total PM <sub>2.5</sub> (µg/m <sup>3</sup> )
AAQ1	11°34'29.16"N 78° 9'10.29"E	-64	53	24.76	5.93	30.69
AAQ2	11°34'35.93"N 78° 9'17.61"E	156	262	23.78	5.21	28.99
AAQ3	11°35'28.33"N 78° 7'36.64"E	-2924	1895	23.06	4.53	27.59
AAQ4	11°34'18.64"N 78° 7'25.94"E	-3249	-272	22.70	3.19	25.89
AAQ5	11°33'51.19"N 78° 8'48.57"E	-727	-1130	23.12	0.72	23.84
AAQ6	11°32'45.33"N 78° 9'50.42"E	1158	-3173	22.83	0	22.83
AAQ7	11°36'22.25"N 78° 9'5.38"E	-214	3564	23.95	2.47	26.42
AAQ8	11°34'21.46"N 78°10'3.43"E	1552	-189	23.60	3.81	27.41

**TABLE 4.7: INCREMENTAL & RESULTANT GLC OF SO<sub>2</sub>**

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline SO <sub>2</sub> (µg/m <sup>3</sup> )	Incremental value of SO <sub>2</sub> due to mining (µg/m <sup>3</sup> )	Total SO <sub>2</sub> (µg/m <sup>3</sup> )
AAQ1	11°34'29.16"N 78° 9'10.29"E	-64	53	9.40	1.49	10.89
AAQ2	11°34'35.93"N 78° 9'17.61"E	156	262	8.99	1.4	10.39
AAQ3	11°35'28.33"N 78° 7'36.64"E	-2924	1895	8.02	1.08	9.10
AAQ4	11°34'18.64"N 78° 7'25.94"E	-3249	-272	8.58	0.19	8.77
AAQ5	11°33'51.19"N 78° 8'48.57"E	-727	-1130	7.79	0	7.79
AAQ6	11°32'45.33"N 78° 9'50.42"E	1158	-3173	7.52	0	7.52
AAQ7	11°36'22.25"N 78° 9'5.38"E	-214	3564	7.24	0	7.24
AAQ8	11°34'21.46"N 78°10'3.43"E	1552	-189	7.45	0.57	8.02

**TABLE 4.8: INCREMENTAL & RESULTANT GLC OF NO<sub>x</sub>**

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline NO <sub>x</sub> (µg/m <sup>3</sup> )	Incremental value of NO <sub>x</sub> due to mining (µg/m <sup>3</sup> )	Total NO <sub>x</sub> (µg/m <sup>3</sup> )
AAQ1	11°34'29.16"N 78° 9'10.29"E	-64	53	25.17	7.84	33.01
AAQ2	11°34'35.93"N 78° 9'17.61"E	156	262	24.61	7.13	31.74
AAQ3	11°35'28.33"N 78° 7'36.64"E	-2924	1895	22.68	1.01	23.69
AAQ4	11°34'18.64"N 78° 7'25.94"E	-3249	-272	22.95	0	22.95
AAQ5	11°33'51.19"N 78° 8'48.57"E	-727	-1130	23.43	0	23.43
AAQ6	11°32'45.33"N 78° 9'50.42"E	1158	-3173	23.70	0	23.70
AAQ7	11°36'22.25"N 78° 9'5.38"E	-214	3564	23.51	0	23.51
AAQ8	11°34'21.46"N 78°10'3.43"E	1552	-189	24.03	0	24.03

**TABLE 4.9: INCREMENTAL & RESULTANT GLC OF FUGITIVE DUST**

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline Fugitive ( $\mu\text{g}/\text{m}^3$ )	Incremental value of Fugitive due to mining ( $\mu\text{g}/\text{m}^3$ )	Total Fugitive Dust ( $\mu\text{g}/\text{m}^3$ )
AAQ1	11°34'29.16"N 78° 9'10.29"E	-64	53	64.60	23.45	88.05
AAQ2	11°34'35.93"N 78° 9'17.61"E	156	262	64.04	16.19	80.23
AAQ3	11°35'28.33"N 78° 7'36.64"E	-2924	1895	63.67	0	63.67
AAQ4	11°34'18.64"N 78° 7'25.94"E	-3249	-272	62.92	0	62.92
AAQ5	11°33'51.19"N 78° 8'48.57"E	-727	-1130	62.95	0	62.95
AAQ6	11°32'45.33"N 78° 9'50.42"E	1158	-3173	63.50	0	63.50
AAQ7	11°36'22.25"N 78° 9'5.38"E	-214	3564	63.15	0	63.15
AAQ8	11°34'21.46"N 78°10'3.43"E	1552	-189	63.92	0	63.92

From the resultant of cumulative concentration i.e., Background + Incremental Concentration of pollutant in all the receptor locations without effective mitigation measures are still within the prescribed NAAQ limits of 100, 80 & 80  $\mu\text{g}/\text{m}^3$  for PM<sub>10</sub>, SO<sub>2</sub> & NO<sub>x</sub> respectively. By adopting suitable mitigation measures, the pollutant levels in the atmosphere can be further being controlled.

#### 4.3.4. Mitigation Measures

**Drilling** – To control dust at source, wet drilling will be practiced. Where there is a scarcity of water, suitably designed dust extractor will be provided for dry drilling along with dust hood at the mouth of the drill-hole collar.

##### Advantages of Wet Drilling:-

- In this system dust gets suppressed close to its formation. Dust suppression become very effective and the work environment will be improved from the point of occupational comfort and health.
- Due to dust free atmosphere, the life of engine, compressor etc., will be increased.
- The life of drill bit will be increased.
- The rate of penetration of drill will be increased.
- Due to the dust free atmosphere visibility will be improved resulting in safer working conditions.

##### Blasting –

- Establish time of blasting to suit the local conditions and water sprinkling on blasting face
- Avoid blasting i.e., when temperature inversion is likely to occur and strong wind blows towards residential areas
- Controlled blasting include Adoption of suitable explosive charge and short delay detonators, adequate stemming of holes at collar zone and restricting blasting to a particular time of the day i.e. at the time lunch hours, controlled charge per hole as well as charge per round of hole
- Before loading of material water will be sprayed on blasted material
- Dust mask will be provided to the workers and their use will be strictly monitored

##### Haul Road & Transportation –

- Water will be sprinkled on haul roads twice a day to avoid dust generation during transportation
- Transportation of material will be carried out during day time and material will be covered with tarpaulin
- The speed of tippers plying on the haul road will be limited below 20 km/hr to avoid generation of dust.
- Water sprinkling on haul roads & loading points will be carried out twice a day
- Main source of gaseous pollution will be from vehicle used for transportation of mineral; therefore weekly maintenance of machines improves combustion process & makes reduction in the pollution.
- The un-metalled haul roads will be compacted weekly before being put into use.
- Over loading of tippers will be avoided to prevent spillage.
- It will be ensured that all transportation vehicles carry a valid PUC certificate
- Grading of haul roads and service roads to clear accumulation of loose materials

**Green Belt –**

- Planting of trees all along main mine haul roads and regular grading of haul roads will be practiced to prevent the generation of dust due to movement of dumpers/trucks
- Green belt of adequate width will be developed around the project areas

**Occupational Health –**

- Dust mask will be provided to the workers and their use will be strictly monitored
- Annual medical checkups, trainings and campaigns will be arranged to ensure awareness about importance of wearing dust masks among all mine workers & tipper drivers
- Ambient Air Quality Monitoring will be conducted six months once to assess effectiveness of mitigation measures proposed

**4.4 NOISE ENVIRONMENT**

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

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

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

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

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

Where:

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

$A_{e1,2}$  is the excess attenuation due to environmental conditions. Combined effect of all sources can be determined at various locations by logarithmic addition.

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

#### 4.4.1 Anticipated Impact

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

- Source data
- Receptor data
- Attenuation factor

Source data has been computed taking into account of all the machinery and activities used in the mining process. Same has been listed in Table 4-8.

**TABLE 4.10: ACTIVITY AND NOISE LEVEL PRODUCED BY MACHINERY**

Sl.No.	Machinery / Activity	Impact on Environment?	Noise Produced in dB(A) at 50 ft from source*
1	Blasting	Yes	94
2	Jack Hammer	Yes	88
3	Compressor	No	81
4	Excavator	No	85
5	Tipper	No	84
Total Noise Produced			95.8

\*50 feet from source = 15.24 meters

Source: U.S. Department of Transportation (Federal Highway Administration) – Construction Noise Handbook

The total noise to be produced by mining activity is calculated to be 95.8 dB (A). Generally, most mining operations produce noise between 100-109 dB (A). We have considered equipment and operation noise levels (max) to be approx. 109 dB (A) for noise prediction modelling.

**TABLE 4.11: PREDICTED NOISE INCREMENTAL VALUES**

Location ID	N1	N2	N3	N4	N5	N6	N7	N8
Maximum Monitored Value (Day) dB(A)	48.2	48.2	45.4	47.2	46.7	45.8	47.2	46.2
Incremental Value dB(A)	60.1	60.1	29.5	30.1	37.8	29.8	29.2	36.5
Total Predicted Noise level dB(A)	60.4	60.4	45.5	47.3	47.2	45.9	47.3	46.6

The incremental noise level is found within the range of 60.1 dB (A) in Core Zone and 29.2 – 37.8 dB (A) in Buffer zone. The noise level at different receptors in buffer zone is lower due to the distance involved and other topographical features adding to the noise attenuation. The resultant Noise level due to monitored values and calculated values at the receptors are based on the mathematical formula considering attenuation due to Green Belt as 4.9 dB (A) the barrier effect. From the above table, it can be seen that the ambient noise levels at all the locations are within permissible limits of Industrial area (core zone) & Residential area (buffer zone) as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (The Principal Rules were published in the Gazette of India, vide S.O. 123(E), dated 14.2.2000 and subsequently amended vide S.O. 1046(E), dated 22.11.2000, S.O. 1088(E), dated 11.10.2002, S.O. 1569 (E), dated 19.09.2006 and S.O. 50 (E) dated 11.01.2010 under the Environment (Protection) Act, 1986.).

#### 4.4.2 Mitigation measures for Control of Noise

The following noise mitigation measures are proposed for control of Noise

- Usage of sharp drill bits while drilling which will help in reducing noise;
- Secondary blasting will be totally avoided and hydraulic rock breaker will be used for breaking boulders;
- Controlled blasting with proper spacing, burden, stemming and optimum charge/delay will be maintained;
- The blasting will be carried out during favourable atmospheric condition and less human activity timings by using nonelectrical initiation system;
- Proper maintenance, oiling and greasing of machines will be done every week to reduce generation of noise;
- Provision of sound insulated chambers for the workers working on machines (HEMM) producing higher levels of noise;
- Silencers / mufflers will be installed in all machineries;
- Green Belt/Plantation will be developed around the project area and along the haul roads. The plantation minimizes propagation of noise;

- Personal Protective Equipment (PPE) like ear muffs/ear plugs will be provided to the operators of HEMM and persons working near HEMM and their use will be ensured through training and awareness.
- Regular medical check-up and proper training to personnel to create awareness about adverse noise level effects

#### 4.4.3 Ground Vibrations

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

Another impact due to blasting activities is fly rocks. These may fall on the houses or agricultural fields nearby the mining lease area and may cause injury to persons or damage to the structures. Nearest habitation from the clusters is 420 m south. The ground vibrations due to the blasting in the quarry are calculated using the empirical equation.

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

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

Where –

V = peak particle velocity (mm/s)

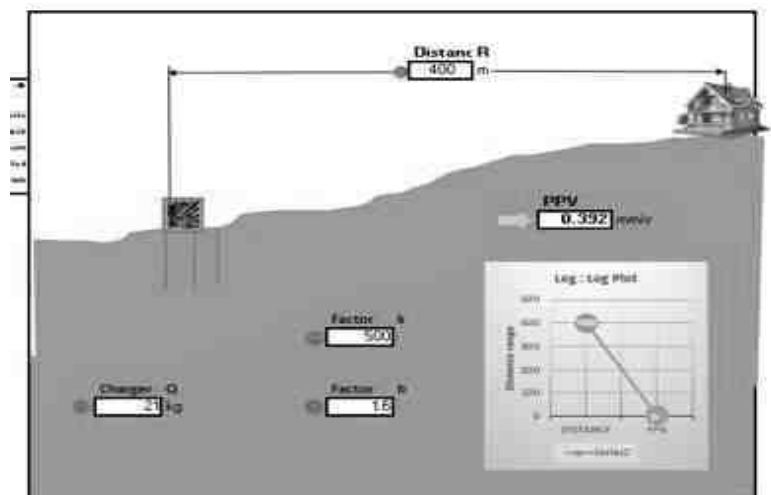
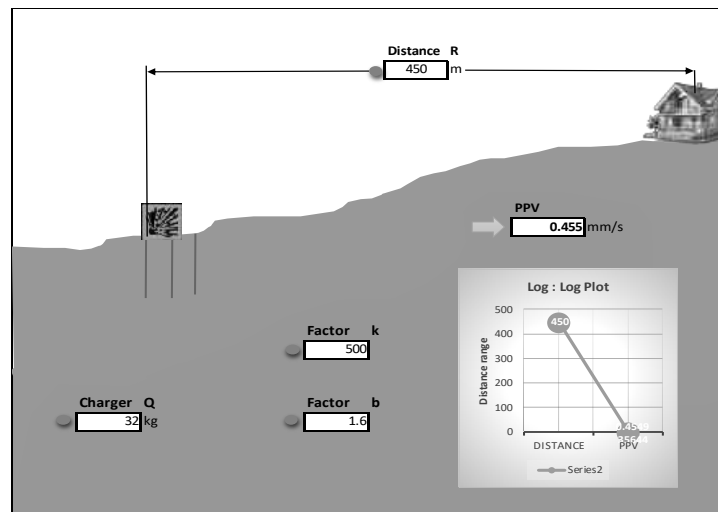
K = site and rock factor constant

Q = maximum instantaneous charge (kg)

B = constant related to the rock and site (usually 1.6)

R = distance from charge (m)

**FIGURE 4.6: GROUND VIBRATION PREDICTION**



From the above graph, the charge per blast of 32 kg is well below the Peak Particle Velocity of 8 mm/s as per Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997. But the proponent ensures that the charge per blast shall be less than 32 kg and carry out blasting twice or thrice a day based on the onsite conditions under the supervision of competent person employed. However, as per statutory requirement control measures will be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting.

#### 4.4.3.1 Mitigation measures for Control of Vibration

- The blasting operations in the cluster quarries are carried out without deep hole drilling and blasting using delay detonators, which reduces the ground vibrations;
- Proper quantity of explosive, suitable stemming materials and appropriate delay system will be adopted to avoid overcharging and for safe blasting;
- Adequate safe distance from blasting will be maintained as per DGMS guidelines;
- Blasting shelter will be provided as per DGMS guidelines;
- Blasting operations will be carried out only during day time;
- The charge per delay will be minimized and preferably more number of delays will be used per blasts;
- During blasting, other activities in the immediate vicinity will be temporarily stopped;
- Drilling parameters like depth, diameter and spacing will be properly designed to give proper blast;
- A fully trained explosives blast man (Mining Mate, Mines Foreman, 2<sup>nd</sup> Class Mines Manager/ 1<sup>st</sup> Class Mines Manager) will be appointed.
- A set of shot firing rules will be drawn up and blasting shall commence outlining the detailed operating procedures that will be followed to ensure that shot firing operations on site take place without endangering the workforce or public.
- Sufficient angular stemming material will be used to confine the explosive force and minimise environmental disturbance caused by venting / misfire.
- The detonators will be connected in a predetermined sequence to ensure that only one charge is detonated at any one time and a NONEL or similar type initiation system will be used.
- The detonation delay sequence shall be designed so as to ensure that firing of the holes is in the direction of free faces so as to minimise vibration effects.
- Appropriate blasting techniques shall be adopted such that the predicted peak particle velocity shall not exceed 8 Hz.
- Vibration monitoring will be carried out every 6 months to check the efficacy of blasting practices

## 4.5 ECOLOGY AND BIODIVERSITY

### 4.5.1 Impact on Ecology and Biodiversity

The impact on biodiversity is difficult to quantify because of its diverse and dynamic characteristics, mining activities generally result in the deforestation, land degradation, water, air and noise pollution which directly or indirectly affect the faunal and floral status of the project area. However, occurrence and magnitude of these impacts are entirely dependent upon the project location, mode of operation and technology involved. Impact prediction is the main footstep in impact evaluation and identifies project actions that are likely to bring significant changes in the project environment. The present study was carried out to predict the likely impacts of the proposed project at Panamarathupatti village and the surrounding environment with special reference to biological attributes covering habitats/ecosystems and associated biodiversity.

The proposed mining activities include removal of some scattered bushes and other thorny species. Although impacts on key habitat elements will occur on a local scale, but on a regional scale they would not be critical for the life cycle needs of the species observed or expected. More over during conceptual stage, the mined out areas on the top bench will be re-vegetated by planting local /native species and lower benches will be converted into rainwater harvesting structure following completion of mining activities, which will replace habitat resources for fauna species in this locality over a longer time. Existing roads will be used; new roads will not be constructed to reduce impact on flora.

Wild life is not commonly found in the project area and its immediate environs because of lack of vegetal cover and surface water. Except few domestic animals, reptiles, hares and some common birds are observed in the study area.

- I. None of the plants will be cut during operational phase of the mine.
- II. There shall be negligible air emissions or effluents from the project site. During loading the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly.

- III. Most of the land in the buffer area is undulating terrain with crop lands, grass patches and small shrubs. Hence, there will be no effect on flora of the region

#### 4.5.2 Mitigation measures

Keeping all this in mind the mitigations have been suggested under environmental management plan. With the understanding of the role of plant species as bio-filter to control air pollution, appropriate plant species (mainly tree species) have been suggested conceding the area/site requirements and needed performance of specific species. The details of year wise proposed plantation program are given in Table 4.13.

The main objective of the green belt is to provide a barrier between the source of pollution and the surrounding areas

In order to compensate the loss of vegetation cover, it is suggested to carry out afforestation program mainly in proposed areas falls in the cluster earmarked for plantation program as per Approved Mining Plan in different phases. This habitat improvement program would ensure the faunal species to re-colonize and improve the abundance status in the core zone.

The objectives of the green belt cover will cover the following:

- Noise abatement
- Ecological restoration
- Aesthetic, biological and visual improvement of area due to improved vegetative and plantations cover.

##### 4.5.2.2.1. Species Recommendation for Plantation granted in the district

Following points have been considered while recommending the species for plantation:

- Natural growth of existing species and survival rate of various species.
- Suitability of a particular plant species for a particular type of area.
- Creating of biodiversity.
- Fast growing, thick canopy copy, perennial and evergreen large leaf area.
- Efficient in absorbing pollutants without major effects of natural growth.
- The following species may be considering primary for plantation best suited for the prevailing climate condition in the area.

**TABLE 4.12: RECOMMENDED SPECIES TO PLANT IN THE GREENBELT DEVELOPMENT PROGRAMME**

Sl.No	Name of the plant (Botanical)	Family Name	Common Name	Habit
1	<i>Azadirachta indica</i>	Meliaceae	Neem, Vembu	Tree
2	<i>Albiziafalcataria</i>	Fabaceae	Tamarind, Puliymaram	Tree
3	<i>Polyalthialongifolia</i>	Annonaceae	Kattumaram	Tree
4	<i>Borassus Flabellifer</i>	Arecaceae	Palmyra Palm	Tree



The approach road and village road has been identified to be utilized for subsequent Afforestation. However, the afforestation should always be carried out in a systematic and scientific manner. Regional trees like Neem, Pongamia Pinnata and Naval trees will be planted along the Lease boundary and avenue plantation at a rate of 30 trees per annum with interval 3m in between. The rate of survival expected to be 80% in this area. Afforestation Plan is given in Table No.4.1 and preparation of green belt details are given in Table No.4.2.

**TABLE 4.13: GREENBELT DEVELOPMENT PLAN**

<b>Proposal- P1</b>					
Year	No. of trees proposed to be planted	Survival %	Area to be covered sq.m	Name of the species	No. of trees expected to be grown
I	600	80%	Approach Road and nearby periphery of the village Road after consulting the local Panchayat authority and Agriculture Experts	Neem, Pongamia Pinnata, Naval Trees etc.,	500
<b>Proposal- P2</b>					
Year	No. of trees proposed to be planted	Survival %	Area to be covered sq.m	Name of the species	No. of trees expected to be grown
I	600	80%	Approach Road and nearby periphery of the village Road after consulting the local Panchayat authority and Agriculture Experts	Neem, Pongamia Pinnata, Naval Trees etc.,	500

**TABLE 4.14: BUDGET FOR GREENBELT DEVELOPMENT PLAN**

<b>Proposal -P1</b>							
Activity	Year					Cost	Total Cost
	I	II	III	IV	V		
Plantation in Nos	600	-	-	-	-		
Plantation cost & Maintenance (Rs.) (Manuring, Fertilizer, Insecticide application, Watchman etc.)	Rs.1,00,000					@ 200 Rs/ Saplings	Rs. 1,20,000
Wire Fencing for 400 Mtrs length	1,200,00					@ 300Rs per meter	Rs 1,20,000
Garland drains with settling traps for 270 mtrs length	81,000					@ 300Rs per meter	Rs 81,000
<b>TOTAL</b>							<b>Rs 3,21,000</b>
<b>Proposal -P2</b>							
Activity	Year					Cost	Total Cost
	I	II	III	IV	V		
Plantation in Nos	600	-	-	-	-		
Plantation cost & Maintenance (Rs.) (Manuring, Fertilizer, Insecticide application, Watchman etc.)	Rs.1,00,000					@ 200 Rs/ Saplings	Rs. 1,20,000
Wire Fencing for 440 Mtrs length	1,200,00					@ 300Rs per meter	Rs 1,32,000
Garland drains with settling traps for 260 mtrs length	81,000					@ 300Rs per meter	Rs 78,000
<b>TOTAL</b>							<b>Rs 3,30,000</b>

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

### 4.5.3. Anticipated Impact on Fauna

- There is no Wildlife Sanctuary and Biosphere Reserve within 10 km radius of the project site.
- No rare, endemic & endangered species are reported in the buffer zone. However, during the course of mining, the management will practice scientific method of mining with proper Environmental Management Plan including pollution control measures especially for air and noise, to avoid any adverse impact on the surrounding wildlife.
- Fencing around the mine lease area to restrict the entry of stray animals
- Green belt development will be carried out which will help in minimizing adverse impact on the flora found in the area.

#### 4.5.3.1. Measures for protection and conservation of wildlife species

Checks and controls on the movement of vehicles in and out of the mine.

- Topsoil has a large number of seeds of native plant species in the mining area.
- Topsoil will be used for restoration and suitable surface for planted seedlings.
- Undertaking mitigative measures for conducive environment to the flora and fauna in consultation with Forest Department.
- Dust suppression system will be installed within mine and periphery of mine
- Plantation around mine area will help in creating habitats for small faunal species and to create better environment for various fauna. Creating and developing awareness for nature and wildlife in the adjoining villages.

#### 4.5.3.2. Mitigation Measures

- Suitable plan for conservation of Schedule-I Species have prepared and necessary fund for implement for the same will be made.
- All the preventive measures will be taken for growth & development of fauna.
- Creating and development awareness for nature and wildlife in the adjoin villages.
- The workers shall be trained to not harm any wildlife, should it come near the project site. No work shall be carried out after 6.00 pm.

### 4.5.4. Impact on Aquatic Biodiversity

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

### 4.5.5. Impact Assessment on Biological Environment

This chapter highlights the various impacts on ecology and biodiversity due to mining activity. It addresses the baseline data and its effect on flora and wild life fauna especially threatened species (Critically Endangered, Endangered, and Vulnerable) in core mining lease area. A detail of impact and assessments was mentioned in Table No 4.15.

**TABLE 4.15: ECOLOGICAL IMPACT ASSESSMENTS**

SI.Nos	Attributes	Assessment
1	Proximity to national park/wildlife sanctuary/reserve forest /mangroves/ coastline/estuary/sea	No National park/ Wildlife Sanctuary/ Reserve forest/ Mangroves/ Coastline/Estuary/Sea within the radius of 10Km.
2	Proposed mining project impact surface water quality that also provide water to wildlife	'NO' 'scheduled or threatened wildlife animal sighted regularly core in core area.
3	Located near an area populated by rare or endangered species	No endangered, critically endangered, vulnerable species sighted in core mining lease area.
4	Proposed project restricts access to waterholes for wildlife	'NO'
5	Project likely to affect migration routes	'NO' 'migration route observed during monitoring period.
6	Proposed mining project increase siltation that would affect nearby biodiversity area.	Surface runoff management such as drains is constructed properly so there will be no siltation affect in nearby mining area.

7	Risk of fall/slip or cause death to wild animals due to project activities	'NO'
8	Activities of the project affects the breeding/nesting sites of birds and animals	No breeding and nesting site was identified in mining lease site. The fauna sighted mostly migrated from buffer area.
9	Mining project effect the forest based livelihood/ any specific forest product on which local livelihood depended	'NO'
10	The project release effluents into a water body that also supplies water to a wildlife	No water body near to core zone so chances of water become polluted is low.
11	The project likely to affect wetlands, Fish breeding grounds, marine ecology	'NO' Wetland was not present in near core Mining lease area. No breeding and nesting ground present in core mining area.
12	Project likely to affect flora of an area, which have medicinal value	'NO'
13	Forestland is to be diverted, has carbon high sequestration	'NO' There was no forest land diverted.

\*(Format Source: EIA Guidance Manual-Mining and Minerals, 2010)

#### 4.5.6. Anticipated Environmental Impacts and Mitigation Measures

This chapter highlights the various possible impacts on ecology and biodiversity due to mining activity. It addresses the rare, occasional, periodic, regular, frequent on flora and wild life fauna especially threatened species (Critically Endangered, Endangered, and Vulnerable) in core mining lease area. For quantifying the environmental risk and prediction following method were applied. Details anticipated issues for next operation period were summarized with possible impacts and mitigation measures to meet out the problem (Table No.4.16).

**TABLE 4.16: ANTICIPATED IMPACT OF ECOLOGY AND BIODIVERSITY**

Sl. No	Aspect Description	Likely Impacts on Ecology and Biodiversity (EB)	Impact Consequence - Probability Description / Justification	Significance	Mitigation Measures
<b>Pre-Mining Phase</b>					
1	Uprooting of vegetation of lease area	Site specific loss of common floral diversity (Direct impact)	Site possesses common floral (not trees) species. Clearance of these species will not result in loss of flora	Less severe	No immediate action required. However Greenbelt /plantation will be developed in project site and in periphery of the project boundary, which will improve flora and fauna diversity of the project area.
		Site specific loss of associated faunal diversity (Partial impact)	Site supports only common species, Which use wide variety of habitats of the buffer zone reserve forest area. So there is no threat of faunal diversity.		
		-Loss of Habitat (Direct impact)	Site does not form Unique / critical habitat structure for unique flora or fauna.		
<b>Mining phase</b>					
2	Excavation of mineral using machine and labours, Transportation activities will generate noise.	Site-specific disturbance to normal faunal movements at the site due to noise.(Partial impact)	Site does not form unique / critical habitat structure for unique flora or fauna.	Less severe	Mining activity should not be operated after 5PM. Excavation of dump and transportation work should stop before 7PM.

3	Vehicular Movement for transportation of materials will result in generation of dust (SPM) due to haul roads and emission of SO <sub>2</sub> ,NO <sub>2</sub> ,CO etc.	Impact on surrounding agriculture and associated fauna due to deposition of dust and Emission of CO. (Indirect impact)	Impact is less as the agricultural land far from core area.	Less severe	All vehicles will be certified for appropriate Emission levels. More plantation have been suggested Upgrade the vehicles with alternative fuel such biodiesel, methanol and biofuel around the mining area.
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## 4.6 SOCIO ECONOMIC

### 4.6.1 Anticipated Impact

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

### 4.6.2 Mitigation Measures

- Good maintenance practices will be adopted for plant machinery and equipment, which will help to avert potential noise problems
- Green belt will be developed in and around the project site as per Central Pollution Control Board (CPCB) guidelines
- Air pollution control measure will be taken to minimize the environmental impact within the core zone
- For the safety of workers, personal protective appliances like hand gloves, helmets, safety shoes, goggles, aprons, nose masks and ear protecting devices will be provided as per mines act and rules
- Benefit to the State and the Central governments through financial revenues by way of royalty, tax, duties, etc., from this project directly and indirectly
- From above details, the quarry operations will have highly beneficial positive impact in the area

## 4.7 OCCUPATIONAL HEALTH AND SAFETY

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

- Respiratory hazards
- Noise
- Physical hazards
- Explosive storage and handling

### 4.7.1 Respiratory Hazards

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

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

### 4.7.2 Noise

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

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

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### 4.7.3 Physical Hazards

The following measures are proposed for control of physical hazards

- Specific personnel training on work-site safety management will be taken up;
- Work site assessment will be done by rock scaling of each surface exposed to workers to prevent accidental rock falling and / or landslide, especially after blasting activities;
- Natural barriers, temporary railing, or specific danger signals will be provided along rock benches or other pit areas where work is performed at heights more than 2m from ground level;
- Maintenance of yards, roads and footpaths, providing sufficient water drainage and preventing slippery surfaces with an all-weather surface, such as coarse gravel will be taken up

### 4.7.4 Occupational Health Survey

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

- General physical tests
- Audiometric tests
- Full chest, X-ray, Lung function tests, Spiro metric tests
- Periodic medical examination – yearly
- Lung function test – yearly, those who are exposed to dust
- Eye test

Essential medicines will be provided at the site. The medicines and other test facilities will be provided at free of cost. The first aid box will be made available at the mine for immediate treatment.

First aid training will be imparted to the selected employees regularly. The lists of first aid trained members shall be displayed at strategic places.

## 4.8 MINE WASTE MANAGEMENT

No waste is anticipating due to the proposed quarry. A quantity of 5,115 m<sup>3</sup> of topsoil is proposed to be excavated. This topsoil quantity shall be excavated and dumped separately at 10m Safety barrier Zone and subsequently will be utilized in spreading over reclaimed areas for plantation during mine closure stage. Precautions will be taken to limit the height of the topsoil dump from 3 to 4 meters in order to preserve its fertility and shelf life. It will be suitably protected from soil erosion and infertility by constructing a retaining wall at the foot wall side and by planting fodder grass and leguminous plants during temporary storage.

## 4.9 MINE CLOSURE

Mine closure plan is the most important environmental requirement in mining projects. The mine closure plan should cover technical, environmental, social, legal and financial aspects dealing with progressive and post closure activities. The closure operation is a continuous series of activities starting from the decommissioning of the project. Therefore, progressive mine closure plan should be specifically dealt with in the mining plan and is to be reviewed along with mining plan. As progressive mine closure is a continuous series of activities, it is obvious that the proposals of scientific mining have included most of the activities to be included in the closure plan. While formulating the closure objectives for the site, it is important to consider the existing or the pre-mining land use of the site; and how the operation will affect this activity.

The primary aim is to ensure that the following broad objectives along with the abandonment of the mine can be successfully achieved:

- To create a productive and sustainable after-use for the site, acceptable to mine owners, regulatory agencies, and the public
- To protect public health and safety of the surrounding habitation
- To minimize environmental damage
- To conserve valuable attributes and aesthetics
- To overcome adverse socio-economic impacts.

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#### 4.9.1 Mine Closure Criteria

The criteria involved in mine closure are discussed below:

##### 4.9.1.1 Physical Stability

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

##### 4.9.1.2 Chemical Stability

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

##### 4.9.1.3 Biological Stability

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

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

- Where the nutrient level of spread topsoil is lower than material in-situ e.g., for development of social forestry
- Where it is intended to grow plants with a higher nutrient requirement than those occurring naturally e.g., planning for agriculture
- Where it is desirable to get a quick growth response from the native flora during those times when moisture is not a limiting factor e.g., development of green barriers

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

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## CHAPTER- 5: ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

### 5.0 INTRODUCTION

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

### 5.1 FACTORS BEHIND THE SELECTION OF PROJECT SITE

Panamarathupatti Rough Stone Quarry Project at Panamarathupatti Village is a mining project for excavation of Rough stone, which is mineral specific and site specific. The proposed mining lease area has following advantages:-

- The mineral deposit occurs in a non-forest area.
- There is no habitation within the project area; hence no R & R issues exist.
- There is no river, stream, nallah and water bodies in the applied mine lease area.
- Availability of skilled, semi-skilled and unskilled workers in this region.
- All the basic amenities such as medical, firefighting, education, transportation, communication and infrastructural facilities are well connected and accessible.
- The mining operations will not intersect the ground water level. Hence, no impact on ground water environment.
- Study area falls in seismic zone – III, there is no major history of landslides, earthquake, subsidence etc., recorded in the past history.

### 5.2 ANALYSIS OF ALTERNATIVE SITE

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

### 5.3 FACTORS BEHIND SELECTION OF PROPOSED TECHNOLOGY

Mechanized open cast mining operation with drilling and blasting method will be used to extract Rough Stone in the area. The applied mining lease area has following advantages –

- There is practically very thin layer of topsoil cover and no overburden; and the Charnockite can be extracted by small scale drilling (5ft drill holes) and blasting.
- As the mineral deposition is homogeneous and batholith formation, therefore opencast method of working out deposit is preferred over underground method
- There is lesser chance of subsidence in case of opencast mining.
- The material will be loaded with the help of excavators into dumpers / trippers and transported to the needy customers.
- The production levels projected in the mining plan requires mechanization to cater these volumes. This technology is economically viable.
- Blasting and availability of drills along with controlled blasting technology gives desired fragmentation so that the mineral is handled safely and used without secondary blasting.
- Availability of power resources in the region makes mechanization a preferred technology over manual method.
- Human resource is easily available from the nearby villages because of presence of other mines in the area.

### 5.4 ANALYSIS OF ALTERNATIVE TECHNOLOGY

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

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## CHAPTER-6 ENVIRONMENTAL MONITORING PROGRAMME

### 6.0 GENERAL

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

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

### 6.1 METHODOLOGY OF MONITORING MECHANISM

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

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

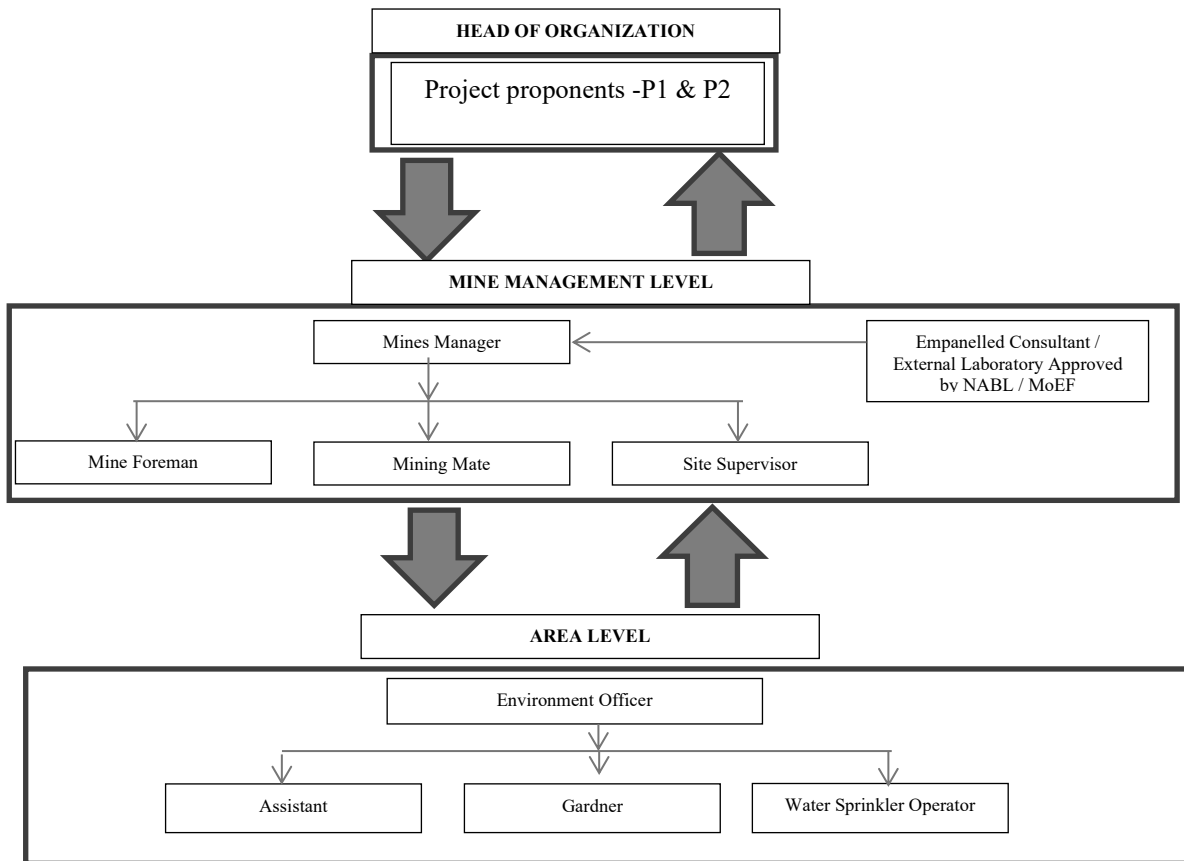
- Implementation of pollution control measures
- Monitoring programme implementation
- Post-plantation care
- To check the efficiency of pollution control measures taken
- Any other activity as may be related to environment
- Seeking expert's advice when needed.

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

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

The sampling and analysis of the environmental attributes will be as per the guidelines of Central Pollution Control Board (CPCB)/Ministry of Environment, Forest and Climate Change (MoEF& CC).



**FIGURE 6.1: ENVIRONMENTAL MONITORING CELL FOR INDIVIDUAL LEASES**

## 6.2 IMPLEMENTATION SCHEDULE OF MITIGATION MEASURES

The mitigation measures proposed in Chapter-4 will be implemented so as to reduce the impact on the environment due to the operations of the proposed project. Implementation schedule of mitigation measures is given in Table 6.1.

**TABLE 6.1 IMPLEMENTATION SCHEDULE**

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

### 6.3 MONITORING SCHEDULE AND FREQUENCY

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

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

- Air quality;
- Water and wastewater quality;
- Noise levels;
- Soil Quality; and
- Greenbelt Development

The details of monitoring is detailed in Table 6.2

**TABLE 6.2: PROPOSED MONITORING SCHEDULE**

S. No.	Environment Attributes	Location	Monitoring		Parameters
			Duration	Frequency	
1	Air Quality	2 Locations (1 Core & 1 Buffer)	24 hours	Once in 6 months	Fugitive Dust, PM <sub>2.5</sub> , PM <sub>10</sub> , SO <sub>2</sub> and NO <sub>x</sub> .
2	Meteorology	At mine site before start of Air Quality Monitoring & IMD Secondary Data	Hourly / Daily	Continuous online monitoring	Wind speed, Wind direction, Temperature, Relative humidity and Rainfall
3	Water Quality Monitoring	2 Locations (1SW & 1 GW)	-	Once in 6 months	Parameters specified under IS:10500, 1993 & CPCB Norms
4	Hydrology	Water level in open wells in buffer zone around 1 km at specific wells	-	Once in 6 months	Depth in bgl
5	Noise	2 Locations (1 Core & 1 Buffer)	Hourly – 1 Day	Once in 6 months	Leq, Lmax, Lmin, Leq Day & Leq Night
6	Vibration	At the nearest habitation (in case of reporting)	–	During blasting Operation	Peak Particle Velocity
7	Soil	2 Locations (1 Core & 1 Buffer)	–	Once in six months	Physical and Chemical Characteristics
8	Greenbelt	Within the Project Area	Daily	Monthly	Maintenance

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

### 6.4 BUDGETARY PROVISION FOR EMP

The cost in respect of monitoring of environmental attributes, parameter to be monitored, sampling/monitoring locations with frequency and cost provision against each is shown in Table 6.3. Monitoring work will be outsourced to external laboratory approved by NABL / MoEF.

The proposed capital cost for Environmental Monitoring Programme is Rs 76,000/- and the recurring cost is Rs 76,000/- per annum.

**TABLE 6.3 ENVIRONMENT MONITORING BUDGET For P1& P2**

Sl.No.	Parameter	Capital Cost	Recurring Cost per annum
1	Air Quality	Rs. 76,000/-	Rs. 76,000/-
2	Meteorology		
3	Water Quality		
4	Hydrology		
5	Soil Quality		
6	Noise Quality		
7	Vibration Study		
<b>Total</b>		<b>Rs 76,000/-</b>	<b>Rs 76,000/-</b>

### 6.5 REPORTING SCHEDULES OF MONITORED DATA.

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

Periodical reports to be submitted to:-

- MoEF& CC – Half yearly status report
- TNPCB - Half yearly status report
- Department of Geology and Mining: quarterly, half yearly annual reports

Besides the Mines Manager/Agent will submit the periodical reports to –

- Director of mines safety,
- Labour enforcement officer,
- Controller of explosives as per the norms stipulated by the department.

## CHAPTER-7-ADDITIONAL STUDIES

### 7.0 GENERAL

The following Additional Studies were done as per items identified by project proponent and items identified by regulatory authority. And items identified by public and other stakeholders will be incorporated after Public Hearing.

- Public Consultation
- Risk Assessment
- Disaster Management Plan
- Cumulative Impact Study
- Plastic Waste Management

### 7.1 PUBLIC CONSULTATION

Application to The Member Secretary of the Tamil Nadu Pollution Control Board (TNPCB) to conduct Public Hearing in a systematic, time bound and transparent manner ensuring widest possible public participation at the project site or in its close proximity in the district is submitted along with this Draft EIA / EMP Report and the outcome of public hearing proceedings will be detailed in the Final EIA/EMP Report.

### 7.2 RISK ASSESSMENT

The methodology for the risk assessment has been based on the specific risk assessment guidance issued by the Directorate General of Mine Safety (DGMS), Dhanbad, vide Circular No.13 of 2002, dated 31<sup>st</sup> December, 2002. The DGMS risk assessment process is intended to identify existing and probable hazards in the work environment and all operations and assess the risk levels of those hazards in order to prioritize those that need immediate attention. Further, mechanisms responsible for these hazards are identified and their control measures, set to timetable are recorded along with pinpointed responsibilities.

The whole quarry operation will be carried out under the direction of a Qualified Competent Mine Manager holding certificate of competency to manage a metalliferous mine granted by the DGMS, Dhanbad. Risk Assessment is all about prevention of accidents and to take necessary steps to prevent it from happening.

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

**TABLE 7.1 RISK ASSESSMENT& CONTROL MEASURES**

S. No	Risk factors	Causes of risk	Control measures
1	Accidents due to explosives and heavy mining machineries	Improper handling and unsafe working practice	<ul style="list-style-type: none"> <li>▪ All safety precautions and provisions of Mine Act, 1952, Metalliferous Mines Regulation, 1961 and Mines Rules, 1955 will be strictly followed during all mining operations;</li> <li>▪ Workers will be sent to the Training in the nearby Group Vocational Training Centre</li> <li>▪ Entry of unauthorized persons will be prohibited;</li> <li>▪ Fire-fighting and first-aid provisions in the mine office complex and mining area;</li> <li>▪ Provisions of all the safety appliances such as safety boot, helmets, goggles etc. will be made available to the employees and regular check for their use</li> <li>▪ Working of quarry, as per approved plans and regularly updating the mine plans;</li> <li>▪ Cleaning of mine faces on daily basis shall be daily done in order to avoid any overhang or undercut;</li> <li>▪ Handling of explosives, charging and firing shall be carried out by competent persons only under the supervision of a Mine Manager;</li> <li>▪ Maintenance and testing of all mining equipment as per manufacturer 's guidelines.</li> </ul>

2	Drilling	<p>Improper and unsafe practices</p> <p>Due to high pressure of compressed air, hoses may burst</p> <p>Drill Rod may break</p>	<ul style="list-style-type: none"> <li>▪ Safe operating procedure established for drilling (SOP) will be strictly followed.</li> <li>▪ Only trained operators will be deployed.</li> <li>▪ No drilling shall be commenced in an area where shots have been fired until the blaster/blasting foreman has made a thorough Examination of all places,</li> <li>▪ Drilling shall not be carried on simultaneously on the benches at places directly one above the other.</li> <li>▪ Periodical preventive maintenance and replacement of worn-out accessories in the compressor and drill equipment as per operator manual.</li> <li>▪ All drills unit shall be provided with wet drilling shall be maintained in efficient working in condition.</li> <li>▪ Operator shall regularly use all the personal protective equipment.</li> </ul>
4	Blasting	<p>Fly rock, ground vibration, Noise and dust.</p> <p>Improper charging, stemming &amp; Blasting/ fining of blast holes</p> <p>Vibration due to movement of vehicles</p>	<ul style="list-style-type: none"> <li>▪ Restrict maximum charge per delay as per regulations and by optimum blast hole pattern, vibrations will be controlled within the permissible limit and blasting can be conducted safely.</li> <li>▪ SOP for Charging, Stemming &amp; Blasting/Firing of Blast Holes will be followed by blasting crew during initial stage of operation</li> <li>▪ Shots are fired during daytime only.</li> <li>▪ All holes charged on any one day shall be fired on the same day.</li> <li>▪ The danger zone will be distinctly demarcated (by means of red flags)</li> </ul>
5	Transportation	<p>Potential hazards and unsafe workings contributing to accident and injuries</p> <p>Overloading of material</p> <p>While reversal &amp; overtaking of vehicle</p> <p>Operator of truck leaving his cabin when it is loaded.</p>	<ul style="list-style-type: none"> <li>▪ Before commencing work, drivers personally check the dumper/truck/tipper for oil(s), fuel and water levels, tyre inflation, general cleanliness and inspect the brakes, steering system, warning devices including automatically operated audio visual reversing alarm, rear view mirrors, side indicator lights etc., are in good condition.</li> <li>▪ Not allow any unauthorized person to ride on the vehicle nor allow any unauthorized person to operate the vehicle.</li> <li>▪ Concave mirrors should be kept at all corners</li> <li>▪ All vehicles should be fitted with reverse horn with one spotter at every tipping point</li> <li>▪ Loading according to the vehicle capacity</li> <li>▪ Periodical maintenance of vehicles as per operator manual</li> </ul>
6	Natural calamities	Unexpected happenings	<ul style="list-style-type: none"> <li>▪ Escape Routes will be provided to prevent inundation of storm water</li> <li>▪ Fire Extinguishers &amp; Sand Buckets</li> </ul>
7	Failure of Mine Benches and Pit Slope	Slope geometry, Geological structure	<ul style="list-style-type: none"> <li>▪ Ultimate or over all pit slope shall be below 60° and each bench height shall be 5m height.</li> </ul>

Source: Analysed and Proposed by FAE & EC

### 7.3 DISASTER MANAGEMENT PLAN

The Disaster Management Plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities.

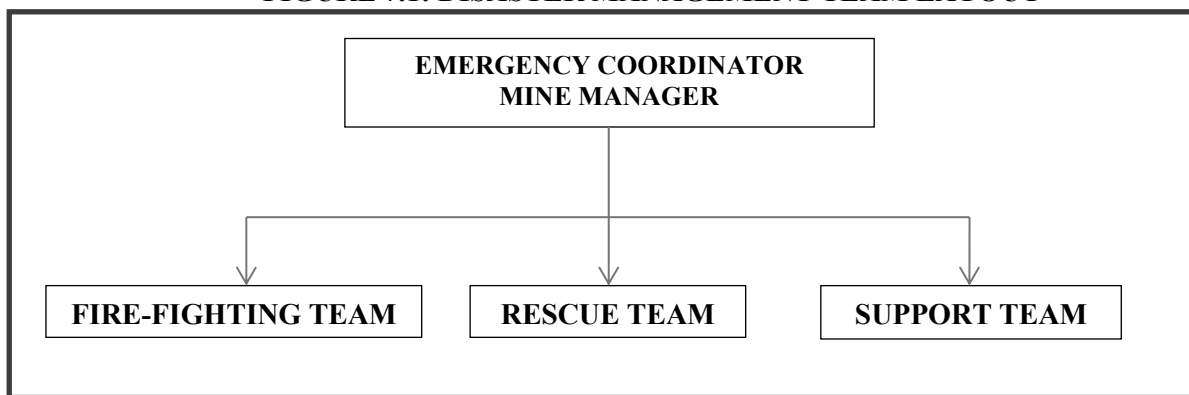
The objective of the Disaster Management Plan is to make use of the combined resources of the mine and the outside services to achieve the following:

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

It is to optimize operational efficiency to rescue rehabilitation and render medical help and to restore normalcy. To tackle the consequences of a major emergency inside the mines or immediate vicinity of the mines, a Disaster Management Plan must be formulated, and this planned emergency document is called “Disaster Management Plan”.

In case a disaster takes place, despite preventive actions, disaster management will have to be done in line with the descriptions below. There is an organization proposed for dealing with the emergency situations and the coordination among key personnel and their team has been shown in Fig 7.1.

**FIGURE 7.1: DISASTER MANAGEMENT TEAM LAYOUT**



The emergency organization shall be headed by emergency coordinator who will be qualified competent mine manager. In his absence senior most people available at the mine shall be emergency coordinator till arrival of mine manager. There would be three teams for taking care of emergency situations – Fire-Fighting Team, Rescue Team and Support Team. The proposed composition of the teams is given in Table 7.2.

**TABLE 7.2: PROPOSED TEAMS TO DEAL WITH EMERGENCY SITUATION**

DESIGNATION	QUALIFICATION
<b>FIRE-FIGHTING TEAM</b>	
Team Leader/ Emergency Coordinator (EC)	Mines Manager
Team Member	Mines Foreman
Team Member	Mining Mate
<b>RESCUE TEAM</b>	
Team Leader/ Emergency Coordinator (EC)	Mines Manager
Team Member/ Incident Controller (IC)	Environment Officer
Team Member	Mining Foreman
<b>SUPPORT TEAM</b>	
Team Leader/ Emergency Coordinator (EC)	Mines Manager
Assistant Team Leader	Environment Officer
Team Member	Mining Mate
Security Team Leader/ Emergency Security Controller	Mines Foreman

Once the mine becomes operational, the above table along with names of personnel will be prepared and made easily available to workers. A mobile communication network and wireless shall connect Mine Emergency Control Room (MECR) to control various departments of the mine, fire station and neighbouring industrial units/mines.

#### **Roles and responsibilities of emergency team –**

- (a) Emergency coordinator (EC)

The emergency coordinator shall assume absolute control of site and shall be located at MECR.

(b) Incident controller (IC)

Incident controller shall be a person who shall go to the scene of emergency and supervise the action plan to overcome or contain the emergency. Shift supervisor or Environmental Officer shall assume the charge of IC.

(c) Communication and advisory team

The advisory and communication team shall consist of heads of Mining Departments i.e., Mines Manager

(d) Roll call coordinator

The Mine Foreman shall be Roll Call Coordinator. The roll call coordinator will conduct the roll call and will evacuate the mine personnel to assembly point. His prime function shall be to account for all personnel on duty.

(e) Search and rescue team

There shall be a group of people trained and equipped to carryout rescue operation of trapped personnel. The people trained in first aid and fire-fighting shall be included in search and rescue team.

(f) Emergency security controller

Emergency Security Controller shall be senior most security person located at main gate office and directing the outside agencies e.g. fire brigade, police, doctor and media men etc.,

### Emergency control procedure –

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

- On site fire crew led by a fireman will arrive at the site of incident with fire foam tenders and necessary equipment.
- Emergency security controller will commence his role from main gate office
- Incident controller shall rush to the site of emergency and with the help of rescue team and will start handling the emergency.
- Site main controller will arrive at MECR with members of his advisory and communication team and will assume absolute control of the site.
  - He will receive information continuously from incident controller and give decisions and directions to:
    - Incident controller
    - Mine control rooms
    - Emergency security controller

### Proposed fire extinguishers at different locations –

The following type of fire extinguishers has been proposed at strategic locations within the mine.

**TABLE 7.3: PROPOSED FIRE EXTINGUISHERS AT DIFFERENT LOCATIONS**

LOCATION	TYPE OF FIRE EXTINGUISHERS
Electrical Equipment's	CO <sub>2</sub> type, foam type, dry chemical powder type
Fuel Storage Area	CO <sub>2</sub> type, foam type, dry chemical powder type, Sand bucket
Office Area	Dry chemical type, foam type

### Alarm system to be followed during disaster –

On receiving the message of disaster from Site Controller, fire-fighting team, the mine control room attendant will sound siren wailing for 5 minutes. Incident controller will arrange to broadcast disaster message through public address system. On receiving the message of "Emergency Over" from Incident Controller the emergency control room attendant will give "All Clear Signal", by sounding alarm straight for 2 minutes.

The features of alarm system will be explained to one and all to avoid panic or misunderstanding during disaster.

In order to prevent or take care of hazard / disasters if any the following control measures have been adopted.

- All safety precautions and provisions of Metalliferous Mines Regulations (MMR), 1961 is strictly followed during all mining operations.
- Observance of all safety precautions for blasting and storage of explosives as per MMR 1961.
- Entry of unauthorized persons into mine & allied areas is completely prohibited.
- Fire-fighting and first-aid provisions in the mines office complex and mining area are provided.
- Provisions of all the safety appliances such as safety boot, helmets, goggles, dust masks, ear plugs and ear muffs etc. are made available to the employees and the use of same is strictly adhered to through regular monitoring.
- Training and refresher courses for all the employees working in hazardous premises.
- Working of mine, as per approved plans and regularly updating the mine plans.
- Cleaning of mine faces is regularly done.
- Handling of explosives, charging and blasting are carried out only by qualified persons following SOP.
- Checking and regular maintenance of garland drains and earthen bunds to avoid any inflow of surface water in the mine pit.
- Provision of high-capacity standby pumps with generator sets with enough quantity of diesel for emergency pumping especially during monsoon.
- A blasting SIREN is used at the time of blasting for audio signal.
- Before blasting and after blasting, red and green flags are displayed as visual signals.
- Warning notice boards indicating the time of blasting and NOT TO TRESPASS are displayed at prominent places.
- Regular maintenance and testing of all mining equipment were carried out as per manufacturer's guidelines.

#### 7.4 CUMULATIVE IMPACT STUDY

There are 1 existing quarry and 2 proposed quarries within a radius of 500 meters from the proposed project area. The list of quarries is as below –

**TABLE 7.4: LIST OF QUARRIES IN 500 M RADIUS FROM PROPOSAL**

PROPOSED QUARRY				
CODE	Name of the Proponent and Address	S.F. Nos	Extent	Status
P1	M/s. Royal Stones, 1.Thiru.M.Bharanitharan (Partner) 2.Thiru.P.Dharmalingam (Partner) 207A, Chinnammal Building, No.102-A, Peramanur Main Road, Four Roads, Salem - 636 007	1/7 (Part-7)	1.00.0 ha	Received for TOR Vide LrNo.SEIAA- TN/F.NO.7887/SEAC/ ToR-868//2020 Dated:12.03.2021 ToR Amendment: File No. 11175, ToR Identification: TO24B0108TN5326611A
P2	Thiru. P. Siva Kumar, S/o. S.Panneerselvam, No.268/8, 2nd Cross Street, Kattur, Alagapuram, Salem District – 636 016.	1/7 (Part-11)	1.00.0 ha	Received for TOR Vide Lr No. SEIAA- TN/F.No.9500/SEAC/ToR- 1308/2022 Dated: 07.12.2022
<b>TOTAL</b>			<b>2.00.0 ha</b>	
EXISTING QUARRY				
CODE	Name of the Proponent and Address	S.F.Nos	Extent	Lease Period
E1	Thiru. Arjunan, S/o, Kuppusamy, 11, Poonga Nagar, 3 <sup>rd</sup> East street, Sothupakkam, Melmaruvathur Post, Cheyyar taluk, Kanchipuram District	1/7 (Part-9)	4.90.0 ha	21.10.2018 To 20.10.2028
<b>TOTAL</b>			<b>4.90.0 ha</b>	
ABANDONED QUARRIES / LEASE EXPIRED QUARRIES				
CODE	Name of the Proponent and Address	S.F.Nos	Extent	Lease Period



<b>A1</b>	Thiru.M.Gopi, S/o, K. Manickam, 9/145, Erumapalayam main road, Seelanaickenpatty Post, Salem-636021	1/7 (Part-1)	0.81.0	23.04.2012 to 22.04.2017
<b>A2</b>	Thiru.S.Karthikeyan, S/o, Subramaniagounder, 2/169, Santhiyur,Parapatti Post, Malur, Salem	1/7 (Part-3)	1.00.0	23.04.2012 To 22.04.2017
<b>A3</b>	Thiru.K.Devaraju, S/o, Kathavarayab, 1/41, Arumuga Pillaiyar koil Street, Gugai, Salem	1/7 (Part-4)	0.81.0	05.05.2011 To 04.05.2016
<b>A4</b>	Thiru.J.Mallika, W/o.R.Jayavel, Vattakadu, Karuppur Via, Omalur Taluk	1/7 (Part-5)	1.00.0	23.04.2012 To 22.04.2017
<b>TOTAL</b>			<b>3.18.0 ha</b>	
<b>TOTAL CLUSTER EXTENT</b>			<b>6.90.0 ha</b>	

Source: 1.AD Letter – Rc.No.179/2020/Mines- A Dated: 26.08.2020

2. AD Letter – Rc.No.180/2020 (Mines) Dated: 20.01.2021

**TABLE 7.5: SALIENT FEATURES OF PROPOSAL “P1”**

Name of the Mine	M/s. Royal Stones Rough Stone Quarry	
Toposheet No	58-I/02	
Latitude Between	11°34'25.18"N to 11°34'29.25"N	
Longitude Between	78°09'09.10"E to 78°09'13.95"E	
Highest Elevation	320m to 365m AMSL	
Proposed Depth of Mining	56 m (55m + 1m)	
Water Level in the surrounds area	56 – 60 m bgl	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Topography	The lease applied area is a hillock covered by topsoil formation of 1 m average thickness and massive Rough Stone Charnockite formation is notice clearly visible right from the surface as the entire area is covered by Rough Stone and Ground Level is 320m to 365m AMSL	
Machinery Proposed	Tractor mounted compressor with Jack Hammer	5
	Excavator bucket & Rock breaker attached	1
	Tippers	2
Proposed Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Manpower Proposed	20 Nos	
Mining Plan Period / Lease Period	5 Years/10Years	
Proposed Pit Dimension	95m (L) x 80m (W) x 56m (D) (46m agl + 10m bgl)	
Nearby Water Bodies	Tank Near Veedanur	9.3km South West
	Kumaragiri Lake	9km North East
	Minnakkal Lake	8.4km South West
	Tank near Bairoji	8km South West
	Tank near Attavanaipulaveri	4.4km North West
	Thirumanimutharu River	6.3km North West
	Tank near Sandaipet	5km North West
	Panamarathupatti Lake	2.5km North East
	Tank Near Mookuthipalayam	3.3km South West
	Tank Near Gajallnayakkanpatti	2.1km North West
	Tank near Nathamedu	600m South East
500 m Radius Quarries	Proposed Quarry – 2 No (2.00.0 ha) Existing Quarry – 1 No (4.90.0 ha)	
Project Cost	<b>Rs. 63,76,000/-</b>	
CER Cost	Rs 5,00,000/-	

Greenbelt Development Plan	Proposed to plant 600 trees in Approach Road and nearby periphery of the village Road after consulting the local Panchayat authority and Agriculture Experts area 10m Safety Zone	
Nearest Reserve Forest	Nil	
Proposed Water Requirement	6.12 KLD	
Nearest Habitation	450m Southeast	
	<b>Rough Stone</b>	<b>Topsoil</b>
Geological Resources in m <sup>3</sup>	5,75,950 m <sup>3</sup>	10,000 m <sup>3</sup>
Mineable Reserves in m <sup>3</sup>	1,79,775 m <sup>3</sup>	7,600 m <sup>3</sup>
Topsoil Conservation	The above topsoil shall be excavated and dumped separately at 7.5 m Safety barrier Zone and subsequently will be utilized in spreading over reclaimed areas for plantation during mine closure stage. Precautions will be taken to limit the height of the topsoil dump from 3 to 4 meters in order to preserve its fertility and shelf life. It will be suitably protected from soil erosion and infertility by constructing a retaining wall at the foot wall side and by planting fodder grass and leguminous plants during temporary storage.	

Source: Approved Mining Plan

**TABLE 7.5: SALIENT FEATURES OF PROPOSAL “P2”**

Name of the Mine	Sivakumar Rough Stone Quarry	
Toposheet No	58-I/02	
Latitude Between	11°34'20.22"N to 11°34'24.83"N	
Longitude Between	78°09'16.04"E to 78°09'21.73"E	
Highest Elevation	350m AMSL	
Proposed Depth of Mining	66 m (55m + 1m) (46m agl + 20m bgl)	
Water Level in the surrounds area	56 – 60 m bgl	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Topography	The lease applied area is a hillock. The gradient is 1 in 1.7 toward South and altitude of the area is ranges between 305m to 350m above mean sea level. Area is covered by topsoil formation of 1 m average thickness and followed massive Rough Stone Charnockite formation is notice clearly visible right from the surface as the entire area is covered by Rough Stone	
Machinery Proposed	Jack Hammer	5
	Compressor	2
	Excavator bucket & Rock breaker	1
	Tippers	2
Proposed Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Manpower Proposed	21 Nos	
Mining Plan Period / Lease Period	5Years/10 Years	
Ultimate Pit Dimension	Pit- I- 121m (L) x 60m (W) x 66m (D) (46m agl +20m bgl )	
	Pit- I- 167m (L) x 60m (W) x 66m (D) (46m agl +20m bgl)	
Nearby Water Bodies	Tank near Nathamedu	350m SE
	Panamarathupatti Lake	2.5km NE
	Tank Near Gajallnayakkanpatti	2.5km NW
	Tank Near Mookuthipalayam	3.5km SW
	Tank near Attavanaipulaveri	4.5km NW
	Tank near Sandaipet	5.5km NW
	Thirumanimutharu River	6.5km NW
	Tank near Bairoji	8.5km SW
	Minnakkal Lake	8.8km SW
	Kumaragiri Lake	9.km NE
Tank Near Veedanur	9.5km SW	
500 m Radius Quarries	Proposed Quarry – 2 No (2.00.0 ha) Existing Quarry – 1 No (4.90.0 ha)	
Project Cost	<b>Rs. 57,95,000/-</b>	
CER Cost	Rs 5,00,000/-	
Greenbelt Development Plan	Proposed to plant 600 trees in Approach Road and nearby periphery of the village Road after consulting the local Panchayat authority and Agriculture Experts area 10m Safety Zone	

Nearest Reserve Forest	Nil	
Proposed Water Requirement	2.0 KLD	
Nearest Habitation	400m Southeast	
	<b>Rough Stone</b>	<b>Topsoil</b>
Geological Resources in m <sup>3</sup>	4,52,495 m <sup>3</sup>	10,020 m <sup>3</sup>
Mineable Reserves in m <sup>3</sup>	3,20,595 m <sup>3</sup>	10,020 m <sup>3</sup>
Topsoil Conservation	The above topsoil shall be excavated and dumped separately at 7.5 m Safety barrier Zone and subsequently will be utilized in spreading over reclaimed areas for plantation during mine closure stage. Precautions will be taken to limit the height of the topsoil dump from 3 to 4 meters in order to preserve its fertility and shelf life. It will be suitably protected from soil erosion and infertility by constructing a retaining wall at the foot wall side and by planting fodder grass and leguminous plants during temporary storage.	

**TABLE 7.6: SALIENT FEATURES OF PROJECT "E1"**

Name of the Mine	Thiru.K.Arjunnann	
Survey Nos	1/7 (Part – 9)	
Land Type	Government Poramboke land	
Extent	4.90.0 ha	
Mining Plan Period / Lease Period	5Years	
Depth of Mining	342m (L) x 157m (W) x 106m (D) (66m agl + 40m bgl)	
Latitude between	11°34'19.50"N to 11°34'32.21"N	
Longitude between	78°08'58.14"E to 78°09'09.83"E	
Highest Elevation	400m	
Machinery Proposed	Tractor mounted Compressor	1
	Jack Hammer	4
	Excavator with bucket	1
	Tipplers	3
Proposed Blasting Method	Controlled Blasting	
Manpower Proposed	25 Nos	
Total Project Cost	Rs.3,06,61,000/-	

Source: Approved Mining Plan

The Cumulative Impact is mainly anticipated due to drilling & blasting and excavation and transportation activities in all the mines within the 500m radius from the proposed mines and major impact anticipated is on Air & Noise Environment and Ground Vibrations due to blasting.

#### Air Environment –

Calculating the Cumulative Load of Mining within the 500 meters radius from the proposal (including this proposal) is as shown in Table 7.11 & 7.12

**TABLE 7.7: CUMULATIVE PRODUCTION LOAD OF ROUGH STONE**

Quarry	Proposed 5 Year Mining Plan Period Reserves in m <sup>3</sup>	Avg. Per Year Production m <sup>3</sup>	Per Day Production m <sup>3</sup>	Number of Lorry Load Per Day
P1	1,79,775	35,951	120	20
P2	1,89,025	37,805	126	21
E1	13,29,355	2,65,871	886	147
<b>TOTAL</b>	<b>16,98,155</b>	<b>3,39,627</b>	<b>1,132</b>	<b>188</b>

**TABLE 7.8: CUMULATIVE PRODUCTION OF TOPSOIL**

Quarry	Proposed 5 Year Mining Plan Period Reserves in m <sup>3</sup>	Avg. Per Year Production m <sup>3</sup>	Per Day Production m <sup>3</sup>	Internal Trips – Lorry Load Per Day
P1	7,600	1,520	6	1
P2	7,260	7,260	8	2
E1	47,038	9,400	31	6
<b>TOTAL</b>	<b>61,898</b>	<b>18,180</b>	<b>45</b>	<b>9</b>

On a cumulative basis considering all the 3 quarries it can be seen that the overall production of Rough Stone is 1,132 m<sup>3</sup> per day and with a capacity of 203 trips of Rough Stone per day from the 500 meters radius cluster.

Based on the above production quantities the emissions due to various activities in all the 3 mines includes various activities like ground preparation, excavation, handling and transport of ore. These activities have been analysed

systematically basing on USEPA-Emission Estimation Technique Manual, for Mining AP-42, to arrive at possible emissions to the atmosphere and estimated emissions are given in Table 7.14.

**TABLE 7.9: EMISSION ESTIMATION FROM QUARRIES WITHIN 500 METER RADIUS**

EMISSION ESTIMATION FOR QUARRY "P1"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM <sub>10</sub>	Drilling	Point Source	0.077294620	g/s
	Blasting	Point Source	0.000667361	g/s
	Mineral Loading	Point Source	0.041032962	g/s
	Haul Road	Line Source	0.002489236	g/s
	Overall Mine	Area Source	0.039085368	g/s
	Estimated Emission Rate for SO <sub>2</sub>	Overall Mine	Area Source	0.000448083
Estimated Emission Rate for NO <sub>x</sub>	Overall Mine	Area Source	0.000010851	g/s
EMISSION ESTIMATION FOR QUARRY "P2"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM <sub>10</sub>	Drilling	Point Source	0.078015948	g/s
	Blasting	Point Source	0.000699087	g/s
	Mineral Loading	Point Source	0.040438583	g/s
	Haul Road	Line Source	0.002488275	g/s
	Overall Mine	Area Source	0.038973305	g/s
	Estimated Emission Rate for SO <sub>2</sub>	Overall Mine	Area Source	0.000400917
Estimated Emission Rate for NO <sub>x</sub>	Overall Mine	Area Source	0.000009690	g/s
EMISSION ESTIMATION FOR QUARRY "E1"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM <sub>10</sub>	Drilling	Point Source	0.138552855	g/s
	Blasting	Point Source	0.012350708	g/s
	Mineral Loading	Point Source	0.049114806	g/s
	Haul Road	Line Source	0.00252488	g/s
	Overall Mine	Area Source	0.084100411	g/s
	Estimated Emission Rate for SO <sub>2</sub>	Overall Mine	Area Source	0.002985964
Estimated Emission Rate for NO <sub>x</sub>	Overall Mine	Area Source	0.000329759	g/s

**TABLE 7.10: INCREMENTAL & RESULTANT GLC WITHIN 500 METER RADIUS**

PM <sub>10</sub> in µg/m <sup>3</sup>	
Location	Core
Background	45.2
Highest Incremental	12.89
Resultant	58.09
NAAQ Norms	100 µg/m <sup>3</sup>
PM <sub>2.5</sub> in µg/m <sup>3</sup>	
Location	Core
Background	25.5
Highest Incremental	5.92
Resultant	31.42
NAAQ Norms	100 µg/m <sup>3</sup>
SO <sub>2</sub> in µg/m <sup>3</sup>	
Location	Core
Background	22.9
Highest Incremental	1.83
Resultant	24.79
NAAQ Norms	80 µg/m <sup>3</sup>
NO <sub>x</sub> in µg/m <sup>3</sup>	
Location	Core
Background	26.1
Incremental	7.86
Resultant	33.96
NAAQ Norms	80 µg/m <sup>3</sup>

### Noise Environment –

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

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

$$L_{p2} = L_{p1} - 20 \log (r_2/r_1) - Ae_{1,2}$$

Where:

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

$Ae_{1,2}$  is the excess attenuation due to environmental conditions. Combined effect of all sources can be determined at various locations by logarithmic addition.

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

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

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

**TABLE 7.11: PREDICTED NOISE INCREMENTAL VALUES IN 500 M RADIUS QUARRIES**

Location ID	Background Value (Day) dB(A)	Incremental Value dB(A)	Total Predicted dB(A)	Residential Area Standards dB(A)
Habitation Near P1-450m	48.2	47	50.7	55
Habitation Near P1-450m	48.2	47	50.7	
Habitation Near E1	44.6	46.4	48.6	

The incremental noise level is found within the range of 45.5 – 51.6 dB (A) in Buffer zone. The noise level at different receptors in buffer zone is lower due to the distance involved and other topographical features adding to the noise attenuation. The resultant Noise level due to monitored values and calculated values at the receptors are based on the mathematical formula considering attenuation due to Green Belt as 4.9 dB (A) the barrier effect. From the above table, it can be seen that the ambient noise levels at all the locations near habitations are within permissible limits of Residential Area (buffer zone) as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (The Principal Rules were published in the Gazette of India, vide S.O. 123(E), dated 14.2.2000 and subsequently amended vide S.O. 1046(E), dated 22.11.2000, S.O. 1088(E), dated 11.10.2002, S.O. 1569 (E), dated 19.09.2006 and S.O. 50 (E) dated 11.01.2010 under the Environment (Protection) Act, 1986).

### Ground Vibrations

Ground vibrations due to mining activities from the proposed and existing mines in cluster are anticipated due to operation of Mining Machines like Excavators, drilling and blasting, transportation vehicles, etc., However, the major source of ground vibration from the all the 2 mines is blasting. The major impact of the ground vibrations is observed on the domestic houses located in the villages nearby the mine lease area. The kachha houses are more prone to cracks and damage due to the vibrations induced by blasting whereas RCC framed structures can withstand more ground vibrations. Apart from this, the ground vibrations may develop a fear factor in the nearby settlements.

Another impact due to blasting activities is fly rocks. These may fall on the houses or agricultural fields nearby the mining areas and may cause injury to persons or damage to the structures.

Nearest Habitations from 3 mines respectively are as in below Table 7.17

**TABLE 7.12: NEAREST HABITATION FROM EACH MINE**

Location ID	Distance in Meters
Habitation Near P1	450m South East
Habitation Near P2	400m South East
Habitation Near E1	410m South West

The ground vibrations due to the blasting in all the mines are calculated using the empirical equation for assessment of peak particle velocity (PPV) is:

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

Where –

V = peak particle velocity (mm/s)

K = site and rock factor constant

Q = maximum instantaneous charge (kg)  
 B = constant related to the rock and site (usually 1.6)  
 R = distance from charge (m)

**TABLE 7.13: GROUND VIBRATIONS AT 3 MINES**

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in mm/s
P1	32	450 South East	0.455
P2	48	400 South East	0.456
E1	56	410 South West	0.612

From the above table, the charge per blast of 100 kg maximum proposed is well below the Peak Particle Velocity of 8 mm/s as per Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997.

The 3 mines shall provide employment and revenue will be created to government

**TABLE 7.14: SOCIO ECONOMIC BENEFITS FROM 3 MINES**

Location ID	Project Cost	CER @ 2%
P1	Rs. 63,76,000/-	5,00,000/-
P2	Rs. 57,95,000/-	5,00,000/-
E1	Rs. 3,06,61,000/-	6,12,000/-
<b>Total</b>	<b>Rs. 4,28,32,000 /-</b>	<b>16,12,000 /-</b>

Allocation for Corporate Environment Responsibility (CER) shall be made as per Government of India, MoEF & CC Office Memorandum F.No.22-65/2017-IA.III, Dated: 01.05.2018 by two mines.

As per para 6 (II) of the office memorandum, all the mines being a green field project & Capital Investment is ≤ 100 crores, they shall contribute 2% of Capital Investment towards CER as per directions of EAC/SEAC and the total CER amount from the 3 mines is Rs. 16,12,000/-.

**TABLE 7.15: EMPLOYMENT BENEFITS FROM 3 MINES**

Location ID	Direct Employment	Indirect Employment
P1	20 Nos	10 Nos
P2	21 Nos	10 Nos
E1	25 Nos	10 Nos
<b>Total</b>	<b>66 Nos</b>	<b>30 Nos</b>

A total of 66 people will get employment due to these 3 mines in cluster.

#### Greenbelt Development –

**TABLE 7.16: GREENBELT DEVELOPMENT BENEFITS FROM 3 MINES**

CODE	No of Trees proposed to be planted	Survival %	Area Covered Sq.m	Name of the Species
P1	600	80%	Approach Road and nearby periphery of the village Road after consulting the local Panchayat authority and Agriculture Experts	Neem, Pungam, Naval, Vannimaram, Panai. Puvarasu, etc.,
P2	600	80%		
E1	350	80%		
<b>Total</b>	<b>1550</b>	<b>80%</b>	-	

Based on the Proposed Mining Plans its anticipated that there shall growth of native species of Neem, Pungam, Naval, Vannimaram, Panai. Puvarasu, etc., in the Cluster at a rate of 1550 Trees Planted over a period of 5 Years with Survival Rate of 80% in Approach Road and nearby periphery of the village Road after consulting the local Panchayat authority and Agriculture Experts.

#### 7.5 PLASTIC WASTE MANAGEMENT PLAN

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

**Objective –**

- To investigate the actual supply chain network of plastic waste.
- To identify and propose a sustainable plastic waste management by installing bins for collection of recyclables with all the plastic waste
- Preparation of a system design layout, and necessary modalities for implementation and monitoring.

**TABLE 7.17: ACTION PLAN TO MANAGE PLASTIC WASTE**

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

Source: Proposed by FAE's and EC

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## CHAPTER 8. PROJECT BENEFITS

### 8.0 GENERAL

Two Proposed Projects for Quarrying Rough Stone at Panamarathupatti Village aims to produce cumulatively 3,68,800 m<sup>3</sup> Rough Stone & 14,860 m<sup>3</sup> of Topsoil over a period of 5 Years. This will enhance the socio-economic activities in the adjoining areas and will result in the following benefits

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

### 8.1 EMPLOYMENT POTENTIAL

It is proposed to provide employment to about 41 persons for carrying out mining operations and give preference to the local people in providing employment. In addition, there will be opportunity for indirect employment to many people in the form of contractual jobs, business opportunities, service facilities etc. the economic status of the local people will be enhanced due to mining project.

### 8.2 SOCIO-ECONOMIC WELFARE MEASURES PROPOSED

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

### 8.3 IMPROVEMENT IN PHYSICAL INFRASTRUCTURE

The proposed mine is located in Panamarathupatti Village, Salem Taluk and Salem District of Tamil Nadu and the area have communications, roads and other facilities already well established. The following physical infrastructure facilities will further improve due to proposed mine.

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

### 8.4 IMPROVEMENT IN SOCIAL INFRASTRUCTURE

Employment is expected during civil construction period, in trade, garbage lifting, sanitation and other ancillary services, Employment in these sectors will be primarily temporary or contractual and involvement of unskilled labour will be more. A major part of the labour force will be mainly from local villagers who are expected to engage themselves both in agriculture and mining activities. This will enhance their income and lead to overall economic growth of the area.

### 8.5 OTHER TANGIBLE BENEFITS

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

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



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**CORPORATE SOCIAL RESPONSIBILITY:**

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

Under this programme, the project proponent will take-up following programmes for social and economic development of villages within 10 km of the project site. For this purpose, separate budget will be provided every year. For finalization of these schemes, proponent will interact with LSG. The schemes will be selected from the following broad areas –

- Health Services
- Social Development
- Infrastructure Development
- Education & Sports
- Self-Employment

**CSR Cost Estimation**

CSR activities will be taken up in the Panamarathupatti village mainly contributing to education, health, training of women self-help groups and contribution to infrastructure etc., CSR budget is allocated as 2% of the profit.

**CORPORATE ENVIRONMENT RESPONSIBILITY–**

Allocation for Corporate Environment Responsibility (CER) shall be made as per Government of India, MoEF& CC Office Memorandum F.No.22-65/2017-IA.III, Dated: 01.05.2018.

As per para 6 (II) of the office memorandum, being a green field project & Capital Investment is  $\leq$  100 crores, cluster quarries contribute 2% of Capital Investment towards CER as per directions of EAC/SEAC.

**TABLE 8.1: CER ACTION PLAN FOR P1 & P2**

<b>Activity</b>	<b>Beneficiaries</b>	<b>Total In Rs</b>
Improving Sanitation facilities to the Government school in Panamarathupatti Village	Panamarathupatti Village	10,00,000/-
Plantation of school zone and village roads	Panamarathupatti Village	
<b>TOTAL</b>		<b>Rs.10,00,000/-</b>

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

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**CHAPTER 9- ENVIRONMENTAL COST BENEFIT ANALYSIS**

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

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## CHAPTER -10-ENVIRONMENTAL MANAGEMENT PLAN-P1

### 10.0 GENERAL

Environment Management Plan (EMP) aims at the preservation of ecological system by considering in-built pollution abatement facilities at the proposed site. Good practices of Environmental Management plan will ensure to keep all the environmental parameters of the project in respect of Ambient Air quality, Water quality, Socio – economic improvement standards.

Mitigation measures at the source level and an overall environment management plan at the study area are elicited so as to improve the supportive capacity of the receiving bodies. The EMP presented in this chapter discusses the administrative aspects of ensuring that mitigative measures are implemented and their effectiveness monitored after approval of the EIA.

### 10.1 ENVIRONMENTAL POLICY

The Proponent is committed to conducting all its operations and activities in an environmentally responsible manner and to continually improve environmental performance.

The Proponent will –

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

#### Description of the Administration and Technical Setup –

The Environment Monitoring Cell discussed under Chapter 6 will ensure effective implementation of environment management plan and to ensure compliance of environmental statutory guidelines through Mine Management Level. The said team will be responsible for:

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

## 10.2 LAND ENVIRONMENT MANAGEMENT –

Landscape of the area will be changed due to the quarrying operation, restoration of the land by converting the quarry pit into temporary reservoir about (0.76.0ha), the remaining part of the area ie., 0.24.0 ha (un utilized areas, infrastructure, haul Roads) will be utilized for greenbelt development. Aesthetic of the Environment will not be affected. There is no major vegetation in the project area during the course of quarrying operation and after completion of the quarrying operation thick plantation.

**TABLE 10.1: PROPOSED CONTROLS FOR LAND ENVIRONMENT**

CONTROL	RESPONSIBILITY
Design vehicle wash-down areas so that all runoff water is captured and passed through oil water separators and sediment catchment devices.	Mines Manager
Refueling to be undertaken in a safe location, away from vehicle movement pathways & 100 m away of any watercourse Refueling activity to be under visual observation at all times. Drainage of refuelling areas to sumps with oil/water separation	Mine Foreman & Mining Mate
Soil and groundwater testing as required following up a particular incident of contamination.	Mines Manager
At conceptual stage, the mining pits will cover 0.76.0 ha of the project area which will be converted into Rain Water Harvesting. Remaining extent of 0.24.0 ha will be converted into greenbelt area	Mines Manager
No external dumping i.e., outside the project area	Mine Foreman
Garland drains with catch pits / settlement traps to be provided all around the project area to prevent run off affecting the surrounding lands.	Mines Manager
The periphery of Project area will be planted with thick plantation to arrest the fugitive dust, which will also act as acoustic barrier.	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

## 10.3 TOPSOIL / WASTE MANAGEMENT –

There is no overburden or waste anticipated from proposed project and it is proposed to remove the top layer of topsoil formation of average thickness 1 m about **7,600m<sup>3</sup>**.

The above topsoil shall be excavated and dumped separately at 10 m Safety barrier Zone and subsequently will be utilized in spreading over reclaimed areas for plantation during mine closure stage. Precautions will be taken to limit the height of the topsoil dump from 3 to 4 meters in order to preserve its fertility and shelf life. It will be suitably protected from soil erosion and infertility by constructing a retaining wall at the foot wall side and by planting fodder grass and leguminous plants during temporary storage.

**TABLE 10.2: PROPOSED CONTROLS FOR SOIL MANAGEMENT**

CONTROL	RESPONSIBILITY
Surface run-off from the project boundary via garland drains will be diverted to the mine pits	Mine Foreman & Mining Mate
Design haul roads and other access roads with drainage systems to minimize concentration of flow and erosion risk	Mines Manager
Empty sediment from sediment traps Maintain, repair or upgrade garland drain system	Mines Manager
Test soils for pH, EC, chloride, size & water holding capacity	Manager Mines

Source: Proposed by FAE's & EIA Coordinator

#### 10.4 WATER MANAGEMENT

In the proposed quarrying project no process is involved for the effluent generation, effluent is mainly containing Oil & grease from the workshop, No workshops is proposed inside the project area. Nearest Surface Water Bodies are Nathamedu Tank– 600m SE & Gajalnayakanpatti Lake– 2.1km NW

The quarrying operation is proposed upto a depth of 56 m (55m + 1m), the water table in the area is **56-60m** below ground level, and hence the proposed project will not intersect the Ground water table during entire quarry period.

**TABLE 10.3: PROPOSED CONTROLS FOR WATER ENVIRONMENT**

CONTROL	RESPONSIBILITY
To maximize the reuse of pit water for water supply	Mines Foreman
Temporary and permanent garland drain will be constructed to contain the catchments of the mining area and to divert runoff from undisturbed areas through the mining areas	Mines Manager
Natural drains/nallahs/brooklets outside the project area should not be disturbed at any point of mining operations	Mines Manager
Ensure there is no process effluent generation or discharge from the project area into water bodies	Mines Foreman
Domestic sewage generated from the project area will be disposed in septic tank and soak pit system	Mines Foreman
Monthly or after rainfall, inspection for performance of water management structures and systems	Mines Manager
Conduct ground water and surface water monitoring for parameters specified by CPCB	Manager Mines

Source: Proposed by FAE's & EIA Coordinator

#### 10.5 AIR QUALITY MANAGEMENT

The proposed quarrying activity would result in the increase of particulate matter concentrations due to fugitive dust. Daily water sprinkling on the haul roads, approach roads in the vicinity would be undertaken and will be continued as there is possibility for dust generation due to truck mobility. It will be ensured that vehicles are properly maintained to comply with exhaust emission requirements.

**TABLE 10.4: PROPOSED CONTROLS FOR AIR ENVIRONMENT**

CONTROL	RESPONSIBILITY
Generation of dust during excavation is minimized by daily (twice) water sprinkling on working face and daily (twice) water sprinkling on haul road	Mines Manager
Wet drilling procedure /drills with dust extractor system to control dust generation during drilling at source itself is implemented	Mines Manager
Maintenance as per operator manual of the equipment and machinery in the mines to minimizing air pollution	Mines Manager
Ambient Air Quality Monitoring carried out in the project area and in surrounding villages to access the impact due to the mining activities and the efficacy of the adopted air pollution control measures	Mines Manager
Provision of Dust Mask to all workers	Mines Manager
Greenbelt development all along the periphery of the project area	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

## 10.6 NOISE POLLUTION CONTROL

There will be intermittent noise levels due to vehicular movement, trucks loading, drilling and blasting activities. No mining activities are planned during night time.

**TABLE 10.5: PROPOSED CONTROLS FOR NOISE ENVIRONMENT**

CONTROL	RESPONSIBILITY
Development of thick greenbelt all along the Buffer Zone (7.5 Meters) of the project area to attenuate the noise and the same will be maintained	Mines Manager
Preventive maintenance of mining machinery and replacement of worn out accessories to control noise generation	Mines Foreman
Deployment of mining equipment with an inbuilt mechanism to reduce noise	Mines Manager
Provision of earmuff / ear plugs to workers working in noise prone zones in the mines	Mining Mate
Provision of effective silencers for mining machinery and transport vehicles	Mines Manager
Provision of sound proof AC operator cabins to HEMM	Mines Manager
Sharp drill bits are used to minimize noise from drilling	Mines Foreman
Controlled blasting technologies are adopted by using delay detonators to minimize noise from blasting	Mines Manager
Annual ambient noise level monitoring are carried out in the project area and in surrounding villages to assess the impact due to the mining activities and the efficacy of the adopted noise control measures. Additional noise control measures will be adopted if required as per the observations during monitoring	Mines Manager
Reduce maximum instantaneous charge using delays while blasting	Mining Mate
Change the burden and spacing by altering the drilling pattern and/or delay layout, or altering the hole inclination	Mines Manager
Undertake noise or vibration monitoring	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

## 10.7 GROUND VIBRATION AND FLY ROCK CONTROL

The Rough Stone quarry operation creates vibration due to the blasting and movement of Heavy Earth moving machineries, fly rocks due to the blasting.

**TABLE 10.6: PROPOSED CONTROLS FOR GROUND VIBRATIONS & FLY ROCK**

CONTROL	RESPONSIBILITY
Controlled blasting using delay detonators will be carried out to maintain the PPV value (below 8Hz) well within the prescribed standards of DGMS	Mines Manager
Drilling and blasting will be carried under the supervision of qualified persons	Mines Manager
Proper stemming of holes should be carried out with statutory competent qualified blaster under the supervision of statutory mines manager to avoid any anomalies during blasting	Mines Manager
Suitable spacing and burden will be maintained to avoid misfire / fly rocks	Manager Mines
Number of blast holes will be restricted to control ground vibrations	Manager Mines
Blasting will be carried out only during noon time	Mining Mate
Undertake noise or vibration monitoring	Mines Manager
ensure blast holes are adequately stemmed for the depth of the hole and stemmed with suitable angular material	Mines Foreman

Source: Proposed by FAE's & EIA Coordinator

## 10.8 BIOLOGICAL ENVIRONMENT MANAGEMENT

The proponent will take all necessary steps to avoid the impact on the ecology of the area by adopting suitable management measures in the planning and implementation stage. During mining, thick plantation will be carried out around the project periphery, on safety barrier zone, on top benches of quarried out area etc.,

Following control measures are proposed for its management and will be the responsibility of the Mines Manager.

- Greenbelt development all along the safety barrier of the project area
- It is also proposed to plant around 600 trees during the present plan period. Post plantation status will be regularly checked for every season.
- The main attributes that retards the survival of sapling is fugitive dust, this fugitive dust can be controlled by water sprinkling on the haul roads and installing a sprinkler unit near the newly planted area.
- Year wise greenbelt development will be recorded and monitored based on,
  - The area of plantation.
  - Period of plantation
  - Type of plantation
  - Spacing between the plants
  - Type of manuring and fertilizers and its periods
  - Lopping period, interval of watering
  - Survival rate
  - Density of plantation

The ultimate reclamation plan leaves a congenial environment for development of flora & immigration of small fauna through green belt and water reservoir. The green belt and water reservoir developed within the Project at the end of mine life will attract the birds and animals towards the project area in the post mining period.

### 10.8.1 Green Belt Development Plan

The objectives of the greenbelt development plan are –

- Provide a green belt around the periphery of the quarry area to combat the dispersal of dust in the adjoining areas,
- Protect the erosion of the soil, Conserve moisture for increasing ground water recharging,
- Restore the ecology of the area, Restore aesthetic beauty of the locality and meet the requirement of fodder, fuel and timber of the local community.

About 600 nos. of saplings is proposed to be planted for the Mining plan period in safety barrier with survival rate 80% which shall include about 25 nos. of fruit bearing and avenue plants are proposed to be developed around the mines office. The greenbelt development plan has been prepared keeping in view the land use changes that will occur due to mining operation in the area.

**TABLE 10.7 PROPOSED GREENBELT ACTIVITIES FOR 5 YEAR PLAN PERIOD**

Year	No. of trees proposed to be planted	Survival %	Area to be covered sq.m	Name of the species
I	600	80%	Approach Road and nearby periphery of the village Road after consulting the local Panchayat authority and Agriculture Experts	Neem, Pungam, Naval, Vannimaram, Panai. Puvarasu, etc.,

Source: Approved Mining Plan

### 10.8.2 Species Recommended for Plantation

Following points have been considered while recommending the species for plantation:

- Creating of bio-diversity.
- Fast growing, thick canopy cover, perennial and evergreen large leaf area,
- Efficient in absorbing pollutants without major effects on natural growth

**TABLE 10.8: RECOMMENDED SPECIES TO PLANT IN THE GREENBELT**

S.No	Botanical Name	Local Name	Importance
1.	Azadirachta indica	Neem, Vembu	Neem oil & neem products
2.	Millettia pinnata	Pungan	landscaping purposes as a windbreak or for shade
3.	Tamarindusindica	Tamarind	Edible & Medicinal and other Uses
4.	Achras sapota	Sapota	Edible fruits
5.	Ficus benghalensis	Alai	Shade and a source of food for birds
6.	Ficus religiosa	araca-maram	Shade and a source of food for birds
7.	Mangifera indica	Mango/ Ma	Edible fruit
8.	Terminalia catappa	nattuvadumai	Edible nuts
9.	Polyalthia longifolia	Nettilinkam	Tall and evergreen tree
10.	Borassus flabellifer	Panai	Palm tree supplies food and food items
11.	Pongamia Pinnata	Pungam	-
12.	Prosopis cinerea	Vanni Maram	-
13.	Syzygium cumini	Naval	-
14.	Thespesia Populnea	Puvarasu	-

Source: Proposed by FAE's & EIA Coordinator

### 10.9 OCCUPATIONAL SAFETY & HEALTH MANAGEMENT

Occupational safety and health are very closely related to productivity and good employer-employee relationship. The main factors of occupational health impact in quarries are fugitive dust and noise. Safety of employees during quarrying operation and maintenance of mining equipment will be taken care as per Mines Act 1952 and Rule 29 of Mines Rules 1955. To avoid any adverse effect on the health of workers due to dust, noise and vibration sufficient measures have been provided.

#### 10.9.1 Medical Surveillance and Examinations –

- Identifying workers with conditions that may be aggravated by exposure to dust & noise and establishing baseline measures for determining changes in health.
- Evaluating the effect of noise on workers
- Enabling corrective actions to be taken when necessary
- Providing health education

The health status of workers in the mine shall be regularly monitored under an occupational surveillance program. Under this program, all the employees are subjected to a details medical examination at the time of employment. The medical examination covers the following tests under mines act 1952.

- General Physical Examination and Blood Pressure
- X-ray Chest and ECG
- Sputum test

The medical histories of all employees will be maintained in a standard format annually. Thereafter, the employees will be subject to medical examination annually. The below tests keep upgrading the database of medical history of the employees.

**TABLE 10.9: MEDICAL EXAMINATION SCHEDULE**

Sl.No	Activities	1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	5 <sup>th</sup> Year
1	Initial Medical Examination (Mine Workers)					
A	Physical Check-up					
B	Psychological Test					
C	Audiometric Test					



D	Respiratory Test					
2	Periodical Medical Examination (Mine Workers)					
A	Physical Check - up					
B	Audiometric Test					
C	Eye Check – up					
D	Respiratory Test					
3	Medical Camp (Mine Workers & Nearby Villagers)					
4	Training (Mine Workers)					

Medical Follow ups:- Work force will be divided into three targeted groups age wise as follows:-		
<b>Age Group</b>	<b>PME as per Mines Rules 1955</b>	<b>Special Examination</b>
Less than 25 years	Once in a Three Years	In case of emergencies
Between 25 to 40 Years	Once in a Three Years	In case of emergencies
Above 40 Years	Once in a Three Years	In case of emergencies
Medical help on top priority immediately after diagnosis/ accident is the essence of preventive aspects.		

### 10.9.2 Proposed Occupational Health and Safety Measures –

- The mine site will have adequate drinking water supply so that workers do not get dehydrated.
- Lightweight and loose fitting clothes having light colors will be preferred to wear.
- Noise exposure measurements will be taken to determine the need for noise control strategies.
- The personal protective equipment will be provided for mine workers.
- Supervisor will be instructed for reporting any problems with hearing protectors or noise control equipment.
- At noisy working activity, exposure time will be minimized.
- Dust generating sources will be identified and proper control measure will be adopted.
- Periodic medical examinations will be provided for all workers.
- Strict observance of the provisions of DGMS Acts, Rules and Regulations in respect of safety both by management and the workers.
- The width of road will be maintained more than thrice the width of the vehicle. A code of traffic rules will be implemented.
- In respect of contract work, safety code for contractors and workers will be implemented. They will be allowed to work under strict supervision of statutory person/officials only after they will impart training at vocational training centres. All personal protective equipment's will be provided to them.
- A safety committee meeting every month will be organized to discuss the safety of the mines and the persons employed.
- Celebration of annual mines safety week and environmental week in order to develop safety awareness and harmony amongst employees and co quarry owners.

**FIGURE 10.1: PERSONAL PROTECTIVE EQUIPMENT TO THE MINE WORKERS**

### 10.9.3 Health and Safety Training Programme

The Proponent's will provide special induction program along with machinery manufacturers for the operators and co-operators to run and maintain the machinery effectively and efficiently. The training program for the supervisors and office staffs will be arranged in the Group Vocational Training Centres in the State. And engage an Environmental Consultants to provide periodical training to all the employees to carry out the mining operation in and eco-friendly manner.

**TABLE 10.10: LIST OF PERIODICAL TRAININGS PROPOSED FOR EMPLOYEES**

Course	Personnel	Frequency	Duration	Instruction
New-Employee Training	All new employees exposed to mine hazards	Once	One week	Employee rights; Supervisor responsibilities; Self-rescue; Respiratory devices; Transportation controls; Communication systems; Escape and emergency evacuation; Ground control hazards; Occupational health hazards; Electrical hazards; First aid & Explosives
Task Training Like Drilling, Blasting, Stemming, safety, Slope stability, Dewatering, Haul road maintenance,	Employees assigned to new work tasks	Before new Assignments	Variable	Task-specific health & safety procedures and SOP for various mining activity. Supervised practice in assigned work tasks.
Refresher Training	All employees who received new-hire training	Yearly	One week	Required health and safety standards; Transportation controls; Communication systems; Escape ways, emergency evacuations; Fire warning; Ground control hazards; First aid; Electrical hazards; Accident prevention; Explosives; Respirator devices
Hazard Training	All employees exposed to mine hazards	Once	Variable	Hazard recognition and avoidance;

				Emergency evacuation procedures; Health standards; Safety rules; Respiratory devices
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Source: Proposed by FAE's & EIA Coordinator as per DGMS Norms

#### 10.9.4 Budgetary Provision for Environmental Management –

Adequate budgetary provision has been made by the Company for execution of Environmental Management Plan. The Table 10.11 gives overall investment on the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures.

**TABLE 10.11: EMP BUDGET FOR PROPOSED PROJECT**

	Mitigation Measure	Provision for Implementation	Capital	Recurring
Air Environment	Compaction, gradation and drainage on both sides for Haulage Road	Rental Dozer & drainage construction on haul road @ Rs. 10,000/- per hectare; and yearly maintenance @ Rs. 10,000/- per hectare	10000	10000
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	Fixed Sprinkler Installation and New Water Tanker Cost for Capital; and Water Sprinkling (thrice a day) Cost for recurring	800000	50000
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sand bags / steel mesh / old tyres / used conveyor belts	0	5000
	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	Dust extractor @ Rs. 25,000/- per unit deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance - 5 Units	125000	12500
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	Stone carrying trucks will be covered by tarpaulin	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per Tipper/Dumper deployed - 2 Units	10000	500
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of Exhaust Fumes by Manual Labour	0	5000
	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	Provision for 2 labours @ Rs.10,000/labour (Contractual) per Hectare	0	20000
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50000	20000
Noise Environment	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Competent Person	0	0
	Provision for Portable blaster shed	Installation of Portable blasting shelter	50000	2000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	467415

Waste Management	Waste management (Spent Oil, Grease etc.)	Provision for domestic waste collection and disposal through authorized agency	5000	20000
		Installation of dust bins	5000	2000
	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost	0	0
Mine Closure	1. Progressive Closure Activity - Surface Runoff managment	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	10000	5000
	2. Progressive Closure Activity Barbed Wire Fencing to quarry area will be provisioned.	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum	200000	10000
	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - Proposal for 600 Trees - (260 Inside Lease Area & 340 Outside Lease Area)	trenches, soil amendments, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring)	52000	7800
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	102000	10200
	4. Implementation of Final Mine Closure Actiy as per Approved Mining Plan on Last Year	Few activities already covered as progressive closure activities as greenbelt development, wire fencing, garland drain. *For Final Closure Activities 15% of the proposed closure cost will be spent during the final mine closure stage - Last Year	48150	0
5. Contribution towards Green Fund. As per TNMMCR 1959, Rule 35 A	The Contribution towards Green Funds @ 10% of Seigniorage fee are indicated as part of EMP Budge and not necessarily implemented in the Project Site	1060673		
Implementation of EC, Mining Plan & DGMS Condition	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed Display Board at the Quarry Entrance as permanent structure mentioning Environmental Conditions	10000	1000
	Air, Water, Noise and Soil Quality Sampling every 6 Months for Compliance Report of EC Conditions	Submission of 2 Half Yearly Compliance - Lab Monitoring Report as per CPCB norms	0	50000
	Workers will be provided with Personal Protective Equipment's	Provision of PPE @ Rs. 4000/- per employee with recurring based on wear and tear (say, @ Rs. 1000/- per employee) - 20 Employees	80000	20000
	Health check up for workers will be provisioned	IME & PME Health check up @ Rs. 1000/- per employee	0	20000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	2000
	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10000	2000
	No parking will be provided on the transport routes. Separate provision on the south side of the hill will be made for vehicles /HEMMs. Flaggers will be deployed for traffic managment	Parking area with shelter and flags @ Rs. 50,000/- per hectare project and Rs. 10,000/- as maintenance cost	50000	10000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	30000	5000
Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1 <sup>st</sup> Class / 2 <sup>nd</sup> Class / Mine Foreman) under regulation 34 / 34 (6) of MMR, 1961 and Mining Mate under regulation 116 of MMR,1961 @ 40,000/- for Manager & @ 25,000/-	0	780000	
CER	As per MoEF & CC OM 22-65/2017-IA.III Dated 25.02.2021	Detailed Description in following slides and Budget allocation is included as per MoeEF & CC OM	500000	
<b>TOTAL</b>			<b>3159673</b>	<b>1552415</b>

TABLE No.12 EMP BUDGET SUMMARY BREAKUP YEAR WISE

Year	Total Cost
1 <sup>st</sup>	Rs 47,12,087
2 <sup>nd</sup>	Rs 16,30,035
3 <sup>rd</sup>	Rs 17,11,537
4 <sup>th</sup>	Rs 17,97,114
5 <sup>th</sup>	Rs 19,35,120

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In order to implement the environmental protection measures, an amount of Rs. 31.50 lakhs as capital cost and recurring cost as Rs. 15.50 lakhs as recurring cost is proposed considering present market price considering present market scenario.

#### **10.10 CONCLUSION –**

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

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## CHAPTER -10-ENVIRONMENTAL MANAGEMENT PLAN-P2

### 10.0 GENERAL

Environment Management Plan (EMP) aims at the preservation of ecological system by considering in-built pollution abatement facilities at the proposed site. Good practices of Environmental Management plan will ensure to keep all the environmental parameters of the project in respect of Ambient Air quality, Water quality, Socio – economic improvement standards.

Mitigation measures at the source level and an overall environment management plan at the study area are elicited so as to improve the supportive capacity of the receiving bodies. The EMP presented in this chapter discusses the administrative aspects of ensuring that mitigative measures are implemented and their effectiveness monitored after approval of the EIA.

### 10.1 ENVIRONMENTAL POLICY

The Proponent is committed to conducting all its operations and activities in an environmentally responsible manner and to continually improve environmental performance.

The Proponent will –

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

### Description of the Administration and Technical Setup –

The Environment Monitoring Cell discussed under Chapter 6 will ensure effective implementation of environment management plan and to ensure compliance of environmental statutory guidelines through Mine Management Level. The said team will be responsible for:

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

## 10.2 LAND ENVIRONMENT MANAGEMENT –

Landscape of the area will be changed due to the quarrying operation, restoration of the land by converting the quarry pit into temporary reservoir about (0.72.6 ha), the remaining part of the area ie., 0.27.4 ha (un utilized areas, infrastructure, haul Roads) will be utilized for greenbelt development. Aesthetic of the Environment will not be affected. There is no major vegetation in the project area during the course of quarrying operation and after completion of the quarrying operation thick plantation.

**TABLE 10.1: PROPOSED CONTROLS FOR LAND ENVIRONMENT**

CONTROL	RESPONSIBILITY
Design vehicle wash-down areas so that all runoff water is captured and passed through oil water separators and sediment catchment devices.	Mines Manager
Refueling to be undertaken in a safe location, away from vehicle movement pathways & 100 m away of any watercourse Refueling activity to be under visual observation at all times. Drainage of refuelling areas to sumps with oil/water separation	Mine Foreman & Mining Mate
Soil and groundwater testing as required following up a particular incident of contamination.	Mines Manager
At conceptual stage, the mining pits will cover 0.72.6 ha of the project area which will be converted into Rain Water Harvesting. Remaining extent of 0.27.4 ha will be converted into greenbelt area	Mines Manager
No external dumping i.e., outside the project area	Mine Foreman
Garland drains with catch pits / settlement traps to be provided all around the project area to prevent run off affecting the surrounding lands.	Mines Manager
The periphery of Project area will be planted with thick plantation to arrest the fugitive dust, which will also act as acoustic barrier.	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

## 10.3 TOPSOIL / WASTE MANAGEMENT –

There is no overburden or waste anticipated from proposed project and it is proposed to remove the top layer of topsoil formation of average thickness 1 m about **7,260m<sup>3</sup>**.

The above topsoil shall be excavated and dumped separately at 10 m Safety barrier Zone and subsequently will be utilized in spreading over reclaimed areas for plantation during mine closure stage. Precautions will be taken to limit the height of the topsoil dump from 3 to 4 meters in order to preserve its fertility and shelf life. It will be suitably protected from soil erosion and infertility by constructing a retaining wall at the foot wall side and by planting fodder grass and leguminous plants during temporary storage.

**TABLE 10.2: PROPOSED CONTROLS FOR SOIL MANAGEMENT**

CONTROL	RESPONSIBILITY
Surface run-off from the project boundary via garland drains will be diverted to the mine pits	Mine Foreman & Mining Mate
Design haul roads and other access roads with drainage systems to minimize concentration of flow and erosion risk	Mines Manager
Empty sediment from sediment traps Maintain, repair or upgrade garland drain system	Mines Manager
Test soils for pH, EC, chloride, size & water holding capacity	Manager Mines

Source: Proposed by FAE's & EIA Coordinator

#### 10.4 WATER MANAGEMENT

In the proposed quarrying project, no process is involved for the effluent generation, effluent is mainly containing Oil & grease from the workshop, no workshops are proposed inside the project area. Nearest Surface Water Bodies are Nathamedu Tank– 350m SE & Gajalnayakanpatti Lake– 2.5km NE

The quarrying operation is proposed upto a depth of 66 m (65m + 1m), the water table in the area is **56-60m** below ground level, and hence the proposed project will not intersect the Ground water table during entire quarry period.

**TABLE 10.3: PROPOSED CONTROLS FOR WATER ENVIRONMENT**

CONTROL	RESPONSIBILITY
To maximize the reuse of pit water for water supply	Mines Foreman
Temporary and permanent garland drain will be constructed to contain the catchments of the mining area and to divert runoff from undisturbed areas through the mining areas	Mines Manager
Natural drains/nallahs/brooklets outside the project area should not be disturbed at any point of mining operations	Mines Manager
Ensure there is no process effluent generation or discharge from the project area into water bodies	Mines Foreman
Domestic sewage generated from the project area will be disposed in septic tank and soak pit system	Mines Foreman
Monthly or after rainfall, inspection for performance of water management structures and systems	Mines Manager
Conduct ground water and surface water monitoring for parameters specified by CPCB	Manager Mines

Source: Proposed by FAE's & EIA Coordinator

#### 10.5 AIR QUALITY MANAGEMENT

The proposed quarrying activity would result in the increase of particulate matter concentrations due to fugitive dust. Daily water sprinkling on the haul roads, approach roads in the vicinity would be undertaken and will be continued as there is possibility for dust generation due to truck mobility. It will be ensured that vehicles are properly maintained to comply with exhaust emission requirements.

**TABLE 10.4: PROPOSED CONTROLS FOR AIR ENVIRONMENT**

CONTROL	RESPONSIBILITY
Generation of dust during excavation is minimized by daily (twice) water sprinkling on working face and daily (twice) water sprinkling on haul road	Mines Manager
Wet drilling procedure /drills with dust extractor system to control dust generation during drilling at source itself is implemented	Mines Manager
Maintenance as per operator manual of the equipment and machinery in the mines to minimizing air pollution	Mines Manager
Ambient Air Quality Monitoring carried out in the project area and in surrounding villages to access the impact due to the mining activities and the efficacy of the adopted air pollution control measures	Mines Manager
Provision of Dust Mask to all workers	Mines Manager
Greenbelt development all along the periphery of the project area	Mines Manager

Source: Proposed by FAE's & EIA Coordinator



**10.6 NOISE POLLUTION CONTROL**

There will be intermittent noise levels due to vehicular movement, trucks loading, drilling and blasting activities. No mining activities are planned during night time.

**TABLE 10.5: PROPOSED CONTROLS FOR NOISE ENVIRONMENT**

<b>CONTROL</b>	<b>RESPONSIBILITY</b>
Development of thick greenbelt all along the Buffer Zone (7.5 Meters) of the project area to attenuate the noise and the same will be maintained	Mines Manager
Preventive maintenance of mining machinery and replacement of worn out accessories to control noise generation	Mines Foreman
Deployment of mining equipment with an inbuilt mechanism to reduce noise	Mines Manager
Provision of earmuff / ear plugs to workers working in noise prone zones in the mines	Mining Mate
Provision of effective silencers for mining machinery and transport vehicles	Mines Manager
Provision of sound proof AC operator cabins to HEMM	Mines Manager
Sharp drill bits are used to minimize noise from drilling	Mines Foreman
Controlled blasting technologies are adopted by using delay detonators to minimize noise from blasting	Mines Manager
Annual ambient noise level monitoring are carried out in the project area and in surrounding villages to assess the impact due to the mining activities and the efficacy of the adopted noise control measures. Additional noise control measures will be adopted if required as per the observations during monitoring	Mines Manager
Reduce maximum instantaneous charge using delays while blasting	Mining Mate
Change the burden and spacing by altering the drilling pattern and/or delay layout, or altering the hole inclination	Mines Manager
Undertake noise or vibration monitoring	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

**10.7 GROUND VIBRATION AND FLY ROCK CONTROL**

The Rough Stone quarry operation creates vibration due to the blasting and movement of Heavy Earth moving machineries, fly rocks due to the blasting.

**TABLE 10.6: PROPOSED CONTROLS FOR GROUND VIBRATIONS & FLY ROCK**

<b>CONTROL</b>	<b>RESPONSIBILITY</b>
Controlled blasting using delay detonators will be carried out to maintain the PPV value (below 8Hz) well within the prescribed standards of DGMS	Mines Manager
Drilling and blasting will be carried under the supervision of qualified persons	Mines Manager
Proper stemming of holes should be carried out with statutory competent qualified blaster under the supervision of statutory mines manager to avoid any anomalies during blasting	Mines Manager
Suitable spacing and burden will be maintained to avoid misfire / fly rocks	Manager Mines
Number of blast holes will be restricted to control ground vibrations	Manager Mines
Blasting will be carried out only during noon time	Mining Mate
Undertake noise or vibration monitoring	Mines Manager
ensure blast holes are adequately stemmed for the depth of the hole and stemmed with suitable angular material	Mines Foreman

Source: Proposed by FAE's & EIA Coordinator

## 10.8 BIOLOGICAL ENVIRONMENT MANAGEMENT

The proponent will take all necessary steps to avoid the impact on the ecology of the area by adopting suitable management measures in the planning and implementation stage. During mining, thick plantation will be carried out around the project periphery, on safety barrier zone, on top benches of quarried out area etc.,

Following control measures are proposed for its management and will be the responsibility of the Mines Manager.

- Greenbelt development all along the safety barrier of the project area
- It is also proposed to plant around 600 trees during the present plan period. Post plantation status will be regularly checked for every season.
- The main attributes that retard the survival of sapling is fugitive dust, this fugitive dust can be controlled by water sprinkling on the haul roads and installing a sprinkler unit near the newly planted area.
- Year wise greenbelt development will be recorded and monitored based on,
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  - Spacing between the plants
  - Type of manuring and fertilizers and its periods
  - Lopping period, interval of watering
  - Survival rate
  - Density of plantation

The ultimate reclamation plan leaves a congenial environment for development of flora & immigration of small fauna through green belt and water reservoir. The green belt and water reservoir developed within the Project at the end of mine life will attract the birds and animals towards the project area in the post mining period.

### 10.8.2 Green Belt Development Plan

The objectives of the greenbelt development plan are –

- Provide a green belt around the periphery of the quarry area to combat the dispersal of dust in the adjoining areas,
- Protect the erosion of the soil, Conserve moisture for increasing ground water recharging,
- Restore the ecology of the area, Restore aesthetic beauty of the locality and meet the requirement of fodder, fuel and timber of the local community.

About 600 nos. of saplings is proposed to be planted for the Mining plan period in safety barrier with survival rate 80% which shall include about 25 nos. of fruit bearing and avenue plants are proposed to be developed around the mines office. The greenbelt development plan has been prepared keeping in view the land use changes that will occur due to mining operation in the area.

**TABLE 10.7 PROPOSED GREENBELT ACTIVITIES FOR 5 YEAR PLAN PERIOD**

Year	No. of trees proposed to be planted	Survival %	Area to be covered sq.m	Name of the species	No. of trees expected to be grown
I	600	80%	Approach Road and nearby periphery of the village Road after consulting the local Panchayat authority and Agriculture Experts	Neem, Pungam, Naval, Vannimaram, Panai, Puvarasu, etc.,	500

Source: Approved Mining Plan

### 10.8.2 Species Recommended for Plantation

Following points have been considered while recommending the species for plantation:

- Creating of bio-diversity.
- Fast growing, thick canopy cover, perennial and evergreen large leaf area,
- Efficient in absorbing pollutants without major effects on natural growth

**TABLE 10.8: RECOMMENDED SPECIES TO PLANT IN THE GREENBELT**

S.No	Botanical Name	Local Name	Importance
15.	Azadirachta indica	Neem, Vembu	Neem oil & neem products
16.	Millettia pinnata	Pungan	landscaping purposes as a windbreak or for shade
17.	Tamarindusindica	Tamarind	Edible & Medicinal and other Uses
18.	Achras sapota	Sapota	Edible fruits
19.	Ficus benghalensis	Alai	Shade and a source of food for birds
20.	Ficus religiosa	araca-maram	Shade and a source of food for birds
21.	Mangifera indica	Mango/ Ma	Edible fruit
22.	Terminalia catappa	nattuvadumai	Edible nuts
23.	Polyalthia longifolia	Nettilinkam	Tall and evergreen tree
24.	Borassus flabellifer	Panai	Palm tree supplies food and food items
25.	Pongamia Pinnata	Pungam	-
26.	Prosopis cinerea	Vanni Maram	-
27.	Syzygium cumini	Naval	-
28.	Thespesia Populnea	Puvarasu	-

Source: Proposed by FAE's & EIA Coordinator

### 10.9 OCCUPATIONAL SAFETY & HEALTH MANAGEMENT

Occupational safety and health are very closely related to productivity and good employer-employee relationship. The main factors of occupational health impact in quarries are fugitive dust and noise. Safety of employees during quarrying operation and maintenance of mining equipment will be taken care as per Mines Act 1952 and Rule 29 of Mines Rules 1955. To avoid any adverse effect on the health of workers due to dust, noise and vibration sufficient measures have been provided.

#### 10.9.1 Medical Surveillance and Examinations –

- Identifying workers with conditions that may be aggravated by exposure to dust & noise and establishing baseline measures for determining changes in health.
- Evaluating the effect of noise on workers
- Enabling corrective actions to be taken when necessary
- Providing health education

The health status of workers in the mine shall be regularly monitored under an occupational surveillance program. Under this program, all the employees are subjected to a details medical examination at the time of employment. The medical examination covers the following tests under mines act 1952.

- General Physical Examination and Blood Pressure
- X-ray Chest and ECG
- Sputum test

The medical histories of all employees will be maintained in a standard format annually. Thereafter, the employees will be subject to medical examination annually. The below tests keep upgrading the database of medical history of the employees.

**TABLE 10.9: MEDICAL EXAMINATION SCHEDULE**

Sl.No	Activities	1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	5 <sup>th</sup> Year
1	Initial Medical Examination (Mine Workers)					
A	Physical Check-up					
B	Psychological Test					
C	Audiometric Test					

D	Respiratory Test					
2	Periodical Medical Examination (Mine Workers)					
A	Physical Check - up					
B	Audiometric Test					
C	Eye Check – up					
D	Respiratory Test					
3	Medical Camp (Mine Workers & Nearby Villagers)					
4	Training (Mine Workers)					

Medical Follow ups:- Work force will be divided into three targeted groups age wise as follows:-		
<b>Age Group</b>	<b>PME as per Mines Rules 1955</b>	<b>Special Examination</b>
Less than 25 years	Once in a Three Years	In case of emergencies
Between 25 to 40 Years	Once in a Three Years	In case of emergencies
Above 40 Years	Once in a Three Years	In case of emergencies
Medical help on top priority immediately after diagnosis/ accident is the essence of preventive aspects.		

### 10.9.2 Proposed Occupational Health and Safety Measures –

- The mine site will have adequate drinking water supply so that workers do not get dehydrated.
- Lightweight and loose fitting clothes having light colors will be preferred to wear.
- Noise exposure measurements will be taken to determine the need for noise control strategies.
- The personal protective equipment will be provided for mine workers.
- Supervisor will be instructed for reporting any problems with hearing protectors or noise control equipment.
- At noisy working activity, exposure time will be minimized.
- Dust generating sources will be identified and proper control measure will be adopted.
- Periodic medical examinations will be provided for all workers.
- Strict observance of the provisions of DGMS Acts, Rules and Regulations in respect of safety both by management and the workers.
- The width of road will be maintained more than thrice the width of the vehicle. A code of traffic rules will be implemented.
- In respect of contract work, safety code for contractors and workers will be implemented. They will be allowed to work under strict supervision of statutory person/officials only after they will impart training at vocational training centres. All personal protective equipment's will be provided to them.
- A safety committee meeting every month will be organized to discuss the safety of the mines and the persons employed.
- Celebration of annual mines safety week and environmental week in order to develop safety awareness and harmony amongst employees and co quarry owners.

**FIGURE 10.1: PERSONAL PROTECTIVE EQUIPMENT TO THE MINE WORKERS**

### 10.9.3 Health and Safety Training Programme

The Proponent's will provide special induction program along with machinery manufacturers for the operators and co-operators to run and maintain the machinery effectively and efficiently. The training program for the supervisors and office staffs will be arranged in the Group Vocational Training Centres in the State. And engage an Environmental Consultants to provide periodical training to all the employees to carry out the mining operation in and eco-friendly manner.

**TABLE 10.10: LIST OF PERIODICAL TRAININGS PROPOSED FOR EMPLOYEES**

Course	Personnel	Frequency	Duration	Instruction
New-Employee Training	All new employees exposed to mine hazards	Once	One week	Employee rights; Supervisor responsibilities; Self-rescue; Respiratory devices; Transportation controls; Communication systems; Escape and emergency evacuation; Ground control hazards; Occupational health hazards; Electrical hazards; First aid & Explosives
Task Training Like Drilling, Blasting, Stemming, safety, Slope stability, Dewatering, Haul road maintenance,	Employees assigned to new work tasks	Before new Assignments	Variable	Task-specific health & safety procedures and SOP for various mining activity. Supervised practice in assigned work tasks.
Refresher Training	All employees who received new-hire training	Yearly	One week	Required health and safety standards; Transportation controls; Communication systems; Escape ways, emergency evacuations; Fire warning; Ground control hazards; First aid; Electrical hazards; Accident prevention; Explosives; Respirator devices
Hazard Training	All employees exposed to mine hazards	Once	Variable	Hazard recognition and avoidance;

				Emergency evacuation procedures; Health standards; Safety rules; Respiratory devices
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Source: Proposed by FAE's & EIA Coordinator as per DGMS Norms

#### 10.9.4 Budgetary Provision for Environmental Management –

Adequate budgetary provision has been made by the Company for execution of Environmental Management Plan. The Table 10.11 gives overall investment on the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures.

**TABLE 10.11: EMP BUDGET FOR PROPOSED PROJECT**

	Mitigation Measure	Provision for Implementation	Capital	Recurring
Air Environment	Compaction, gradation and drainage on both sides for Haulage Road	Rental Dozer & drainage construction on haul road @ Rs. 10,000/- per hectare; and yearly maintenance @ Rs. 10,000/- per hectare	10000	10000
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	Fixed Sprinkler Installation and New Water Tanker Cost for Capital; and Water Sprinkling (thrice a day) Cost for recurring	800000	50000
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sand bags / steel mesh / old tyres / used conveyor belts	0	5000
	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	Dust extractor @ Rs. 25,000/- per unit deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance - 5 Units	125000	12500
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	Stone carrying trucks will be covered by tarpaulin	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per Tipper/Dumper deployed - 2 Units	10000	500
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of Exhaust Fumes by Manual Labour	0	5000
	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	Provision for 2 labours @ Rs.10,000/labour (Contractual) per Hectare	0	20000
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50000	20000
Noise Environment	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Competent Person	0	0
	Provision for Portable blaster shed	Installation of Portable blasting shelter	50000	2000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	491465

Waste Management	Waste management (Spent Oil, Grease etc..)	Provision for domestic waste collection and disposal through authorized agency	5000	20000
		Installation of dust bins	5000	2000
	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost	0	0
Mine Closure	1. Progressive Closure Activity - Surface Runoff management	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	10000	5000
	2. Progressive Closure Activity Barbed Wire Fencing to quarry area will be provisioned.	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum	200000	10000
	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - Proposal for 600 Trees - (300 Inside Lease Area & 300 Outside Lease Area)	trenches, soil amendments, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring)	60000	9000
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	90000	9000
	4. Implementation of Final Mine Closure Activity as per Approved Mining Plan on Last Year	Few activities already covered as progressive closure activities as greenbelt development, wire fencing, garland drain. *For Final Closure Activities 15% of the proposed closure cost will be spent during the final mine closure stage - Last Year	49500	0
5. Contribution towards Green Fund. As per TNMMCR 1959, Rule 35 A	The Contribution towards Green Funds @ 10% of Seigniorage fee are indicated as part of EMP Budge and not necessarily implemented in the Project Site	1115248		
Implementation of EC, Mining Plan & DGMS Condition	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed Display Board at the Quarry Entrance as permanent structure mentioning Environmental Conditions	10000	1000
	Air, Water, Noise and Soil Quality Sampling every 6 Months for Compliance Report of EC Conditions	Submission of 2 Half Yearly Compliance - Lab Monitoring Report as per CPCB norms	0	50000
	Workers will be provided with Personal Protective Equipment's	Provision of PPE @ Rs. 4000/- per employee with recurring based on wear and tear (say, @ Rs. 1000/- per employee) - 21 Employees	84000	21000
	Health check up for workers will be provisioned	IME & PME Health check up @ Rs. 1000/- per employee	0	21000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	2000
	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10000	2000
	No parking will be provided on the transport routes. Separate provision on the south side of the hill will be made for vehicles /HEMMs. Flaggers will be deployed for traffic management	Parking area with shelter and flags @ Rs. 50,000/- per hectare project and Rs. 10,000/- as maintenance cost	50000	10000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	30000	5000
Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1 <sup>st</sup> Class / 2 <sup>nd</sup> Class / Mine Foreman) under regulation 34 / 34 (6) of MMR, 1961 and Mining Mate under regulation 116 of MMR, 1961 @ 40,000/- for Manager & @ 25,000/-	0	780000	
CER	As per MoEF & CC OM 22-65/2017-IA.III Dated 25.02.2021	Detailed Description in following slides and Budget allocation is included as per MoEF & CC OM	500000	
<b>TOTAL</b>			<b>3214248</b>	<b>1578465</b>

**TABLE No.12 EMP BUDGET SUMMARY BREAKUP YEAR WISE**

<b>Year</b>	<b>Total Cost</b>
1 <sup>st</sup>	Rs. 47,92,712
2 <sup>nd</sup>	Rs. 16,57,388
3 <sup>rd</sup>	Rs. 17,40,257
4 <sup>th</sup>	Rs. 18,27,270
5 <sup>th</sup>	Rs. 19,68,134

In order to implement the environmental protection measures, an amount of Rs. 32.10 lakhs as capital cost and recurring cost as Rs. 15.75 lakhs as recurring cost is proposed considering present market price considering present market scenario.

#### **10.10 CONCLUSION –**

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



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## CHAPTER 11: SUMMARY AND CONCLUSION

Panamarathupatti Rough Stone Cluster (Extent: 6.90.0 ha) falls under “B” category as per MoEF & CC Notification (S.O. 3977 (E)).

Now, as per Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green Tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018 clarified the requirement for EIA, EMP and therefore, Public Consultation for all areas from 5 to 25 ha falling in Category B- 1 and appraised by SEAC/ SEIAA as well as for cluster situation.

A detailed Draft EIA EMP Report is prepared for public and other stakeholders' suggestions and a Final EIA EMP Report will be prepared based on the outcome of Public Consultation.

Environmental monitoring and audit mechanism have been recommended before and after commencement of the project, where necessary, to verify the accuracy of the EIA predictions and the effectiveness of recommended mitigation measures.

The main scope of the EIA study is to quantify the cumulative impact in the study area due to cluster quarries and formulate the effective mitigation measures for each individual leases. A detailed account of the emission sources, emissions control equipment, background Air quality levels, Meteorological measurements, Dispersion model and all other aspects of pollution like effluent discharge, Dust generation etc., have been discussed in this report. The baseline monitoring study has been carried out during the months March to May 2024 for various environmental components so as to assess the anticipated impacts of the cluster quarry projects on the environment and suitable mitigation measures for likely adverse impacts due to the proposed project is suggested individually for the respective proposed project under Chapter 10.

The project proponent ensures to obtain necessary clearances and quarrying will be carried out as per rules and regulations. The Mining Activity will be carried out in a phased manner as per the approved mining plan after obtaining EC, CTO from TNPCB, execution of lease deed and obtaining DGMS Permission and working will be carried out under the supervision of Competent Persons employed.

Overall, the EIA report has predicted that the project will comply with all environment standards and legislation after commencement of the project and operational stage mitigation measures are implemented.

Mining operations has positive impact on environment and socio economy such as landscape improvement, water as by-product, economy development and better public services, providing and supply of Rough Stone as per market demand.

Sustainable and modern mining leads us to see positive impact of mining operation and providing consistent employment for nearly 41 people directly in the cluster and indirectly around 50 people.

As discussed, it is safe to say that the proposed quarries are not likely to cause any significant impact to the ecology of the area, as adequate preventive measures will be adopted to keep the various pollutants within the permissible limits. Green belt development around the area will also be taken up as an effective pollution mitigate technique, as well as to serve as biological indicators for the pollutants released from the Panamarathupatti Rough Stone Cluster quarries (Extent: 6.90.0 ha).

## CHAPTER 12: DISCLOSURE OF CONSULTANTS

Panamarathupatti Rough Stone Quarry, has engaged M/s Geo Exploration and Mining Solutions, an Accredited Organization under Quality Council of India – National Accreditation Board for Education & Training, New Delhi, for carrying out the EIA Study as per the ToR Issued.

Name and address of the consultancy:

### GEO EXPLORATION AND MINING SOLUTIONS

No 17, Advaita Ashram Road,

Alagapuram, Salem – 636 004

Tamil Nadu, India

Email: [infogeoexploration@gmail.com](mailto:infogeoexploration@gmail.com)

Web: [www.gemssalem.com](http://www.gemssalem.com)

Phone: 0427 2431989.

The Accredited Experts and associated members who were engaged for this EIA study as given below –

Sl.No.	Name of the expert	In house/ Empanelled	EIA Coordinator		FAE	
			Sector	Category	Sector	Category
1	Dr. M. Ifthikhar Ahmed	In-house	1	A	WP GEO SC	B A A
2	Dr. P. Thangaraju	In-house	-	-	HG GEO	A A
3	Mr. A. Jagannathan	In-house	-	-	AP NV SHW	B A B
4	Mr. N. Senthilkumar	Empanelled	38 28	B B	AQ WP RH	B B A
5	Mrs. Jisha parameswaran	In-house	-	-	SW	B
6	Mr. Govindasamy	In-house	-	-	WP	B
7	Mrs. K. Anitha	In-house	-	-	SE	A
8	Mrs. Amirtham	In-house	-	-	EB	B
9	Mr. Alagappa Moses	Empanelled	-	-	EB	A
10	Mr. A. Allimuthu	In-house	-	-	LU	B
11	Mr. S. Pavel	Empanelled	-	-	RH	B
12	Mr. J. R. Vikram Krishna	Empanelled	-	-	SHW RH	A A

Abbreviations	
EC	EIA Coordinator
AEC	Associate EIA Coordinator
FAE	Functional Area Expert
FAA	Functional Area Associates
TM	Team Member
GEO	Geology
WP	Water pollution monitoring, prevention and control
AP	Air pollution monitoring, prevention and control
LU	Land Use
AQ	Meteorology, air quality modeling, and prediction
EB	Ecology and bio-diversity
NV	Noise and vibration
SE	Socio economics
HG	Hydrology, ground water and water conservation
SC	Soil conservation
RH	Risk assessment and hazard management
SHW	Solid and hazardous wastes
MSW	Municipal Solid Wastes
ISW	Industrial Solid Wastes
HW	Hazardous Wastes

## DECLARATION BY EXPERTS CONTRIBUTING TO THE EIA/EMP

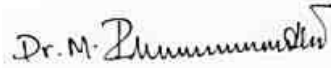
Declaration by experts contributing to the Cluster EIA/EMP for Panamathupatti Rough Stone Quarry Project over a Cluster Extent of 6.90.0 ha in Panamathupatti Village of Salem Taluk, Salem District of Tamil Nadu. It is also certified that information furnished in the above EIA study are true and correct to the best of our knowledge.

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

Name: **Dr. M. Ifthikhar Ahmed**

Designation: **EIA Coordinator**

Date & Signature:




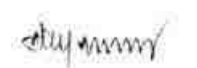

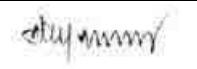














Period of Involvement: **January 2021 to till date**

**Associated Team Member with EIA Coordinator:**

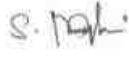
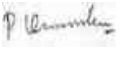


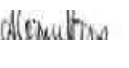

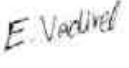

1. **Mr. S. Nagamani**
2. **Mr. P.Viswanathan**
3. **Mr. M.Santhoshkumar**
4. **Mr. S. Ilavarasan**

### FUNCTIONAL AREA EXPERTS ENGAGED IN THE PROJECT

Sl. No.	Functional Area	Involvement	Name of the Expert/s	Signature
1	AP	<ul style="list-style-type: none"> <li>▪ Identification of different sources of air pollution due to the proposed mine activity</li> <li>▪ Prediction of air pollution and propose mitigation measures / control measures</li> </ul>	Mr. A. Jagannathan	
2	WP	<ul style="list-style-type: none"> <li>▪ Suggesting water treatment systems, drainage facilities</li> <li>▪ Evaluating probable impacts of effluent/waste water discharges into the receiving environment/water bodies and suggesting control measures.</li> </ul>	Dr. M. Ifthikhar Ahmed	
			Mr. N. Senthilkumar	
3	HG	<ul style="list-style-type: none"> <li>▪ Interpretation of ground water table and predict impact and propose mitigation measures.</li> <li>▪ Analysis and description of aquifer Characteristics</li> </ul>	Dr. P. Thangaraju	
4	GEO	<ul style="list-style-type: none"> <li>▪ Field Survey for assessing the regional and local geology of the area.</li> <li>▪ Preparation of mineral and geological maps.</li> <li>▪ Geology and Geo morphological analysis/description and Stratigraphy/Lithology.</li> </ul>	Dr. M. Ifthikhar Ahmed	
			Dr. P. Thangaraju	
5	SE	<ul style="list-style-type: none"> <li>▪ Revision in secondary data as per Census of India, 2011.</li> <li>▪ Impact Assessment &amp; Preventive Management Plan</li> <li>▪ Corporate Environment Responsibility.</li> </ul>	Mrs. K. Anitha	
6	EB	<ul style="list-style-type: none"> <li>▪ Collection of Baseline data of Flora and Fauna.</li> <li>▪ Identification of species labelled as Rare, Endangered and threatened as per IUCN list.</li> <li>▪ Impact of the project on flora and fauna.</li> <li>▪ Suggesting species for greenbelt development.</li> </ul>	Mrs. Amirtham	
			Mr. Alagappa Moses	
7	RH	<ul style="list-style-type: none"> <li>▪ Identification of hazards and hazardous substances</li> <li>▪ Risks and consequences analysis</li> <li>▪ Vulnerability assessment</li> <li>▪ Preparation of Emergency Preparedness Plan</li> <li>▪ Management plan for safety.</li> </ul>	Mr. N. Senthilkumar	
			Mr. S. Pavel	
			Mr. J. R. Vikram Krishna	

8	LU	<ul style="list-style-type: none"> <li>Construction of Land use Map</li> <li>Impact of project on surrounding land use</li> <li>Suggesting post closure sustainable land use and mitigative measures.</li> </ul>	Mr. A. Allimuthu	
9	NV	<ul style="list-style-type: none"> <li>Identify impacts due to noise and vibrations</li> <li>Suggesting appropriate mitigation measures for EMP.</li> </ul>	Mr. A. Jagannathan	
10	AQ	<ul style="list-style-type: none"> <li>Identifying different source of emissions and propose predictions of incremental GLC using AERMOD.</li> <li>Recommending mitigations measures for EMP</li> </ul>	Mr. N. Senthilkumar	
11	SC	<ul style="list-style-type: none"> <li>Assessing the impact on soil environment and proposed mitigation measures for soil conservation</li> </ul>	Dr. M. Ifthikhar Ahmed	
12	SHW	<ul style="list-style-type: none"> <li>Identify source of generation of non-hazardous solid waste and hazardous waste.</li> <li>Suggesting measures for minimization of generation of waste and how it can be reused or recycled.</li> </ul>	Mr. A. Jagannathan	
			Mr. J. R. Vikram Krishna	

**LIST OF TEAM MEMBERS ENGAGED IN THIS PROJECT**

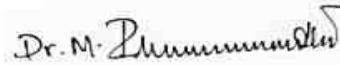
Sl.No.	Name	Functional Area	Involvement	Signature
1	Mr. S. Nagamani	AP; GEO; AQ	<ul style="list-style-type: none"> <li>Site Visit with FAE</li> <li>Provide inputs &amp; Assisting FAE with sources of Air Pollution, its impact and suggest control measures</li> <li>Provide inputs on Geological Aspects</li> <li>Analyse &amp; provide inputs and assist FAE with meteorological data, emission estimation, AERMOD modelling and suggesting control measures</li> </ul>	
2	Mr. Viswanathan	AP; WP; LU	<ul style="list-style-type: none"> <li>Site Visit with FAE</li> <li>Provide inputs &amp; Assisting FAE with sources of Air Pollution, its impact and suggest control measures</li> <li>Assisting FAE on sources of water pollution, its impacts and suggest control measures</li> <li>Assisting FAE in preparation of land use maps</li> </ul>	
3	Mr. Santhoshkumar	GEO; SC	<ul style="list-style-type: none"> <li>Site Visit with FAE</li> <li>Provide inputs on Geological Aspects</li> <li>Assist in Resources &amp; Reserve Calculation and preparation of Production Plan &amp; Conceptual Plan</li> <li>Provide inputs &amp; Assisting FAE with soil conservation methods and identifying impacts</li> </ul>	
4	Mr. Umamahesvaran	GEO	<ul style="list-style-type: none"> <li>Site Visit with FAE</li> <li>Provide inputs on Geological Aspects</li> <li>Assist in Resources &amp; Reserve Calculation and preparation of Production Plan &amp; Conceptual Plan</li> </ul>	
5	Mr. A. Allimuthu	SE	<ul style="list-style-type: none"> <li>Site Visit with FAE</li> <li>Assist FAE with collection of data's</li> <li>Provide inputs by analysing primary and secondary data</li> </ul>	
6	Mr. S. Ilavarasan	LU; SC	<ul style="list-style-type: none"> <li>Site Visit with FAE</li> <li>Assisting FAE in preparation of land use maps</li> <li>Provide inputs &amp; Assisting FAE with soil conservation methods and identifying impacts</li> </ul>	
7	Mr. E. Vadivel	HG	<ul style="list-style-type: none"> <li>Site Visit with FAE</li> <li>Assist FAE &amp; provide inputs on aquifer characteristics, ground water level/table</li> <li>Assist with methods of ground water recharge and conduct pump test, flow rate</li> </ul>	
8	Mr. D. Dinesh	NV	<ul style="list-style-type: none"> <li>Site Visit with FAE</li> </ul>	

			<ul style="list-style-type: none"> <li>▪ Assist FAE and provide inputs on impacts due to proposed mine activity and suggest mitigation measures</li> <li>▪ Assist FAE with prediction modelling</li> </ul>	
9	Mr. Panneer Selvam	EB	<ul style="list-style-type: none"> <li>▪ Site Visit with FAE</li> <li>▪ Assist FAE with collection of baseline data</li> <li>▪ Provide inputs and assist with labelling of Flora and Fauna</li> </ul>	<i>P. Panneer Selvam</i>
10	Mrs. Nathiya	EB	<ul style="list-style-type: none"> <li>▪ Site Visit with FAE</li> <li>▪ Assist FAE with collection of baseline data</li> <li>▪ Provide inputs and assist with labelling of Flora and Fauna</li> </ul>	<i>T. Nathiya</i>

**DECLARATION BY THE HEAD OF THE ACCREDITED CONSULTANT ORGANIZATION**

I, Dr. M. Ifthikhar Ahmed, Managing Partner, Geo Exploration and Mining Solutions, hereby, confirm that the above mentioned Functional Area Experts and Team Members prepared the EIA/EMP Report for Mining of Panamarathupatti Rough Stone Quarry, over a cluster Extent of 6.90.0 ha in Panamarathupatti Village, Salem Taluk, Salem District of Tamil Nadu. It is also certified that information furnished in the EIA study are true and correct to the best of our Knowledge.

Signature & Date:



Name:

**Dr. M. Ifthikhar Ahmed**

Designation:

**Managing Partner**

Name of the EIA Consultant Organization:

**M/s. Geo Exploration and Mining Solutions**

NABET Certificate No & Issue Date:

**NABET/EIA/2225/RA 0276 Dated: 20-2-2023**

# ANNEXURE

## PANAMARATHUPATTI ROUGH STONE QUARRY

Panamarathupatti Village,

Salem Taluk,

Salem District

**CLUSTER EXTENT = 6.90.0Ha**

**ToR obtained**

P1 - Lr No. SEIAA-TN/F.No.7887/SEAC/ToR-868/2020 Dated: 12.03.2021

**ToR Amendment:**

File No. 11175, ToR Identification: TO24B0108TN5326611A

P2 - Lr No. SEIAA-TN/F.No.9500/SEAC/ToR-1308/2022 Dated: 07.12.2022

### Project Proponent

Code	P1	P2
<b>Project Location</b>	<b>M/s. Royal Stones</b> S.F No. 1/7 (Part-7), <b>Extent: 1.00.0Ha</b> Panamarathupatti Village, Salem Taluk, Salem (DT)	<b>Thiru. P. Siva Kumar</b> S.F. No. 1/7 (Part-11), <b>Extent: 1.00.0Ha</b> Panamarathupatti Village, Salem Taluk, Salem (DT)

## LIST OF ANNEXURES

ANNEXURE NO	DESCRIPTION	PAGE NO.
I	COPY OF TERMS OF REFERENCE - P1	1A-14A
II	COPY OF AMENDMENT TOR – P1	15A – 16A
III	COPY OF 500m RADIUS LETTER – P1	17A – 19A
IV	COPY OF MINING PLAN APPROVAL LETTER – P1	20A – 22A
V	COPY OF APPROVED MINING PLAN WITH PLATES – P1	23A – 103A
VI	COPY OF HYDROGEOLOGICAL REPORT – P1	104A - 113A
VII	COPY OF EXPLOSIVES LETTER – P1	114A – 116A
VIII	COPY OF 300m & VAO PHOTOCOPY LETTER – P1	117A – 118A
IX	COPY OF TERMS OF REFERENCE – P2	119A – 138A
X	COPY OF 500m RADIUS LETTER – P2	139A – 141A
XI	COPY OF MINING PLAN APPROVAL LETTER – P2	142A – 144A
XII	COPY OF APPROVED MINING PLAN WITH PLATES – P2	145A – 218A
XIII	COPY OF HYDROGEOLOGICAL REPORT – P2	219A – 230A
XIV	COPY OF 300m LETTER – P2	231A
XV	COPY OF PRECISE AREA COMMUNICATION LETTER – E1	232A – 233A
XVI	COPY OF BASE LINE MONITORING DATA	234A-278A
XVII	COPY OF NABET CERTIFICATE	279A



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

STATE LEVEL ENVIRONMENT IMPACT  
ASSESSMENT AUTHORITY – TAMIL NADU

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

Phone No. 044-24359973

Fax No. 044-24359975

**TERMS OF REFERENCE (ToR)**

**Lr No.SEIAA-TN/F.No.7887/SEAC/ToR- 868/2020 Dated:12.03.2021**

To

M/s.Royal Stones

1. Thiru.M.Bharathidasan (Partner)
2. Thiru.P.Dharmalingma (Partner)

207A, Chinnammal Building

No.102-A, Peramanur Main Road

Four Roads,Salem - 636 007

Sir / Madam,

**Sub:** SEIAA, Tamil Nadu - Terms of Reference with Public Hearing (TOR) for the Proposed Rough stone Quarry lease over an extent of 1.00.0Ha in S.F.Nos.1/7 (Part - 7) of Panamarathupatti Village, Salem Taluk, Salem District, Tamil Nadu by M/s. Royal Stones 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/56965/2020, dated: 24.09.2020.
  2. Your application submitted for Terms of Reference dated: 26.09.2020.
  3. Minutes of the 197<sup>th</sup> SEAC Meeting held on 03.02.2021.
  4. Minutes of the 427<sup>th</sup> SEIAA Meeting held on 01.03.2021.

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



  
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The proponent, M/s. Royal Stones has submitted application for TOR on 26.09.2020, in Form-I, Pre- Feasibility report for the Rough stone Quarry lease over an extent of 1.00.0Ha in S.F.Nos.1/7 (Part - 7) of Panamarathupatti Village, Salem Taluk, Salem District, Tamil Nadu.

**Discussion by SEAC and the Remarks:-**

The proposal was placed in the 197<sup>th</sup> SEAC Meeting held on 03.02.2021. Based on the presentation and documents furnished by the project proponent, SEAC decided to recommend the proposal for the grant of Terms of Reference (TOR) with Public Hearing, subject to the following specific conditions in addition to the points mentioned in the standard terms of reference for EIA study for non-coal mining projects and details issued by the MoEF& CC to be included in EIA/EMP report:

1. Restricting the depth of mining from 66m to 56m ultimate depth and quantity of 179775cu.m of Rough stone & 7600cu.m of Topsoil for five years with a bench height of 5m as per the approved mining plan considering the hydrogeological regime of the surrounding area.
2. The Project Proponent shall furnish the contour map of the water table detailing the number of wells located around the site and its impacts on the wells due to mining activity.
3. The Project Proponent shall conduct the hydro-geological study to evaluate the impact of proposed mining activity on the groundwater table, agriculture activity, and water bodies such as rivers, tanks, canals, ponds etc. located nearby by the proposed mining area.
4. The Project Proponent shall furnish the details on the number of groundwater pumping and open wells within 1 km (radius) along with the water levels in both monsoon and non-monsoon seasons. The proponent also shall collect the data of water table level from the PWD / TWAD in this area in both monsoon and non-monsoon seasons.
5. The Proponent shall carry out the Cumulative impact study on the Agricultural area due to Mining, Crushers and other activities around the site area.
6. The details of the surrounding well and the cumulative impact on the groundwater shall be part of the EIA study.
7. The Socio-economic studies should be carried out within a 10 km buffer zone from the mines.
8. A tree survey study shall be carried out (note name of the species, age) in the mining



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

**Discussion by SEIAA and the Remarks:-**

The proposal was placed before the 427<sup>th</sup> Authority meeting held on 01.03.2021. After detailed discussion, the Authority unanimously accepts the recommendation of SEAC and decided to grant **Terms of Reference (ToR) with Public Hearing** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal condition in addition to the following conditions.

1. As per the recommendation of SEAC and as accepted by the proponent, the ultimate depth of mining is restricted to 56m and accordingly the quantity of mining is 179775cu.m of Rough stone & 7600cu.m of top soil for a period of five years.
2. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.



  
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**A. STANDARD TERMS OF REFERENCE**

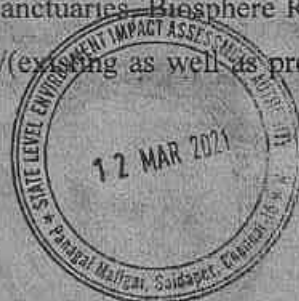
- 1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production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



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

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



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



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






from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.

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



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



  
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- f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.
- 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-11013/41/2006-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.



  
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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



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

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

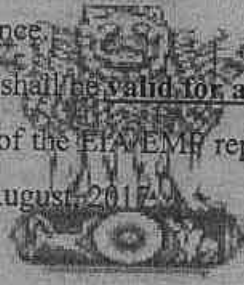
- a. A note confirming compliance of the TOR with cross referencing of the relevant sections / pages of the EIA report should be provided.
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Where data are presented in the report especially in tables,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



*S. S. S. S.*  
MEMBER SECRETARY  
SEIAA-TN

2<sup>nd</sup> December, 2009, 18<sup>th</sup> March 2010, 28<sup>th</sup> May 2010, 28<sup>th</sup> June 2010, 31<sup>st</sup> December 2010 & 30<sup>th</sup> September 2011 posted on the Ministry's website <http://www.moef.nic.in/> may be referred.

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



சுற்றுச்சூழல் துறை

  
MEMBER SECRETARY  
SEIAA-TN

**Copy to:**

1. The Additional Chief Secretary to Government, Environment & Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9.
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi 110032.
3. The Member Secretary, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-600 032.
4. The APCCF (C), Regional Office, MoEF & CC (SZ), 34, HEPC Building, 1<sup>st</sup> & 2<sup>nd</sup> 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, Salem District.
7. Stock File.





**File No.: 11175**  
**Government of India**  
**Ministry of Environment, Forest and Climate Change**  
**(Issued by the State Environment Impact Assessment Authority (SEIAA),**  
**TAMIL NADU)**

\*\*\*



Dated 26/09/2024



To,

Bharanitharan M  
M/S. ROYAL STONE ROUGH STONE  
102A Peramanur Main Road four road salem, SALEM, TAMIL NADU, no, 636007  
mbharranitharan@gmail.com

**Subject:** Amendment in Terms of Reference (ToR) granted to the project under the provision of the EIA Notification 2006 and as amended thereof regarding.

**Sir/Madam,**

This is in reference to your application submitted to Ministry vide proposal number SIA/TN/MIN/492488/2024 dated 12/08/2024 for grant of an amendment in Terms of Reference (ToR) to the project under the provision of the EIA Notification 2006-and as amended thereof.

2. The particulars of the proposal are as below :

(i) TOR Identification No.	TO24B0108TN5326611A
(ii) File No.	11175
(iii) Clearance Type	Amendment in TOR
(iv) Category	B1
(v) Schedule No./ Project Activity	1(a) Mining of minerals M/s. Royal Stones, New Rough stone Quarry Project
(vii) Name of Project	over an Extent of 1.00.0Ha of Government land in S.F.No. 1/7 (Part-7) of Panamarathupatti Village, Salem Taluk, Salem District, Tamilnadu.
(ix) Location of Project (District, State)	SALEM, TAMIL NADU
(x) Issuing Authority	SEIAA
(xii) Applicability of General Conditions	No

3. Terms of Reference along with Public Hearing was accorded to M/s. Royal Stones for the Proposed Rough stone Quarry Lease over an extent of 1.00.0 Ha at S.F.No. 1/7 (Part-7) Panamarathupatti Village, Salem Taluk, Salem District, Tamil Nadu with validity a validity of 3 years.

Now, the Project Proponent has applied for extension of validity of Terms of Reference.

**SEAC Remarks:**

The proposal was placed in the 493<sup>rd</sup> meeting of SEAC held on 30.08.2024. The details of the project furnished by the proponent are given in the website (parivesh.nic.in).

**The SEAC noted the following:**

1. ToR was issued to the project proponent vide Lr.No.SEIAA-TN/F.No.7887/SEAC/ToR-868/2020, Dated: 12.03.2021 for the proposed Rough stone quarry lease over an extent of 1.00.0 Ha at S.F.No. 1/7 (Part-7) Panamarathupatti Village, Salem Taluk, Salem District, Tamil Nadu by M/s. Royal Stones.
2. The project/activity is covered under Category “B1” of Item 1(a) “Mining of Minerals Projects” of the Schedule to the EIA Notification, 2006.
2. The ToRs were prescribed with a validity of 3 years from the date of issue of ToR, i.e., up to 11.03.2024.
3. Now, the proponent submitted an application in Form-3 seeking extension of validity in ToR for a period of 1 year, i.e., upto 11.03.2025 as per MoEF&CC Notification S.O.751 (E) dated.17.02.2020.
4. Further, the proponent has also requested for the following correction in the address content mentioned in the 1<sup>st</sup> page of ToR.

Description	As in ToR dated.12.03.2021	Correction requested
Page 1:	M/s. Royal Stones	M/s. Royal Stones
Name mentioned in	1. Thiru. M. Bharathidasan (Partner)	1. Thiru. M. Bharathidasan (Partner)
Address	2. Thiru. P. Dharmalingma (Partner)	2. Thiru. P. Dharmalingam (Partner)

The Committee noted that, as per MoEF&CC S.O.751 (E) dated.17.02.2020,

“...(viii) *The Terms of Reference for the projects or activities except for River valley and Hydro-electric projects, issued by the regulatory authority concerned, shall have the validity of four years from the date of issue. In case of the River valley and Hydro-electric projects, the validity will be for five years...*”

In view of the above, the Committee, after detailed deliberations, decided to recommend to extend the validity of ToR dated.12.03.2021 further for a period of 1 year, i.e., up to 11.03.2025 in terms of the MoEF&CC S.O.dated.17.02.2020. Further, the Committee decided to issue the above-mentioned name corrections requested by the proponent.

**SEIAA Remarks:**

The subject was placed in the 754<sup>th</sup> Authority meeting held on 16.09.2024. The authority noted that the subject was appraised in the 493<sup>rd</sup> SEAC meeting held on 30.08.2024. The Committee, after detailed deliberations, decided to recommend to extend the validity of ToR dated.12.03.2021 further for a period of 1 year, i.e., up to 11.03.2025 in terms of the MoEF&CC S.O. dated.17.02.2020. Further, the Committee decided to issue the name corrections in ToR as requested by the proponent.

After detailed discussions, the Authority taking into account the recommendations of SEAC, decided to grant extension of validity of Terms of Reference (ToR) for a period of 1 year, i.e., up to **11.03.2025** subject to the specific conditions stipulated by SEAC. All other conditions stipulated in the ToR vide Lr.No.SEIAA-TN/F.No.7887/SEAC/ToR-868/2020, Dated: 12.03.2021 shall remain unchanged and unaltered.

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

**Copy To**

1. The Additional Chief Secretary to Government, Environment, Climate Change and Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9.
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.
3. The Chairperson, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai - 600 032.
4. Stock File.

**Signature Not Verified**

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

Date: 26/09/2024



From

Thiru.A.Balamurugan.,M.Sc.,M.B.A.,  
Assistant Geologist/  
Assistant Director (I/c),  
Dept. of Geology and Mining,  
Collectorate,  
Salem -636 001.

To

The Chairman,  
Tamil Nadu State Environment  
Impact Assessment Authority,  
3<sup>rd</sup> Floor, Panakal Maligai,  
No. 1 Jeenes Road,  
Saidapet,  
Chennai-600 015.

Roc.179/2020/Mines-A dated 08-09-2020.

Sir.,

Sub: Mines and quarries – Minor minerals – Roughstone -  
Salem District and Taluk – Panamarathupatty Village –  
S.F.No.1/7 (Part-7) over an extent of 1.00.0 Hects. of  
Govt. Poramboke lands – Roughstone quarry/ Jelly  
permission requested by M/s. Royal stones, Salem –  
Existing/abandoned/ proposed quarries situated within  
500M radial distance- Requested by the applicant –  
Details furnished – Reg.

- Ref: 1. Salem District Extra Ordinary Gazette No.03 dated  
22.01.2020.  
2. Advertisement in Dinamani Tamil New Paper dated  
31.01.2020.  
3. This office even Memo letter No. dated. 03.06.2020.  
4. M/s. Royal Stones, Salem application dated  
23.08.2020.

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As per rule 8(1)(a) of Tamil Nadu Minor Mineral Concession Rules 1959, notification for Tender-Cum-Auction was published in the Salem District Gazette Extra Ordinary Issue No.03 dated 22-01-2020. The rough stone quarry (Sl.No.25 situated in S.F.No.1/7 (Part -7) over an extent of 1.00.0 hectares) in Government Poramboke land, Panamarathupatty Village, Salem Tauk and District is among them. The tender-cum-auction was conducted on 06-02-2020.

2. An amount of Rs.32,50,000/-(Rupees Thirty two lakhs and Fifty thousand only) quoted by M/s. Royal Stones, Salem is the highest lease amount for the said quarry.

3. In this connection, in the reference 3<sup>rd</sup> cited, M/s. Royal Stones, Salem was directed to produce the mining plan for approval and to obtain environmental clearance from the competent authority for an extent of 1.00.0 hectares. of Govt. Poramboke land in S.F.No. 1/7 (Part-7) of Panamarathupatty Village, Salem Tauk and District for a period of ten years for Roughstone-jelly.

4. In this meantime the applicant, M/s. Royal Stones, Salem has requested the Assistant Director of Geology and Mining, Salem to furnish the list of quarries located within 500 Mt radius from the subject land.

5. In this regard, it is informed that the following proposed quarries are situated within 500 Mt radial distance from the periphery of this quarry.

**i) Details of Existing quarries**

Sl. No	Name of the lessee	Village	S.F. No	Extent in Hects.	G.O. No.& Dated	Lease period	Status of the quarry
1.	Thiru. Arjunan S/o Kuppusamy	Panamarathupatty	1/7 (P-9)	4.90.0	Collector's Proceedings Roc.70/2018/ Mines-A/ dated 21.10.2018.	21.10. 2018 to 20.10.2028	EC obtained. Working
			Total	4.90.0			

**ii) Details of Abandoned quarries**

Sl. No	Name of the lessee	Village	S.F.No	Extent in Hects.	G.O. No.& Dated	Lease period	Status of the quarry
1.	Thiru.M.Gopi, S/o.K.Manickam, 9/145, Erumapalayam Main Road, Seelanaickenpatty Post, Salem-201	Panamarathu patty	1/7 (Part-1)	0.81.0	Collector's Proceedings Roc.211/2012 Mines-A/ dated 05.4.2012.	23.4.2012 To 22.4.2017	Non-Working
2.	Thiru.S.Karthikeyan S/o.Subramaniagounder, 2/169, Santhiyur, Parapatti Post, Mallur Via, Salem	Panamarathu patty	1/7 (Part-3)	1.00.0	Collector's Proceedings Roc.212/2012 Mines-A/ dated 05.4.2012.	23.4.2012 To 22.4.2017	Non-Working
3	Thiru.K.Devaraj S/o.T.Kathavarayan, 1/41, Arumuga pillaiyar koil street, Gugai, Salem	Panamarathu patty	1/7 (Part-4)	0.81.0	Collector's Proceedings Roc.113/2011 Mines-A/ dated 01.3.2011.	5.05.2011 to 4.05.2016	Non-Working
4	Thiru.J.Mallika W/o.R.Jayavel Vattakadu, Karuppur Via, Omalur Taluk.	Panamarathu patty	1/7 (Part-5)	1.00.0	Collector's Proceedings Roc.213/2012 Mines-A/ dated 05.4.2012.	23.4.2012 To 22.4.2017	Non-Working
			Total	3.18.0			



## iii) Details of lease period expired quarries

Sl. No	Name of the lessee	Village	S.F.No	Extent in Hects.	G.O. No.& Dated	Lease period	Status of the quarry

## iv) Details of Proposed quarries

Sl. No	Name of the lessee	Village	S.F.No	Extent in Hects.	G.O. No.& Dated	Lease period	Remarks
1.	M/s. Royal stones	Panamarathupatty	1/7 (Part-7)	1.00.0	-	-	Mining Plan approved, awaiting for EC
2	Thiru.P.Siva kumar	Panamarathupatty	1/7 (Part-11)	1.00.0	-	-	Precise Communication issued to the applicant vide this office letter Rec.No. Rc.No.180/20 20/Mines A dt.22.06.2020
			Total	2.00.0			

*[Signature]*  
Assistant Geologist/  
Assistant Director (I/c),  
Dept. of Geology and Mining,  
Salem.

*[Signature]*  
8/5/20

From

Thiru.A.Balamurugan.,M.Sc.,M.B.A.,  
Assistant Geologist/  
Assistant Director (I/c),  
Dept. of Geology and Mining,  
Collectorate,  
Salem -636 001.

To

M/s. Royal Stones,  
207 A, Chinnammal Building,  
No. 102-A, Peramanur Main road,  
Four Roads,  
Salem-636 007.

Roc.179/2020/Mines-A dated 26-08-2020.

Sir.,

Sub: Mines and quarries - Minor minerals - Roughstone -  
Salem District - Salem Taluk - Panamarathupatty  
Village - S.F.No.1/7 (Part-7) over an extent of 1.00.0  
Hects. of Govt. Poramboke lands - Roughstone quarry  
/ Jelly permission requested by M/s. Royal Stones,  
Salem - Mining plan submitted for obtaining  
Environment Clearance - Mining plan approved - Reg.

- Ref: 1. Salem District Extra Ordinary Gazette No.03 dated  
22.01.2020.  
2. Advertisement in Dinamani Tamil New Paper  
dated 31.01.2020.  
3. This office even Memo letter No. dated  
03.06.2020.  
4. M/s. Royal Stones, Salem application dated  
17.08.2020.

---

As per rule 8(1)(a) of Tamil Nadu Minor Mineral Concession Rules  
1959, notification for Tender-Cum-Auction was published in the Salem  
District Gazette Extra Ordinary Issue No.03 dated 22-01-2020. The rough  
stone quarry (Sl.No.25 situated in S.F.No.1/7 (Part -7) over an extent of  
1.00.0 hectares) in Government Poramboke land, Panamarathupatty  
Village, Salem Taluk and District is among them. The tender-cum-auction  
was conducted on 06-02-2020.

An amount of Rs.32,50,000/-(Rupees Thirty two lakhs and Fifty  
thousand only) quoted by M/s. Royal Stones, Salem is the highest lease  
amount for the said quarry. The above lease amount quoted is over and  
above the reasonable lease amount fixed

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..2..

for the said quarry. The reasonable lease amount fixed was Rs.32,00,000/- (Rupees Thirty two lakhs only) by the District Collector, Salem. The lease amount Rs.32,50,000/-(Rupees Thirty two lakhs and Fifty thousand only) had been remitted into Government Account.

In this connection, in the reference 3<sup>rd</sup> cited, M/s. Royal Stones, Salem was directed to produce the mining plan for approval and to obtain environmental clearance from competent authority for an extent of 1.00.0 Hects. of Govt. Poramboke land in S.F.No.1/7 (Part-7) of Panamarathupatty Village, Salem Tauk, Salem District for a period of ten years for Roughstone-jelly.

In the reference 4<sup>th</sup> cited, M/s. Royal Stones, Salem had submitted three copies of Mining plan, prepared by Thiru.P. Thangaraju, M.Sc., Ph.D., Reg.No.17, Advaita Ashram road, Alagapuram, Salem-636 004.

The Mining Plan submitted by M/s. Royal Stones, Salem has been scrutinized as per the guidelines issued by the Commissioner of Geology and Mining, Chennai in his letter Rc.No. 3868/LC/2012 dated 19-11-2012 and based on the reports and records and accordingly as authorized by the Commissioner of Geology and Mining, Chennai in his letter dated 19.11.2012, I hereby approve the above said mining plan.

This approval is subject to the following conditions:-

(i) That the mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such Laws are made by the Central Government, State Government or any other authority.

(ii) This approval of the mining plan does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Development and Regulation) Act, 1957, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Indian explosives act, 1884 (Central Act IV of 1884) and the Rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.

(iii) That the mining plan is approved without prejudice to any other order or direction from any court of contempt jurisdiction.

(iv) Quarrying should be done as per the approved mining plan and that the mining is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.

M/s. Royal Stones, Salem is directed to produce Environmental Clearance from the competent authority for the above applied area as per rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959.

Encl: 2 Copies of Approved Mining Plan.

*OP*  
*Amw*  
*26/10/20*  
Assistant Geologist /  
Assistant Director (I/c),  
Dept. of Geology and Mining,  
Salem.

*AS*  
*20/10/20*  
Copy submitted to the Director of Geology and Mining, Guindy,  
Chennai-32.



**MINING PLAN ALONG WITH  
PROGRESSIVE QUARRY CLOSURE PLAN FOR  
PANAMARATHUPATTI ROUGH STONE QUARRY**

(PREPARED UNDER RULES 41 & 42 AS PER THE AMENDED UNDER TAMIL NADU MINOR MINERAL  
CONCESSION RULES, 1959)

Government Land

Lease period = Ten years

Mining plan period = First Five years

IN

LOCATION OF THE QUARRY LEASE APPLIED AREA

EXTENT	:	1.00.0Ha
S.F.No.	:	1/7 (PART-7)
VILLAGE	:	PANAMARATHUPATTI
TALUK	:	SALEM
DISTRICT	:	SALEM
STATE	:	TAMIL NADU

FOR

APPLICANT

**M /s. ROYAL STONES,**  
207A, Chinnammal Building,  
No.102-A, Peramanur Main Road,  
Four Roads, Salem District,  
Tamil Nadu State - 636 007.

PREPARED BY

**Dr. P. THANGARAJU, M.Sc., Ph.D.,**  
Qualified Person

Reg. No.17, Advaita Ashram Road,  
Alagapuram, Salem-636 004.  
Cell: +91 94422 78601 & 94433 56539.  
E-Mail: infogeoexploration@gmail.com

M/s. Royal Stones,  
207A, Chinnammal Building,  
No.102-A, Peramanur Main Road,  
Four Roads, Salem District,  
Tamil Nadu State – 636 007.



**CONSENT LETTER FROM THE APPLICANT**

The Mining Plan and Progressive Quarry Closure Plan in respect of Panamarathupatti Rough stone Quarry lease applied area over an extent of 1.00.0 Ha of Government land in S.F.No. 1/7 (Part-7) of Panamarathupatti Village, Salem Taluk, Salem District, Tamil Nadu State has been prepared by

**Dr. P. THANGARAJU, M.Sc., Ph.D.,**  
Qualified Person

We request the District Collector, Salem to make further correspondence regarding the modification of the Mining Plan with the said Qualified Person at his following address:

**Dr. P. THANGARAJU, M.Sc., Ph.D.,**  
Reg. No.17, Advaita Ashram Road,  
Alagapuram, Salem-636 004.  
Cell: +91 94422 78601 & 94433 56539.

We hereby undertake that all the modifications, if any made in the mining plan by the Qualified Person may be deemed to have been made with my knowledge and consent and shall be acceptable to me and binding on me in all respects.

Signature of the Applicant  
For M/s. Royal Stones

  
M. Bharanitharan  
(Partner)

Place: Salem

Date: 04.06.2020



**M/s. Royal Stones,**  
207A, Chinnammal Building,  
No.102-A, Peramanur Main Road,  
Four Roads, Salem District,  
Tamil Nadu State – 636 007.

**DECLARATION OF THE APPLICANT**

The Mining Plan and Progressive Quarry Closure Plan in respect of Panamarathupatti Rough stone Quarry lease applied area over an extent of 1.00.0 Ha of Government land in S.F.No. 1/7 (Part-7) of Panamarathupatti Village, Salem Taluk, Salem District, Tamil Nadu State has been prepared in full consultation with me.

We have understood its contents and agree to implement the same in accordance with Laws, Rules and Act applicable to quarry.

Signature of the Applicant  
For M/s. Royal Stones.

  
M. Bharanitharan  
(Partner)

Place: Salem

Date: 04.06.2020



## CERTIFICATE

Certified that I am, **Dr. P. THANGARAJU**, M.Sc., Ph.D., having an office at Regd. Off. No. 17, Advaita Ashram Road, Alagapuram, Salem – 636 004, holding a Post Graduate Degree in Geology (M.Sc. Geology) from Madras University, Chennai and I worked in the field of Geology in a role of Geologist.

Rule 15(I)(a) and (b) of Minerals (Other than Atomic, Hydro Carbons Energy Minerals) Concession Rules 2016 stipulates the eligibility for preparing Mining plans as “(I)(a) a post graduate degree in Geology granted by a university established” and (I)(b) “Professional experience of five years of working in a supervisory capacity in the field of mining after obtaining the degree”. Since my qualification and experience are satisfied the Rule (I)(a) and (I)(b) of 15 of the said Rules, I am eligible to prepare Mining Plans for both Major and Minor Minerals.

According, I prepare this Mining Plan and Progressive Quarry Closure Plan in respect of Panamarathupatti Rough stone Quarry lease applied area over an extent of 1.00.0 Ha of Government land in S.F.No. 1/7 (Part-7) of Panamarathupatti Village, Salem Taluk, Salem District, Tamil Nadu for **M/s. Royal Stones**, 207A, Chinnammal Building, No.102-A, Peramanur Main Road, Four Roads, Salem District, Tamil Nadu State – 636 007. Since the Mining plan is prepared as per the provisions contained in Rule 15(I)(a) and (I)(b) of Minerals (Other than Atomic, Hydro Carbons Energy Minerals) Concession Rules, 2016.

Signature of the Qualified Person

  
Dr. P. Thangaraju, M.Sc., Ph.D.,

Place: Salem

Date: 06.08.2020

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**Dr. P. THANGARAJU, M.Sc., Ph.D.,**  
Reg. No.17, Advaitha Ashram Road,  
Alagapuram, Salem – 636 004.  
Cell: +91 94422 78601 & 94433 56539.

**CERTIFICATE FROM THE QUALIFIED PERSON**

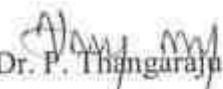
This is to certify that the Provisions of under Rules 41 & 42 as per the Amended under Tamil Nadu Minor Mineral Concession Rules, 1959 have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Panamarathupatti Rough stone Quarry lease applied area over an extent of 1.00.0 Ha of Government land in S.F.No. 1/7 (Part-7) of Panamarathupatti Village, Salem Taluk, Salem District, Tamil Nadu State has been prepared for

**M/s. Royal Stones,**  
207A, Chinnammal Building,  
No.102-A, Peramanur Main Road,  
Four Roads, Salem District,  
Tamil Nadu State – 636 007.

Whenever specific permissions / exemptions / relaxations and approvals are required, the Applicant will approach the concerned authorities of the District Collectorate, Salem, Tamil Nadu for such permissions/ exemptions / relaxations and approvals.

It is also certified that information furnished in the above Mining Plan and Progressive Quarry Closure Plan are true and correct to the best of my knowledge.

Signature of the Qualified Person

  
Dr. P. Thangaraju, M.Sc., Ph.D.,

Place: Salem

Date: 06.08.2020

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Dr. P. THANGARAJU, M.Sc., Ph.D.,  
Reg. No.17, Advaita Ashram Road,  
Alagapuram, Salem-636 004.  
Cell: +91 94422 78601 & 94433 56539.



**CERTIFICATE FROM THE QUALIFIED PERSON**

Certified that the Provisions of Mines Act, Rules and Regulations and Orders made there under have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Panamarathupatti Rough stone Quarry lease applied area over an extent of 1.00.0 Ha of Government land in S.F.No. 1/7 (Part-7) of Panamarathupatti Village, Salem Taluk, Salem District, Tamil Nadu State has been prepared for

**M/s. Royal Stones,**  
207A, Chinnammal Building,  
No.102-A, Peramanur Main Road,  
Four Roads, Salem District,  
Tamil Nadu State – 636 007.

Whenever specific permissions/ exemptions/ relaxations and approvals are required, the Applicant will approach the concerned authorities of Director General of Mines Safety (DGMS), No. 5, II<sup>nd</sup> Street, Block – AA, Anna Nagar, Chennai-40, Tamil Nadu for such permissions/exemptions/relaxations and approvals.

It is also certified that information furnished in the Mining Plan and Progressive Quarry Closure Plan are true and correct to the best of my knowledge.

Signature of the Qualified Person

  
Dr. P. Thangaraju, M.Sc., Ph.D.,

Place: Salem

Date: 06.08.2020



## LIST OF CONTENTS

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## **MINING PLAN ALONG WITH PROGRESSIVE QUARRY CLOSURE PLAN FOR PANAMARATHUPATTI ROUGH STONE QUARRY**

(PREPARED UNDER RULES 41 & 42 AS AMENDED IN TAMIL NADU MINOR MINERAL CONCESSION RULES, 1959)

### **1.0 INTRODUCTION AND EXECUTIVE SUMMARY**

The Mining Plan and Environmental Management plan is prepared for M/s. **Royal Stones**, company at 207A, Chinnammal Building, No.102-A, Peramanur Main Road, Four Roads, Salem District, Tamil Nadu State – 636 007.

The Rough stone quarry lease applied area is a Government land. The applicant has preferred the application under Rule, 8 (1) of Tamil Nadu Minor Mineral Concession Rules, 1959 and the area was awarded to the successful bidder M/s. **Royal Stones** through Tender Cum Auction for over an extent of **1.00.0 Ha** of **Government land in S.F.No.1/7 (Part-7) of Panamarathupatti Village, Salem Taluk, Salem District** under Rule 8, (6) (b) of Tamil Nadu Minor Mineral Concession Rules, 1959 (Refer Annexure No. I and VI).

The application was processed by the District Collector, Salem District and passed a precise area communication letter vide **Re.No. 179/2020/Mines/A, Dated: 03.06.2020** via Department of Geology and Mining, Salem to submit the approved Mining Plan, obtain Environment Clearance from the SEIAA of Tamil Nadu and to obtain No Objection Certificate from the Tamil Nadu Pollution with the following conditions to provide (Refer Annexure No. I):

- (i) The applicant should leave a safety distance of 7.5m to the adjacent Patta lands.
- (ii) The applicant should leave a safety distance of 10m to the Government Poramboke lands, Cart track and Village road and 50m safety distance to the Highway, EB line, Odai and Permanent Structures.
- (iii) Also the applicant should follow the conditions stipulated in the District Gazette No. 03, Dated: 22.01.2020 while quarrying operation.

In order to ensure compliance of the order of the Honourable Supreme Court Dated: 27.02.2012 in I.A.No.12-13 of 2011 in Special Leave Petition SLP (C) No 19628-19629 of 2009, it has been now decided that all mining projects of minor minerals including their renewal irrespective of sizes of the lease would hence forth require prior Environment clearance mining project within the lease applied area up to less than 100Ha including projects or minor mineral with lease applied area less than 5ha would be treated as category B as defined in the EIA notification 2006 and will be considered by the state notified by MoEF as prescribed procedure under EIA notification 2006.



In the above circumstances the applicant through his consultant is hereby preparing the mining plan and progressive quarry closure plan for approval and subsequent submission of Form-I, Form-IM and Pre-feasibility report to obtain Environment clearance from the SEIAA, Tamil Nadu, Rough stone quarry. This mining plan is prepared by considering the Rules 41 & 42 as Amended in Tamil Nadu Minor Mineral Concession Rules, 1959 and as per the EIA Notification 2006 and it's subsequent Amended and judgments till 24.01.2019.

**Short notes of Mining Plan:**

- a. Village Panchayat - Panamarathupatti
- b. Panchayat Union - Panamarathupatti
- c. The Geological Resources are  $5,75,950\text{m}^3$  of Rough stone and  $10,000\text{m}^3$  of topsoil in the entire area.
- d. The Total Mineable Reserves are  $3,68,700\text{m}^3$  of Rough stone and  $10,000\text{m}^3$  of topsoil in the entire area.
- e. The proposed quantity of reserves/ (level of production) to be mined are  $1,84,525\text{m}^3$  of Rough stone for the first five years.
- f. Total extent of the lease applied area = 1.00.0 Ha.
- g. Topography of the area = The area is a hillock.
- h. Proposed Depth of mining for entire lease period (10 years) = 76m [1m Topsoil + 75m Rough Stone] (46m above ground level + 30m below ground level) [i.e from R.L.365.0m to R.L.289.0m. (Note: Ground Level = R.L.319.0m)] below from the existing ground profile.
- i. Proposed Depth of mining for the mining plan period (First 5 years) = 66m [1m Topsoil + 65m Rough Stone] (46m above ground level + 20m below ground level) [i.e from R.L.365.0m to R.L.299.0m. (Note: Ground Level = R.L.319.0m)] below from the existing ground profile.
- j. Lease Period = Ten years
- k. Mining plan period = First Five years
- l. It is a fresh lease applied area, no existing quarry pit within the area (Refer Plate No. II).
- m. Method of mining / level of mechanization.  
Opencast mechanized method, the quarry operation involves shallow jack hammer drilling, slurry blasting.
- n. Type of machineries proposed in the quarrying operation.  
Excavators attached with rock breaker (Rental Basis).  
Jackhammer, Compressor (Diesel drive) (4 jack hammer capacity).



- o. No trees will be uprooted due to this quarrying operation.
- p. The approach road from the main road to quarry road will be constructed and maintained in a good condition for the haulage of Rough stone.
- q. There is No Export of this Rough stone.
- r. Topo sketch covering 10Km and 1Km radius around the proposed area with markings of habitations, water bodies including stream, river, roads, major structure like bridges, wells, archeological importance and place of worship is marked and enclosed Plate Nos. IA and IB.
- s. The lease applied area is about 1.00.0 Ha bounded by four corners; the corners are designated as 1 – 4 Clock wise from the Northwest side and Co-ordinates for all the corners are clearly marked in the Plate No. – II.
- t. The plans of proposed quarrying area showing the dimensions of the pit, their proposed depth and maximum area of proposed quarrying are enclosed in the Topography, Geological Plan and sections (Refer Plate No. III).
- u. General conditions will not be applicable for the proposed area. The area applied for lease is 10Km away from the,
- i) *Interstate Boundary,*
  - ii) *Protected area under wild life protection ACT, 1972,*
  - iii) *Critically polluted areas as identified by CPCB,*
  - iv) *Notified Eco sensitive areas.*
- v. There is no waste anticipated during this Rough Stone quarry operation, hence waste dump is not proposed in the lease applied area.
- w. Around 20 employees are deploying in the quarrying operation.
- x. Total Cost of the project is about **Rs.65,04,000/-**.





y. Infrastructures around the lease applied area given table below:

Table - 1

Particulars	Location	Approximate aerial distance and direction from lease applied area
Nearest Post Office	Panamarathupatti	2km - SE
Nearest School	Santhiyur	1km - SW
Nearest Dispensary	Salem	10km - North
Nearest Hospital	Salem	10km - North
Nearest Police Station	Panamarathupatti	2km - SE
Nearest Railway Station	Salem	10km - North
Nearest Town	Salem	10km - North
Nearest D.S.P. Office	Salem	10km - North
Nearest Airport	Trichy	108km - SE
Nearest Seaport	Kochi	275km - SW
District Head quarters	Salem	10km - North



**2.0 GENERAL INFORMATION**

**2.1 a) Name of the Applicant :** M/s. Royal Stones,  
1.Thiru.M.Bharanitharan (Partner)  
2.Thiru.P.Dharmalingam (Partner)

**b) Address of the Applicant (With Phone No and Aadhaar Number):**

Address : 207A, Chinnammal Building,  
No.102-A, Peramanur Main Road,  
Four Roads,

District : Salem

State : Tamil Nadu

Pin Code : 636 007

Mobile No : +91 98658 68222 & 99760 88008

Aadhaar Number : 8322 6279 2664 (Refer annexure No. IX)

Email ID : mbharranitharan@gmail.com

**c) Status of the Applicant (Individual/ Company/ Firm):**

The applicant is a Partnership Firm. Thiru.M.Bharanitharan & Thiru.P.Dharmalingam are the Partners of this Firm. Refer the Partnership Deed is enclosed as Annexure No. VIII.

**2.2 a) Mineral which the Applicant intends to mine:**

The Applicant intends to quarry Rough stone only.

**b) Precise area communication letter details received from the competent authority of the Government:**

The precise area communication letter was received from the District Collector, Salem vide **Re. No. 179/2020/Mines/A, Dated: 03.06.2020** to submit approved mining plan and to obtain Environment Clearance from the SEIAA, Tamil Nadu.

**c) Period of permission/ lease to be granted:**

Ten years.

**d) Name and address of the Qualified Person who preparing the Mining Plan:**

Name : Dr. P. Thangaraju, M.Sc., Ph.D.,  
Qualified Person

Address : Reg. No.17, Advaitha Ashram Road,  
Alagapuram, Salem – 636 004.

Telephone : 0427- 2431989 (Office)

Cell No : +91 94422 78601 and 94433 56539

Email : infogeoexploration@gmail.com

(Refer Annexure No. X and XI)



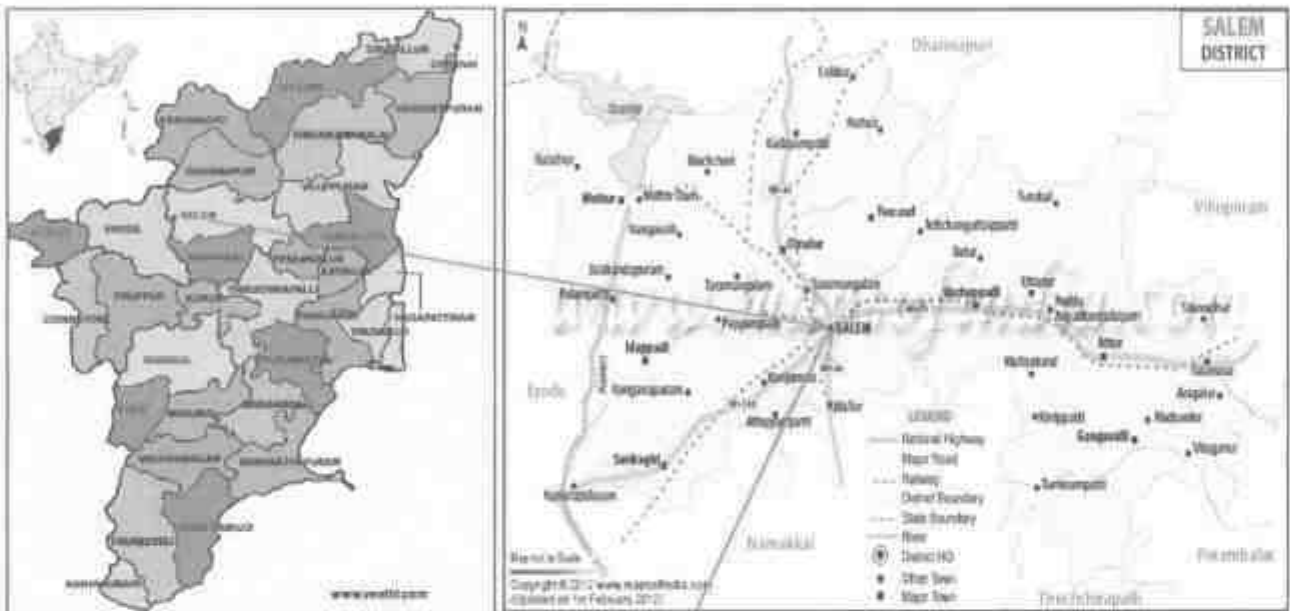
**3.0 LOCATION**

**a) Details of the area with location map**

The lease applied area is located about 10km Southern side of Salem town and 2km Northwest side of Panamarathupatti Village.



**Location Map of the Lease Applied Area**



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Table - 2

District	Taluk	Village	S.F.No.	Area in Ha.	Classification
Salem	Salem	Panamarathupatti	1/7 (Part-7)	1.00.0	Government land (Refer Annexure No. IV and V)
<b>Total Extent</b>				<b>1.00.0</b>	

a) **Classification of the area (Ryotwari/ Poramboke / others):**

It is a Government Poramboke land, which is not fit for vegetation/ Cultivation.

b) **Ownership / Occupancy of the applied area (surface right):**

It is a Government Poramboke land. The applicant has awarded tender cum auction from the Government.

b) **Toposheet No. with latitude and longitude:**

The lease applied area falls in the Toposheet No.58-I/02 Latitude between: 11°34'25.18"N to 11°34'29.25"N and Longitude between: 78°09'09.10"E to 78°09'13.95"E on WGS datum-1984. Refer the Plate Nos. I to II.

c) **Existence of public road/ Railway line, if any nearby and approximate distance:**

The approach road is situated on the northeastern side which connects to the Gajjalnaickenpatti to Seshanchavadi Road located at 600m on the Northeastern side of the area.

Multiple road access is available from the quarry to state highways and National Highway, no towns are enrooted hence the traffic density is not much more due to transportation of Rough stone.

The approach road from the quarry is already in existence, the same will be utilized for haulage and maintained during the entire lease period, tree sapling will be planted on the either side of the road to prevent dust and noise propagation to the nearby areas.

The Nearest Railway line is Salem – Namakkal which is located about 2km on the Southwestern side of the area.

**PART - A**

**4.0 GEOLOGY AND MINERAL RESERVES**

**4.1. Brief description of the Topography and general Geology of the area (with plans):**

The lease applied area is a hillock. The gradient is 1 in 5 towards Northeast and altitude of the area is ranges between 320m to 365m above from Mean sea level. The area is covered by 1m thickness of Topsoil and followed by Massive Rough Stone Charnockite which is clearly visible right from the surface as the entire area is covered by Rough Stone.

The Water table is found at a depth of 60m in summer and at 56m in rainy seasons. Average annual rainfall is about 998mm.

Topographical View of the lease applied area

Peninsular gneiss forms the oldest rock formations, in which the massive formation of Charnockite lies over with rich accumulation of recent quaternary formation. On regional scale the Charnockite body is  $N45^{\circ}E - S45^{\circ}W$  with dipping  $SE65^{\circ}$ .

The general geological sequences of the rocks in this area are given below:

↑	AGE	FORMATION
Recent	-	Quaternary formation (Topsoil)
-----	Unconformity	-----
Archaean	-	Charnockite Peninsular Gneiss complex

#### 4.2. Details of exploration already carried out if any:

State Geology and Mining Dept, Govt. of Tamil Nadu, has carried out the Regional prospecting and exploration in these areas during 1992 to 1993.

Geological Survey of India has carried out detailed mapping in Salem District. Besides, the Qualified Person and his team members made a detailed geological study of the proposed area. The Rough stone formation is clearly inferred from the nearby existing quarry pits.



#### 4.3. Estimation of Reserves:

##### a) Geological reserves with geological sections on a scale of 1:1000/ 1:2000:

As far as Rough stone (Charnockite) is concerned, the only practical method is the systematic geological mapping and delineation of Rough stone within the field and careful evaluation of body luster, physical properties, engineering properties, commercial aspects etc.,

Totally two sections have been drawn, one section drawn along the strike direction as (X-Y) length wise and another one cross section drawn perpendicular to strike as (A-B) width wise to cover the maximum area considered for calculation upto a depth of 76m (46m AGL + 20m BGL) below from the existing ground profile.

The Topographical, Geological plan and sections demarcated the commercial marketable Rough stone (Charnockite) deposit has been prepared in 1:1000 scale (Please refer the Geological plan and sections Plate No – III). As the sale of Rough stone are in terms of cubic meters (Volume) only and not in terms of tonnage.

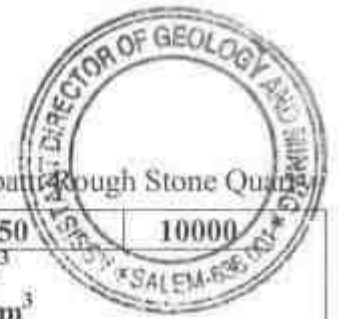
##### Geological Resources (Plate No.III):

The Geological Resources of Rough Stone are calculated to a maximum depth of 76m [1m Topsoil + 75m Rough Stone] below from the existing ground profile.

**The total Geological resources are calculated by cross section method.** The total available geological resources are given below.

Table – 3

Section	Bench	Length (m)	Width (m)	Depth (m)	Geological Resources of Rough stone (m <sup>3</sup> )	Topsoil (m <sup>3</sup> )
XY-AB	I	125	80	1	-	10000
	II	16	8	5	640	-
	III	42	22	5	4620	-
	IV	61	33	5	10065	-
	V	125	45	5	28125	-
	VI	125	59	5	36875	-
	VII	125	73	5	45625	-
	VIII	125	80	5	50000	-
	IX	125	80	5	50000	-
	X	125	80	5	50000	-
	XI	125	80	5	50000	-
	XII	125	80	5	50000	-
	XIII	125	80	5	50000	-
	XIV	125	80	5	50000	-
	XV	125	80	5	50000	-
	XVI	125	80	5	50000	-



	<b>Total</b>	<b>575950</b>	<b>10000</b>
The Available Geological Resources of Topsoil	:	<b>10,000m<sup>3</sup></b>	
The Available Geological Resources of Rough Stone	:	<b>5,75,950m<sup>3</sup></b>	

**Mineable Reserves:**

The Mineable reserves are calculated after leaving the safety distance and bench loss to a maximum depth of 76m [1m Topsoil + 75m Rough Stone] below from the existing ground profile.

Table - 4

Section	Bench	Length (m)	Width (m)	Depth (m)	Mineable Reserves of Rough stone (m <sup>3</sup> )	Topsoil (m <sup>3</sup> )
XY-AB	I	125	80	1	-	10000
	II	16	8	5	640	-
	III	42	22	5	4620	-
	IV	61	33	5	10065	-
	V	125	45	5	28125	-
	VI	125	59	5	36875	-
	VII	125	73	5	45625	-
	VIII	125	80	5	50000	-
	IX	125	80	5	50000	-
	X	125	80	5	50000	-
	XI	105	60	5	31500	-
	XII	95	50	5	23750	-
	XIII	85	40	5	17000	-
	XIV	75	30	5	11250	-
	XV	65	20	5	6500	-
	XVI	55	10	5	2750	-
<b>Total</b>					<b>368700</b>	<b>10000</b>

Total Mineable Reserves of Rough Stone : **3,68,700m<sup>3</sup>**

Total Mineable Reserves of Topsoil : **10,000m<sup>3</sup>**

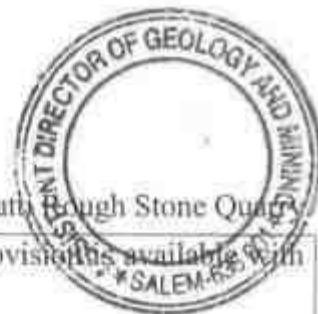
The Mineable reserves have been computed as **3,68,700m<sup>3</sup>** of Rough stone at the rate of 100% recovery and **10,000m<sup>3</sup>** of Topsoil to a maximum depth of 76m [1m Topsoil + 75m Rough Stone] for the period of Ten years.

**5.0 MINING****5.1. Method of mining (opencast/ underground):**

Open cast Mechanized Mining is being carried out with 5.0 meter vertical bench with a bench width is not less than the bench height.

However, as far as the quarrying of Rough stone is concerned, observance of the provisions of Regulation 106 (2) (b) as above is seldom possible due to various inherent petro genetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the





above regulation from the Director of Mines Safety for which necessary provisions are available with the Regulation 106 (2) (b) of MMR-1961, under Mine Act - 1952.

**5.2. Mode of working (mechanized, semi mechanized, manual):**

The Rough Stone is proposed to quarry at 5m bench height & width with conventional Opencast Mechanized Method.

The quarry operation involves shallow jack hammer drilling, slurry explosives in blasting, excavation, Loading and transportation of Rough stone to the needy crusher.

The production of Rough stone in this quarry involves the following method which is typical for Rough Stone quarrying in contrast to other major mineral mining.

Splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and slurry explosives blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy crushers.

Occasionally hydraulic excavators are attached with rock breakers for fragmentation to avoid secondary blasting. The primary boulders thus splitted are removed from the pits by excavators and further made to smaller sizes by rock breakers attached in excavators. It is a conventional opencast mechanized method of mining.

**5.3. Proposed Bench Height and Width:**

The bench height is proposed 5.0 meter vertical bench the width of the bench is not less than the Height.

**5.4. Indicate the overburden/mineral production expected pit wise as detailed below (composite plan and section showing pit layout, dumps, disposal of waste if any etc.):**

The overburden is in the form of Topsoil. The top soil ( $10,000\text{m}^3$ ) will be safely removed and preserved in the safety barrier of the applied area and will be utilized for greenbelt development. The entire quarried out Rough stone will be consumed hence waste dump is not proposed. The composite Year wise Development and production plan and section indicating the Pit lay out, Green belt development are shown in Plate No – III.



## YEAR WISE DEVELOPMENT AND PRODUCTION DETAILS FOR FIRST FIVE YEARS

Table - 5

Section	Year	Bench	Length (m)	Width (m)	Depth (m)	Recoverable Reserve of Rough stone (m <sup>3</sup> )	Topsoil (m <sup>3</sup> )	
XY-AB	I	I	95	80	1	-	7600	
		II	16	8	5	640	-	
		III	42	22	5	4620	-	
		IV	61	33	5	10065	-	
		V	95	45	5	21375	-	
	<b>Total</b>						<b>36700</b>	<b>7600</b>
	II	VI	90	59	5	26550	-	
		VII	25	73	5	9125	-	
	<b>Total</b>						<b>35675</b>	-
	III	VII	60	73	5	21900	-	
		VIII	45	65	5	14625	-	
	<b>Total</b>						<b>36525</b>	-
	IV	VIII	35	65	5	11375	-	
		IX	75	60	5	22500	-	
		X	15	55	5	4125	-	
	<b>Total</b>						<b>38000</b>	-
	V	X	55	55	5	15125	-	
		XI	55	40	5	11000	-	
		XII	45	30	5	6750	-	
		XIII	35	20	5	3500	-	
XIV		25	10	5	1250	-		
<b>Total</b>						<b>37625</b>	-	
<b>Grand Total</b>						<b>184525</b>	<b>7600</b>	

The recoverable reserves have been computed as 1,84,525m<sup>3</sup> of Rough stone and 7,600m<sup>3</sup> of topsoil to a maximum depth of 66m [1m Topsoil + 65m Rough Stone] (46m Above Ground level + 20m below ground level) [i.e from R.L.365.0m to R.L.299.0m. (Note: Ground Level = R.L.319.0m)] below from the existing ground profile for the first five years of the lease period. The remaining mineable volume of Rough stone (1,84,175m<sup>3</sup>) will be quarried out during the next five years lease period, it will be discuss an ensuing mining plan.





The applicant ensures the total quantity proposed in the benches will not exceed during the quarrying operation. Besides the rough stone locked up in benches will be exploited after obtaining necessary permission from the office of **Director General of Mine Safety, Chennai** region by submitting relevant documents, appropriate safety plans and its Mitigation measures.

One Tipper load	=	6m <sup>3</sup> (Approx.)
Total Number of Working days	=	300 Days per year
Total quantity to be removed in this five years plan period	=	1,84,525m <sup>3</sup>
Hence total Tipper loads per day	=	1,84,525m <sup>3</sup> /6m <sup>3</sup>
	=	30,754 Lorry loads
	=	30,754 /5years
	=	6,151/300 Days
	=	<b>20-21 Lorry loads per day</b>

Working hours = 8.30 am to 5.30 pm (with 12.30-1.30 pm lunch break)

#### 5.5. **Machineries to be used:**

##### a) **For Mining:**

The following machineries are utilized on rental basis for the development and production work at this quarry.

Table - 6

#### **I. DRILLING MACHINE**

S.No.	Type	Nos.	Dia Hole mm	Size Capacity	Motive power
1	Jack hammer	5	30-35	1.2m to 2.0m	Compressed air
2	Compressor	1	-	400 psi	Diesel Drive

#### **II. EXCAVATION & LOADING EQUIPMENT:**

S.No.	Type	Nos.	Capacity	Motive Power
1	Excavator with Bucket and Rock Breaker	1	300	Diesel Drive

#### **III. HAULAGE WITHIN THE MINE & TRANSPORT EQUIPMENT:**

S.No.	Type	Nos.	Capacity	Motive Power
1	Tippers	2	20 tonnes	Diesel Drive



### 5.6. Disposal of Overburden/Waste:

The overburden is in the form of Topsoil. The top soil ( $7,600\text{m}^3$ ) will be safely removed and preserved in the safety barrier of the applied area and will be utilized for greenbelt development. No waste anticipated during this mining plan period. Hence, disposal of waste does not arise. The excavated rough stone will be directly loaded into tippers to the needy customers.

### 5.7. Brief notes on conceptual mining plan for the entire lease period base on the geological, mining and environmental considerations:

A conceptual mining plan is prepared with an objective of long term systematic development of benches, layouts, selection of permanent structures, Maximum depth of quarrying and ultimate pit dimensions, selection of sites for construction of infrastructure, etc.,

The ultimate pit size is designed based on certain practical parameters such as economical depth of mining, safety zones, permissible area, etc.,

As the applicant has applied quarry lease for Ten years, the ultimate pit limit (dimension) at the end of the first five years of the lease period is given below (Refer Plate No. V)

Table - 7

Length (Max) (m)	Width (Max) (m)	Depth (Max) (m)
95	80	76m [46m AGL + 30m BGL]

All the base line information studies like Air quality monitoring, Noise and vibration monitoring, Water analysis studies will be carried out every year as per the MoEF&CC Norms. It is propose to engage any local institution to monitor the EIA and EMP during the course of quarrying operation after the grant of quarry lease.

Except topsoil, there is no wastage anticipated during the entire life of quarry. The quarried out topsoil will be preserved within the applied area and utilized for construction of bund and backfilled in the part of the quarry pit also spread out the quarried out top bench to facilitate the greenbelt development. The quarry area will be fenced with barbed wire fencing also safety bund constructed around the area to prevent inadvertent entry of public and cattle (Refer Plate No. IV).



## 6.0 BLASTING

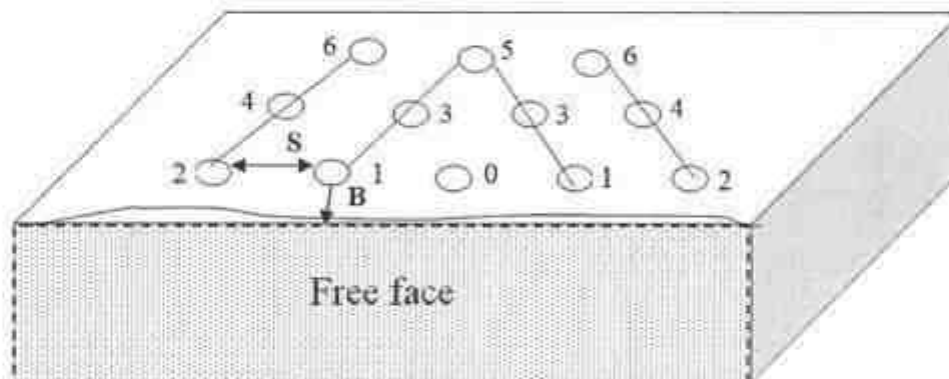
### 6.1 Blasting pattern:

The quarrying operation is proposed to be carried out by Mechanized Opencast Method in conjunction with conventional method of mining using jack hammer drilling and slurry blasting for shattering effect and loosen the Rough stone.

Drilling and blasting parameters are as follows:

Depth of Each hole	:	1.5m
Diameter of hole	:	30-32mm
Spacing between holes	:	1.2m
Burden for hole	:	1.0m
Pattern of hole	:	Zigzag – Multi-rows
Inclination of holes	:	80° from horizontal
Use of delay detonators	:	25millisecond relays
Detonating fuse	:	“Detonating” Cord

### BLASTING PATTERN DRAWING



### Staggered “V” Pattern of Blasting Design

Spacing	=	1.2m
Burden	=	1.0m
Depth of the hole	=	1.5m
No of holes proposed per day	=	106 Holes

### 6.2 Type of explosives to be used:

Small Dia. 25mm Slurry explosives are proposed to be used for shattering and heaving effect for removal and winning of Rough stone. No deep hole drilling or primary blasting is proposed.

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### 6.3 Measures proposed to minimize ground vibration due to blasting:

The quarry is situated more than 300m away from the nearby villages. Controlled blasting measures is being adopt for minimizing ground vibration and fly rock.

Shallow depths jackhammer drilling & blasting is proposed to be carried out with minimum use of explosive mainly to give hearing effect in rough stone for easy excavation and to control fly rock.

#### Delay detonators:

Delay blasting (millisecond delays) permits to divide the shot in to smaller charges, which are detonated in a predetermined millisecond sequence at specific time intervals.

The major advantages of delay blasting are:

- Reduction of ground vibration.
- Reduction in air blast.
- Reduction in over break.
- Improved fragmentation.
- Better control of fly-rock.

#### Blasting program for the production per day:

No of Holes	= 106 Holes
Yield	= 320 Tons
Powder factor	= 6 Tons/Kg of explosives
Total explosive required	= 53 Kg-Slurry explosives
Charge/ hole	= 0.5 Kg
Blasting at day time only	= 12.30p.m. – 1.00p.m (whenever required)

### 6.4 Storage and safety measures to be taken while blasting:

The applicant will engage authorized explosive agency to carry out the small amount of blasting and it will be supervised by competent and statutory foreman/Permit Mines Manager. The explosives agencies should be have the valid Blaster certificate. He will blast holes in the quarry site. After the completion of Blasting the explosives Agencies will take it out back the remaining quantity of Explosives. The magazine is available at the quarry site to temporarily store the explosives.

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## **7.0 MINE DRAINAGE**

### **7.1 Depth of water table (based on nearby wells and water bodies):**

The water Table in the area is 60m in summer season and 56m in Rainy season which is observed from the nearby bore wells and the data obtained from existing private boreholes. The lease area is fully covered by Massive Charnockite formation. Hence the Ground Water problem will not arise. If water seepage may occur due to the fracture, the same will be used for Greenbelt.

Table – 8

Type	Distance & Direction	Location
Bore Well	450m Northeast side	11°34'38.77"N 78° 9'23.73"E

### **7.1. Arrangements and places where the mine water is finally proposed to be discharged:**

The quarry operations are confined well above the water table during the entire lease period. If water is encountered due to rain water seepage, the same will be pumped out by 5HP water pumps to facilitate the Green belt development areas in the either side of the approach road. Besides, the water will also be used for dust suppression on haul roads during Haulage of machineries.

## **8.0 OTHER PERMANENT STRUCTURES (also shown in the map)**

### **8.1 Habitations/ Villages natham:**

There is no approved habitation/village located within 300m radius of the lease applied area.

### **8.2 Power Lines (HT/LT):**

There is no EB (LT/HT) line or Housing area situated within 50m radius of the area.

### **8.3 Water bodies (river, ponds, lake, odai, canal, etc.,):**

There is no water body like River, Pond, Lake, Canal, Reservoir located within 50m radius of the area. Stanley Reservoir is 4km northeast of the applied area.

### **8.4 Archaeological / historical monuments:**

There is no Archaeological/historical monument within 300m radius of the area.

### **8.5 Road (NH, SH others):**

The Nearest National Highway (NH-7) Salem – Karur is situated about 1km on the Northwestern side of the area.

The State Highway (SH-86A) Salem – Tiruchengode Road is situated about 7km on the Northwestern side of the area.

### **8.6 Places of worships:**

There is no place of worships within the radius of 300m from the lease applied area.

### **8.7 Reserved forest / forest / social forest / wild life sanctuary etc.,:**

There is no reserved forest / Social forest / Wild life sanctuary, Eco-Sensitive zone, etc., within 500m radius of the lease applied area.

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**SALIENT FEATURES**

Table – 9

S. No	Salient Features	Prescribed safety distance	If any present within prescribed distance, its actual distance and direction from the site															
1.	Railways, Highways, Reservoirs or Canal	50m	None of the above situated within 50m radius.															
2.	Village Road	10m	No Village road is located within 10m radius of the area.															
3.	Habitation / Village	300m	There is no approved habitation located within 300m radius of the lease applied area.															
4.	Adjacent Patta Land / Govt. Land	7.5m/10m	<table border="1"> <thead> <tr> <th>Direction</th> <th>Classification</th> <th>Safety Distance</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>Govt. land</td> <td>10m</td> </tr> <tr> <td>East</td> <td>Govt. land</td> <td>10m</td> </tr> <tr> <td>South</td> <td>Govt. land</td> <td>10m</td> </tr> <tr> <td>West</td> <td>Govt. land</td> <td>10m</td> </tr> </tbody> </table> <p>(Refer Plate No. II).</p>	Direction	Classification	Safety Distance	North	Govt. land	10m	East	Govt. land	10m	South	Govt. land	10m	West	Govt. land	10m
Direction	Classification	Safety Distance																
North	Govt. land	10m																
East	Govt. land	10m																
South	Govt. land	10m																
West	Govt. land	10m																
5.	Housing area, EB line (HT & LT Line)	50m	There is no EB (LT/HT) line or Housing area located within 50m radius of the area.															
6.	Boundaries of the permitted area	7.5m/10m	<p>The boundaries of the permitted areas as follows:</p> <p>North – S.F.No. 1/7 (P)</p> <p>East – S.F.No. 1/7 (P)</p> <p>South – S.F.No. 1/7 (P)</p> <p>West – S.F.No. 1/7 (P)</p> <p>(Refer Plate No. II).</p>															
7.	Reserve forest	60m	There is no reserved forest located within the radius of 60m from the lease applied area. (Refer Plate No. IA and IB).															
8.	Protected area / ECO sensitive area/Wild Life Sanctuary	10Km	There is no ECO sensitive Zone/ Wild Life Sanctuary/ Critically Polluted Area/ HACA/ CRZ located within 10km radius of the area. (Refer Plate No. IA).															

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## 9.0 EMPLOYMENT POTENTIAL & WELFARE MEASURES

### 9.1 Employment potential (skilled, semi skilled, un skilled):

The following manpower are proposed in the mining plan to carry out the day-to-day quarrying activities, the same employment is maintaining aimed at the proposed production target and also to comply with the statutory provisions of the Metalliferous mines regulations, 1961.

a.	<u>Skilled labour:</u>		
	Mine Foreman	:	1
	Blaster/mate	:	1
	Excavator – Operator & Driver	:	2
	Jack hammer operator	:	10
b.	<u>Semi-skilled:</u>		
	Security	:	1
c.	<u>Unskilled:</u>		
	Labour & Helper	:	2
	Co-operator and Cleaner	:	3
	<b>Total</b>	:	<b>20</b>

The above manpower is adequate to meet out the production schedule and the machinery strength envisaged in the mining plan and to comply with the statutory provisions of the Mines Safety Regulations. It is been ensured that the labour will not be employed less than 18 years, **No child labour** will engaged or entertained for any kind of quarrying operations. All the labours engaged for quarrying operations will be insured during the quarry lease period.

### 9.2 Welfare Measures:

#### a) **Drinking Water:**

Packaged drinking water is available from the nearby water vendors in Panamarathupatti which is located about 2km on the Southeast side of the lease applied area.

#### b) **Sanitary Facilities:**

Hygienic modern Sanitary Facilities will be constructed within the applied area as semi permanent structure and it will be maintained periodically.

#### c) **First aid facility:**

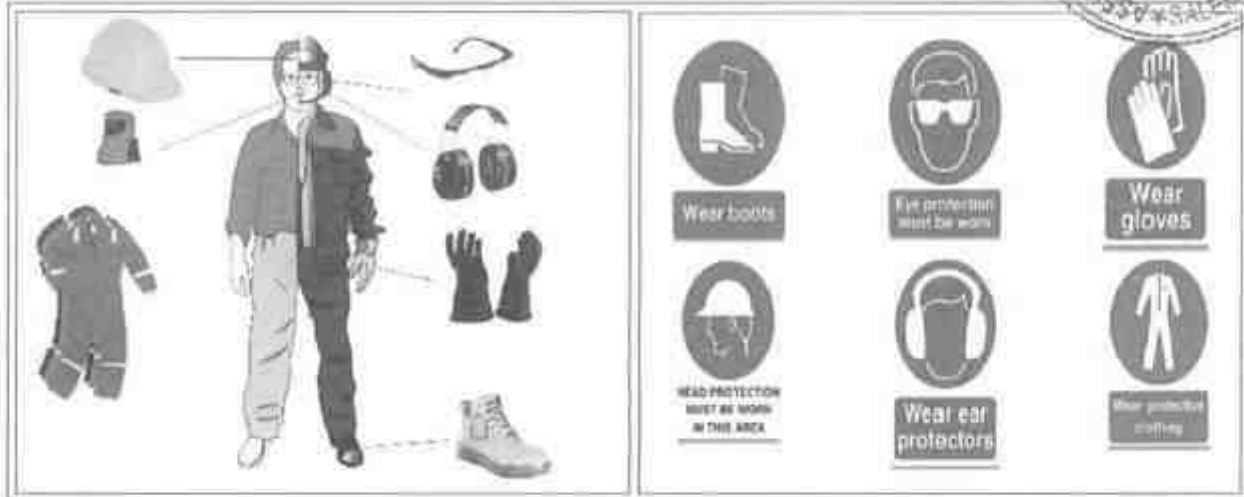
First aid kits are kept in Mines office room, in case of such eventuality is the victim will be given first aid immediately at the site by the competent and statutory foreman/permit manager/mate will be in charge of first aid and injured person will be taken to the hospital by the applicant's vehicle. Hospital is available in Salem located at a distance of 10km on the Northern side.



**d) Labour Health:**

Before commencement of quarry also Periodical medical checkup related to occupational health and safety will be conducted to all the workers by Applicant own cost.

**c) Precautionary safety measures to the laborers:**



- Helmets,
- Mine Goggles,
- Ear plugs,
- Ear muffs,
- Dust mask,
- Reflector jackets,
- Safety Shoes

All personnel protective devices will be provided as per the specification approved by Director of mines safety. Periodically medical check-up will be conducted for all workers for any mine health related problems. Proper training and vocational education will be given by qualified and experienced safety officer to all the employees about the safety and systematic Rough stone quarrying operations. The drillers and workers will be sent for vocational training periodically, to carry out the quarrying operations scientifically and to safe guard the men & machinery and to create awareness about conventional opencast quarrying operations.

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**PART – B****10. ENVIRONMENT MANAGEMENT PLAN****10.1 Land use pattern:**

The lease applied area is a hillock. The area is a dry barren land also covered by rocky outcrops devoid of Agriculture and Habitations. The land is not used for any specific purpose.

Table – 10

Description	Present area (Ha)	Area at the end of this quarrying period (Ha)
Area Under Quarrying	Nil	0.76.0
Infrastructure	Nil	Nil
Roads	Nil	Nil
Green Belt	Nil	Nil
Unutilized Area	1.00.0	0.24.0
<b>Grand Total</b>	<b>1.00.0</b>	<b>1.00.0</b>

**10.2 Water Regime:**






It is a simple opencast quarry operation. The quality of water will not be affected due to this quarrying operation. The lease applied area is located in the slope of the hill and the natural flow of water towards Northeast hence, mitigation measures will be carried out like Garland drain and safety bund will be constructed on the either side of quarry pit to avoid rain water entering into the pit.

The waste water discharged to water bodies will be met the standard prescribed under the Environment (Protection) Act – 1986 by The Ministry of Environment, Forest and Climate change.






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## 10.3 Flora and Fauna:

Table – 11

S.No	Name of the plant (Scientific)	Family Name	Common Name	Habit	Picture
1.	<i>Azadirachta indica</i>	Meliaceae	Vembu, Neem	Tree	
2.	<i>Prosopis juliflora</i>	Fabaceae	Seemai Karuvelam	Tree	
3.	<i>Borassus flabellifer</i>	Arecaceae	Palm	Tree	
4.	<i>Cocos nucifera</i>	Arecaceae	Coconut, Thennai	Tree	
5.	<i>Opuntia ficus</i>	Cactaceae	Cactus, Katralai	shrub	

List of Fauna

S.No.	Scientific Name	Common Name	Picture
1.	<i>Capra aegagrus hircus</i>	Goat	
2.	<i>Funambulus palmarum</i>	Squirrel	
3.	<i>Bos taurus</i>	Cow	
4.	<i>Danaus plexippus</i>	Striped tiger	
5.	<i>Corvus leuillanti</i>	Crow	

**10.4 Climatic Conditions:**

The area receives rainfall of about 998mm per annum and the rainy season is mainly from Oct - Jan during Northeast, monsoon. The summer is hot with maximum temperature of 42°C and winter encounters a minimum temperature of 21°C.

**10.5 Human settlement:**

There are few villages located within 5km radius of the area; the approximate distance, direction and population are given below.

Table – 12

S.No	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population
1.	Gajjalnaickenpatti	2km – N	5,100
2.	Parappatti	3km – NW	4,100
3.	Santhiyur	2km – SW	1,900
4.	Panamarathupatti	2km – SE	19,580

Basic human welfare Amenities such as Health Centre, Schools, Communication Facilities, and Commercial Centres, etc., are available at Salem located at 10km on the Northern side of the area.

**10.6 Plan for air, dust suppression:**

The air quality will be affected by the Suspended Particulate Matter (SPM) generated by the slurry blasting, jack hammer drilling, Loading and unloading during the Rough stone 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 on the non quarrying area.
- Avoiding spillages during the transportation.

Air quality will be monitored periodically as per Norms and Mitigate measures carried out to prevent dust and Air propagation in to air. The estimated budget for dust suppression would be around **Rs.52,000/year.**

**10.7 Plan for Noise level control:**

The noise level increased due to the Excavation, Drilling, Blasting and Transportation.

**Engineering Noise control:**

Noise will be created due to the usage of Machineries and Vehicles. The Noise will be controlled in the following manner.

- Selection of new low – noise equipments for the Rough stone quarry operation.
- Modifications of older equipments.
- Implementation of effective preventive maintenance which reduces noise more than 50%.
- The drivers will be strictly instructed to move the vehicle during the transportation not exceed 40km per hour.
- Sentries with flags & whistle will posted in village road junction and populated area to control and regulate traffic.

Shallow holes of 32mm diameter and maximum depth of 1.5m will be drilled and conventional low power explosives such as Slurry Explosives, ordinary safety fuse will be used for rough stone. Hence, ground vibration and noise pollution i.e., minimal and restricted within the quarry working area.

Noise level monitoring and other Mitigation measures will be carried out to reduce Noise and Vibration. The estimated budget for Noise level monitoring would be around **Rs.2,000/Year.**

**10.8 Environment impact assessment statement describing impact of mining on the next first five years:**

In the mining plan proposed for the production of Rough stone does not involve deep hole drilling and blasting. Such limited mining activity is not likely to cause any impact adversely on the environment. As far as pollution of air, water and noise concerned, the Environment impact studies will be conducted as per EIA notification issued by MoEF& CC. It is B2 Category mine. The estimated budget would be around **Rs.3,80,000/-**

**10.9 Proposal for waste management:**

There is no wastage anticipated during this quarry operation. The entire quarried out materials will be utilized (100%). Hence, Waste Management does not arise.

**10.10 Proposal for reclamation of land affected during mining activities and at the end of mining (refilling / fencing etc.):**

It is a Government land hence and at the end of this mining plan period about 66m depth only quarried out in the total depth of 76m below from the existing ground profile and it has been envisaged as workable depth for safe & economic mining. There is no wastage anticipated during entire lease period. Hence, Backfilling is not possible in the quarried out pit. When the quarry reaches its ultimate pit limit or at the end of life of quarry, the quarried out pit allowed to collect the seepage rain water and the water storage will be kept as reservoir for charging nearby wells and to enhance static level of the ground water. The quarry area will be fenced with barbed wire fencing to prevent inadvertent entry of public and cattle (Refer Plate No. IV). The barbed wire fencing cost would be around **Rs.1,20,000/-**



**10.11 Programme of Greenbelt development (indicate extend, number, name of species to be afforested):**

The area is containing very hard rocky topography hence, there will not sustain any plant growth. Therefore no Green belt proposed within the area. Anyhow, the applicant is proposed to develop the Green belt in approach road and nearby periphery of the village road after consulting the local panchayat authority and Agricultural experts. After completion of quarry operation suitable soil type will be Nearly proposed to planting 200 Nos. of Neem, Pongamia pinnata, Casuarina, etc., tree saplings and expected growth is around 160 Nos. of trees at a survival rate of 80%.

The estimated budget for plantation and maintenance of Green belt development would be around **Rs.20,000/-** for the period of five years.

The Greenbelt Development will be formed in around the quarried out top benches and panchayat road of the lease applied area. The cost would be around **Rs.30,000/-**.

**10.12 Proposed financial estimate / budget for (EMP) environment management:**

Budget Provision for the Mining plan period:

Table – 13

S. No	Monitory and Analysis Description	Rate per location	No. of location	Total Charges/ six months	Total Charges/ year
1	Ambient air quality monitoring	6500	4	26000	52000
2	Noise level monitoring	250	4	1000	2000
3	Ground vibration monitoring	1000	2	2000	4000
4	Water sampling and analysis	9000	1	9000	18000
<b>Total EMP Cost/ year</b>					<b>76,000</b>

The EMP cost would be around **Rs.3,80,000/-** for the period of five years.

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<b>A. Project cost / investment</b>		
i) Land cost	It is a Government land, the tender cost is	Rs.32,50,000/-
ii) Machinery to be used	The following machineries are proposed to meet out the productions. Excavator attached with rock breaker, Tipper, Tractor mounted compressor with Jack Hammer and loose tools (Rental Basis)	= Rs.20,00,000/-
iii) Refilling/ Fencing	Fencing will be constructed around the quarry pit to prevent the inadvertent entry of public and cattle cost would be around	= Rs.1,20,000/-
iv) Labourers shed	Labour sheds will be constructed as semi permanent structure. The cost would be around	= Rs.85,000/-
v) Sanitary facility	Adequate latrine and urinal accommodation shall be provided at conveniently accessible places the cost would be around	= Rs.60,000/-
vi) Others items	First aid room & accessories	= Rs.50,000/-
vii) Drinking water facility for the labourers	Packaged drinking water will be provided for all the Labours. Drinking water will be readily available at conveniently accessible points during the whole of the working shift the cost would be around	= Rs.1,00,000/-
viii) Sanitary arrangement	The latrine and urinal will keep clean and sanitary condition. The maintenance cost would be around	= Rs.60,000/-
ix) Safety kit	All the Safety kit such as Helmet, Earmuffs, Goggles, Reflector Jackets, Safety shoes etc., will be provided to the workers by the applicant own cost which would be around	= Rs.50,000/-
x) Water sprinkling	Water will be sprinkled in the haul roads by water sprinklers the cost would be around	= Rs.90,000/-
xi) Garland drain	Construction of Garland drain with check dam to prevent surface run-off rain water in to the quarry pit, the construction cost is around	= Rs. 81,000/-
xii) Greenbelt etc.	Greenbelt program will be carried out in the boundary barriers the cost would be around	= Rs.20,000/-
	Greenbelt program will be carried out in the quarried out benches and Panchayat roads	= Rs.30,000/-
<b>Total Project Cost</b>		<b>= Rs.59,96,000/-</b>

**B. EMP Cost :- (Per year)**

Air Quality monitoring	=	Rs. 52,000/-
Water Quality Sampling	=	Rs. 18,000/-
Noise Monitoring	=	Rs. 2,000/-
Ground vibration test	=	Rs. 4,000/-
<b>Total Cost</b>	=	<b>Rs. 76,000/-</b>
Total EMP Cost for the five years period. is =		<b>Rs. 3,80,000/-</b>

**A+B=**

A. Project cost	=	Rs.59,96,000/-
B. EMP Cost	=	Rs. 3,80,000/-
<b>Total Project Cost (A+B)</b>	=	<b>Rs.63,76,000/-</b>

The following CER activities will be carried out by the applicant.

1. The applicant intends to involve corporate Environment responsibilities (CER) activity like Water purifier Cot and Bed facility to the Salem Dispensary etc.,
2. If we are instructed by PWD/ Competent bodies to desilt the water bodies nearby. We assure to spend out CER Cost for desilting/ strengthening the bunds of the nearby water bodies.etc., at around 2.0% from the total project cost, the cost would be around **Rs.1,28,000/-**

Total Project cost = Rs.63,76,000/-

CER Cost (2%) = Rs. 1,28,000/-

**Total cost = Rs.65,04,000/-**

(The Total cost of the project including EMP Cost is Rupees Sixty five lakh and four thousand only).





## **11. PROGRESSIVE QUARRY CLOSURE PLAN**

### **11.1 Introduction:**

The Progressive Quarry Closure Plan for Rough stone quarry lease applied area over an extent of 1.00.0 Ha of Government land in S.F.No. 1/7 (Part-7) of Panamarathupatti Village, Salem Taluk, Salem District, Tamil Nadu State has been prepared for M/s. **Royal Stones** company at 207A, Chinnammal Building, No.102-A, Peramanur Main Road, Four Roads, Salem District, Tamil Nadu State – 636 007.

### **11.2 Present Land use pattern:**

Table – 14

Description	Present area (Ha)
Area Under Quarrying	Nil
Infrastructure	Nil
Roads	Nil
Green Belt	Nil
Unutilized Area	1.00.0
<b>Grand Total</b>	<b>1.00.0</b>

### **11.3 Method of Mining:**

Open cast Mechanized Mining is being carried out with 5.0 meter vertical bench with a bench width is not less than the bench height for Rough stone.

However, as far as the quarrying of Rough stone is concerned, observance of the provisions of Regulation 106 (2) (b) as above is seldom possible due to various inherent petro genetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the above regulation from the Director of Mines Safety for which necessary provision is available with the Regulation 106 (2) (b) of MMR-1961, under Mine Act – 1952.

### **11.4 Mineral Processing Operations:**

The quarried out Rough stone will be transported by the 20tons capacity Tippers to the needy crushers. Splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and slurry blasting, hydraulic excavators is used for loading the Rough Stone from pithead to the needy crushers.

### **11.5 Reasons for closure:**

As the mineral is not going to be exhausted during the proposed plan period no immediate closure is planned and sufficient reserves are available to carry on the entire lease period. The reason for closure will be discussed in the ensuing mining plan or final mine closure plan.



**11.6 Statutory obligations:**

The applicant ensures to comply all the conditions were imposed in the proposed area communication letter before grant of quarry lease and during the course of quarry operations.

**11.7 Progressive quarry closure plan preparation:**

Name and address of the Qualified Person who prepared the progressive closure plan and name and address of the executing agency who is involved in the Preparation of progressive quarry closure plan.

Name : **Dr. P. Thangaraju, M.Sc., Ph.D.,**  
Qualified Person  
Address : New.No.17, Advaita Ashram Road,  
Alagapuram, Salem - 636 004.  
Tele phone : 0427- 2431989 (Office)  
Cell No : +91 94433 56539 & 9442278601

Applicant will himself implement the closure plan; no outside agency will be involved.

**11.8 Review of Implementation of Mining Plan Including Progressive Closure Plan upto the Final Closure Plan:**

Mining Plan and Progressive quarry closure plan are being submitted for the first time. It will be reviewed after five years and review of implementation will be given with next mining plan.

**11.9 Closure Plan:****(i) Mined Out Land:**

It is a Government land hence and at the end of this mining plan period about 66m depth only quarried out in the total depth of 76m below from the existing ground profile. There is no waste anticipated during entire lease period. Hence, Backfilling is not possible, when the quarry reaches its ultimate pit limit or at the end of life of quarry, the quarried out pit allowed to collect the seepage rain water and the water storage will be kept as reservoir for charging nearby wells and to enhance the static level of the ground water (Refer Plate No. IV). Land use at various stages is given in the table below.

Table - 15

Description	Present area (Ha)	Area at the end of this quarrying period (Ha)
Area Under Quarrying	Nil	0.76.0
Infrastructure	Nil	Nil
Roads	Nil	Nil
Green Belt	Nil	Nil
Unutilized Area	1.00.0	0.24.0
<b>Grand Total</b>	<b>1.00.0</b>	<b>1.00.0</b>

**(ii) Water quality management:**

Following control measures will be adopted for controlling water pollution:-

- Construction of garland drains to divert surface run-off from virgin area away from mining area.
- Construction of check dams / gully plugs at strategic places to arrest silt wash off from broken up area.
- Collection of surface run-off from broken up area in mine pits for settling and only properly settled excess water from mine pit will be discharged to nearby users. The storm water/ mine water will be used for dust suppression, greenbelt development, etc.
- Periodic analysis of mine pit water and ground water quality in nearby villages.
- Domestic sewage from site office & urinals/latrines provided in QL is discharged in septic tank followed by soak pits.

**(iii) Air Quality Management:**

The proposed mining method is not likely to produce much of dust and fugitive emissions to cause damage to ambient air quality of the area. Workers will be provided with personnel protective equipment like face-mask, earplug/ muffs.

For air pollution management at the progressive quarry closure plan, greenbelt will be developed to prevent and control air pollution.

**(iv) Top Soil and Waste Management:**

The overburden is in the form of Topsoil. The top soil ( $7,600\text{m}^3$ ) will be safely removed and preserved in the safety barrier of the applied area and will be utilized for greenbelt development. No waste anticipated during this mining plan period. Hence, waste management does not arise.

**(v) Disposal of mining machinery:**

All Machineries will be engaged on rental basis. Hence, decommissioning or disposal of mining machinery does not arise.

**(vi) Safety & Security:**

Safety measures will be implemented to prevent access in the excavation area an unauthorized persons as per Mine Act 1952, MMR 1961.

- Safety measures will be implemented as per Mine Act 1952, MMR 1961, and Mines Rules 1955.
- Provisions of MMR 1961 shall be strictly followed and all roads shall be wider than the height of the bench or equal to the height of the bench and have a gradient of not more than 1 in 16.



- The bench height will be 5.0m.
- Width of working bench will be kept about 5.0m for ease of operations and provide sufficient room for the movement of equipments.
- Protective equipment like dust masks, ear-plugs/ muffs and other equipments shall be provided for use by the work persons.
- Notices giving warning to prevent inadvertent entry of persons shall be displayed at all conspicuous places and in particular near mine entries.
- Danger signs shall be displayed near the excavations and proper signal by siren alarm will be provide before blasting time for precautionary action of accident.
- Security guards will be posted.
- In the event of temporary closer, approaches will be fenced off and notice displayed.

**(vii) Disaster Management and Risk Assessment:**

This should deal with action plan for high risk accidents like landslides, subsidence, flood, fire, seismic activities, tailing dam failures etc. and emergency plan proposed for quick evacuation, ameliorative measures to be taken etc. The capability of applicant to meet such eventualities and the assistance to be required from the local authorities should be described.

- The mechanized mining activities in the area may involve any high risk accident due to side falls/collapse, flying stones due to blasting etc.
- The complete mining operation will be carried out under the Management and control of experienced and qualified Mines Manager having Certificate of Competency to manage the mines granted by DGMS.
- All the provisions of Mines Act 1952, MMR 1961 and Mines Rules 1955, TNMMCR 1959 and other laws applicable to mine will be strictly complied with.
- During heavy rainfall the mining activities will be suspended.
- All persons in supervisory capacity will be provided with proper communication facilities.
- Competent persons will be provided FIRST AID kits which they will always carry.

**(viii) Care and Maintenance during Temporary Discontinuance:**

In case of any temporary discontinuance due to court order or due to statutory requirement or any other unforeseen circumstance following measures shall be taken for care, maintenance and monitoring of conditions.

- Notice of temporary discontinuance of work in mine shall be given to the DGMS as per the MMR 1961.
- All the mining machinery shall be shifted to a safe place.



- Entrance to the mine or part of the mine, to be discontinued shall be fenced off. Fencing shall be as per the circular 11/1959 from DGMS.
- Security Guards shall be posted for the safety and to prevent any unauthorized entry to the area.
- Carry out regular maintenance of the facilities/area detailed below in such a way as would have been done as if the mines were operation:
  - Quarry roads and approach roads,
  - Fencing on approach roads,
  - Checking and maintenance of machines and equipment,
  - Drinking water arrangements,
- Competent persons shall inspect the area regularly.
- Air, water and other environmental monitoring shall be carried out as per CPCB and IBM Guideline.
- Care and upkeep of plantation shall be carried out on regular basis.
- Status of the working and status monitoring for re-opening of the mines shall be discussed daily.

In case of discontinuance due to any natural calamities/abnormal conditions, mining operation will be restarted as early as possible after completing rescue work, restoring safety and security, repairs of roads etc.

**(ix) Economic Repercussion of Closure of Quarry and manpower Retrenchments:**

The quarrying lease is granted for a maximum period of ten years only. As per the production Programme envisaged, there will be no effect on the manpower as the majority of persons belong to nearby villages and will have an option either to be available for employment for the next contract/ lease or do the agriculture in their fields.

**(x) Time Scheduling For Abandonment:**

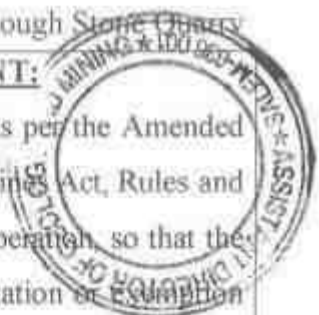
The lease applied area has enormous potential for continuance of operations even after the expiry of the lease period. The details of time schedule of all abandonment will be given at the time of final closure plan after consulting the consent authorities of the State Government.

**(xi) Abandonment Cost:**

As at present mining is not going to be closed so abandonment cost could not be assessed. However based on the progressive quarry closure activities during the plan period, cost is assessed as given below:

**TABLE - 16**

ACTIVITY	YEAR					RATE	AMOUNT (INR)
	I	II	III	IV	V		
Plantation (In Nos.)	40	40	40	40	40	@100 Rs	
Plantation & Maintenance Cost	4000	4000	4000	4000	4000	Per sapling Including Maintenance	Rs.20,000/-
Wire Fencing (In Mtrs) 400 Mtrs	120000					@300 Rs Per Meter	Rs.1,20,000/-
Garland Drain with check (In Mtrs) 270 Mtrs	81000					@300 Rs Per Meter	Rs.81,000/-
Cost for Plantation in worked out benches & Panchayat Roads	-	-	-	-	30000	@100 Rs Per sapling Including Maintenance	Rs.30,000/-
<b>TOTAL</b>							<b>Rs.2,51,000/-</b>



**12.0 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT:**

This Mining plan for Rough stone (Charnockite) is under Rules 41 & 42 as per the Amended under Tamil Nadu Minor Mineral Concession Rules, 1959. The provisions of the Mines Act, Rules and Regulations and orders made there under shall be complied within the quarrying operation, so that the safety of the mine, machinery and person will be well protected. Permission, relaxation or exemption wherever required for the safe and scientific quarrying of the deposit will be obtained from the Department of Mines Safety. Any violation pointed out by the inspecting authorities shall be rectified as per the guidelines of the Concerned Department.

Prepared by

*Dr. P. Thangaraju*  
Dr. P. Thangaraju, M.Sc., Ph.D.,  
Qualified Person

Place: Salem

Date: 06.08.2020



**This Mining Plan is Approved**  
Subject to the Conditions / Stipulation &  
Indicated in the Mining Plan Approval  
Letter No. 179 / 2020 / Mines / Pt / 26-8-20  
Office of the A.D. Geology & Mining, Salem.

This Mining Plan is approved based on the incorporation of the particulars specified in the letter of the Commissioner of Geology and Mining, Chennai No. 3889/1 C/2012 Dated: 19-11-2012 and subject to further fulfillment of the condition laid down under Tamil Nadu Minor Mineral Concession Rules 1959.

*Dr. P. Thangaraju*  
26/8/2020

**ASSISTANT DIRECTOR (I/C)**  
Dept. of Geology & Mining  
**SALEM.**

*26/8/2020*  
*26/8/2020*

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ந.க.எண்.179/2020/கனிமம்/அ

மாவட்ட ஆட்சியர் அலுவலகம்  
சேலம்.  
நாள்: 03.06.2020.

குறிப்பாணை

**பொருள்:** கனிமங்களும் குவாரிகளும் - சிறுகனிமம் - சாதாரண கற்கள் - சேலம் மாவட்டம் - சேலம் வட்டம் - பனமரத்துப்பட்டி கிராமம் - புல எண். 17 (பாகம்-7) விஸ்தீரணம் 1.00.0 ஹெக்டேர் பரப்பளவில் அரசு நிலத்தில் அமைந்துள்ள சாதாரண கற்குவாரிக்கு டெண்டருடன் இணைந்த பொது ஏல முறையில் 10 வருட காலத்திற்கு குத்தகை வழங்க டெண்டர்/பொது ஏலம் நடத்தப்பட்டது - பொது ஏலத்தில் அதிக தொகை கோரிய M/சராயல் ஸ்டோன்ஸ் என்ற நிறுவனத்தாருக்கு சாதாரண கற்குவாரி குத்தகை வழங்குதல் தொடர்பாக கறங்கத்திட்டம், மாநில கற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின் தடையின்மைச் சான்று மற்றும் தகிழ்நாடு மாக கட்டுப்பாட்டு வாரிய இசைவு ஆகியவற்றை பெற்று வழங்க கோருதல் - தொடர்பாக.

- பார்வை:**
1. சேலம் மாவட்ட அரசிதழ் சிறப்பு வெளியீடு எண்.03, நாள் 22.01.2020.
  2. 31.01.2020 அன்று திளமணி நாளிதழில் வெளியிடப்பட்ட பத்திரிக்கை செய்தி.
  3. M/சராயல் ஸ்டோன்ஸ், 207ஏ, சின்னம்மாள் பிஸ்டிங், எண். 102-ஏ, பெரமனூர் மெயின்ரோடு, நான்கு ரோடு, சேலம்-636 007 என்பவரின் பொது ஏல விண்ணப்பம் நாள் 06.02.2020.
  4. திரு.பிரதீப்சிங்கம் து/பெ.பெண்ணாசாமி, 5/71-சி போஸ்டு. சென்னை-600 001 ஆட்சயல், காலையாம்பட்டி வட்டம், சேலம்-636 309 என்பவரின் பொது ஏல விண்ணப்பம் நாள் 06.02.2020.

சேலம் மாவட்டம், பனமரத்துப்பட்டி கிராமம், புல எண். 17 (பாகம்-7) விஸ்தீரணம் 1.00.0 ஹெக்டேர் பரப்பளவில் அமைந்துள்ள சாதாரண கற்குவாரிக்கு பத்து ஆண்டுக்கு குவாரி குத்தகை வழங்குவது தொடர்பாக 06.02.2020 அன்று நடைபெற்ற டெண்டருடன் இணைந்த பொது ஏலத்தில் M/சராயல் ஸ்டோன்ஸ், 207ஏ, சின்னம்மாள் பிஸ்டிங், எண்.102-ஏ, பெரமனூர் மெயின்ரோடு, நான்கு ரோடு, சேலம்-636 007 என்ற நிறுவனத்தார் அரசு நிலையம் செய்த குறைந்த மடச் குத்தகை தொகையை விட அதிக தொகையான ரூ.32,50,000/- (ரூபாய் முப்பத்தி இரண்டு லட்சத்து ஐம்பதுபயிரம் மட்டும்) பொது ஏலத்தில் கோரியதால் அவருக்கு தகிழ்நாடு சிறுகனிம சலுகை விதிகள், 1959-ன் விதி 8(6)(b)-ன்படி அவருக்கு கீழ்க்கண்ட நிபந்தனைகளுடன் குவாரி குத்தகை உரிமம் வழங்க உத்தேசிக்கப்பட்டுள்ளது.

- (i) குவாரி குத்தகை உரிமம் வழங்க உத்தேசிக்கப்பட்டுள்ள குவாரிக்கு அருகிலுள்ள மட்டா நிலங்களுக்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளியிட்டு குவாரிப்பணி செய்ய வேண்டும்.
- (ii) அருகிலுள்ள அரசு புறம்போக்கு புளங்கள், வண்டிப்பாதை மற்றும் கிராம சாலைகளுக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளியும், ஹெட்லாண்டை, மின்சாரி பாதை, ஓடை மற்றும் நிலையான அணைப்புகளுக்கு 50 மீட்டர் பாதுகாப்பு இடைவெளியும் விட்டு குவாரிப் பணி செய்ய வேண்டும்.

(ii) மேலும் மாவட்ட அரசிதழ் எண்.03, நாள் 22.01.2020-ல் குறிப்பிட்டுள்ள நியந்தனைகளை தவறாமல் கடைபிடித்து குவாரிப் பணி செய்வ வேண்டும்.

2) எனவே, சேலம் மாவட்டம், பனாபரத்துப்பட்டி கிராமம், புல எண். 1/7 (பாகம்-7) வில்நீரணம் 1,00.0 ஹெக்டேர் பரப்பளவில் புல வரைபடத்தில் குறிப்பிட்டுள்ள பகுதியில் குவாரி குத்தகை ஒப்பந்த ஆவணம் நிறைவேற்றும் நாயிலிருந்து 10 ஆண்டுகளுக்கு சாதாரண கற்கள் வெட்டியெடுக்க குவாரி குத்தகை வழங்குதல் தொடர்பாக தமிழ்நாடு சிறுகனிப் சலுகை விதிகள் 1959-ன் விதி 41 மற்றும் 42 ஆகியவற்றில் கண்டுள்ள காலவரையறைக்குள் கரங்கத்திட்டம், மாறில சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின் இசைவு மற்றும் தமிழ்நாடு மாகாணத்துப்பாட்டு வாரிய இசைவு ஆகியவற்றை சமர்ப்பிக்க வேண்டும் என M/s.ராமல் ஸ்டோன்ஸ் என்ற நிறுவனத்தாருக்கு தெரிவிக்கப்படுகிறது.

3) உரிய காலத்தில் மேற்கண்ட ஆவணங்களை சமர்ப்பிக்க தவறினால் விதிகளின்படி உரிய நடவடிக்கை எடுக்கப்படும் எனவும் தெரிவிக்கப்படுகிறது.

4) மேற்கூறிய ஆவணங்களை சமர்ப்பித்த பின்பு குவாரி குத்தகை வழங்கப்பட்டு குவாரி குத்தகை ஒப்பந்த ஆவணம் நிறைவேற்றிய பின்பே மேற்கண்ட புலத்தில் குவாரிப் பணிகளை தொடங்க வேண்டும். தவறினால் தமிழ்நாடு சிறுகனிப் சலுகை விதிகள் 1959-ன் விதி 36 (அ)-ன்படி உரிய நடவடிக்கை எடுக்கப்படும் எனவும் தெரிவிக்கப்படுகிறது.

இணைப்பு: புல வரைபடம்.

(மும்-சி.அ.பா.பி.)  
மாவட்ட ஆட்சித்தலைவர்,  
சேலம்.

//உண்மை நகல்/உத்திரவுப்படி//

மாவட்ட ஆட்சித்தலைவருக்காக,  
சேலம்.

பெறுதல்:-

M/s.ராமல் ஸ்டோன்ஸ்,  
207ஏ, சின்னம்பாளன் பிளாட்கு,  
எண்.102-ஏ, பெரமணூர் பெயிள்கோடு,  
நான்கு கோடு,  
சேலம்-636 007.

3/6/20

நகல்: வட்டாட்சிபா, சேலம் - குவாரி குத்தகை வழங்க உள்ள புலத்தில் உள்ள புல வரைபடத்தில் உள்ளவாறு குறுவட்ட அபாயப் பகுதி செய்வு எல்லை கற்கள் ஏற்படுத்தி ஒரு வர காலத்திற்குள் அதற்க்க அளிக்க இதுள்முயல் கேட்டுக்கொள்வப்படுகிறது.

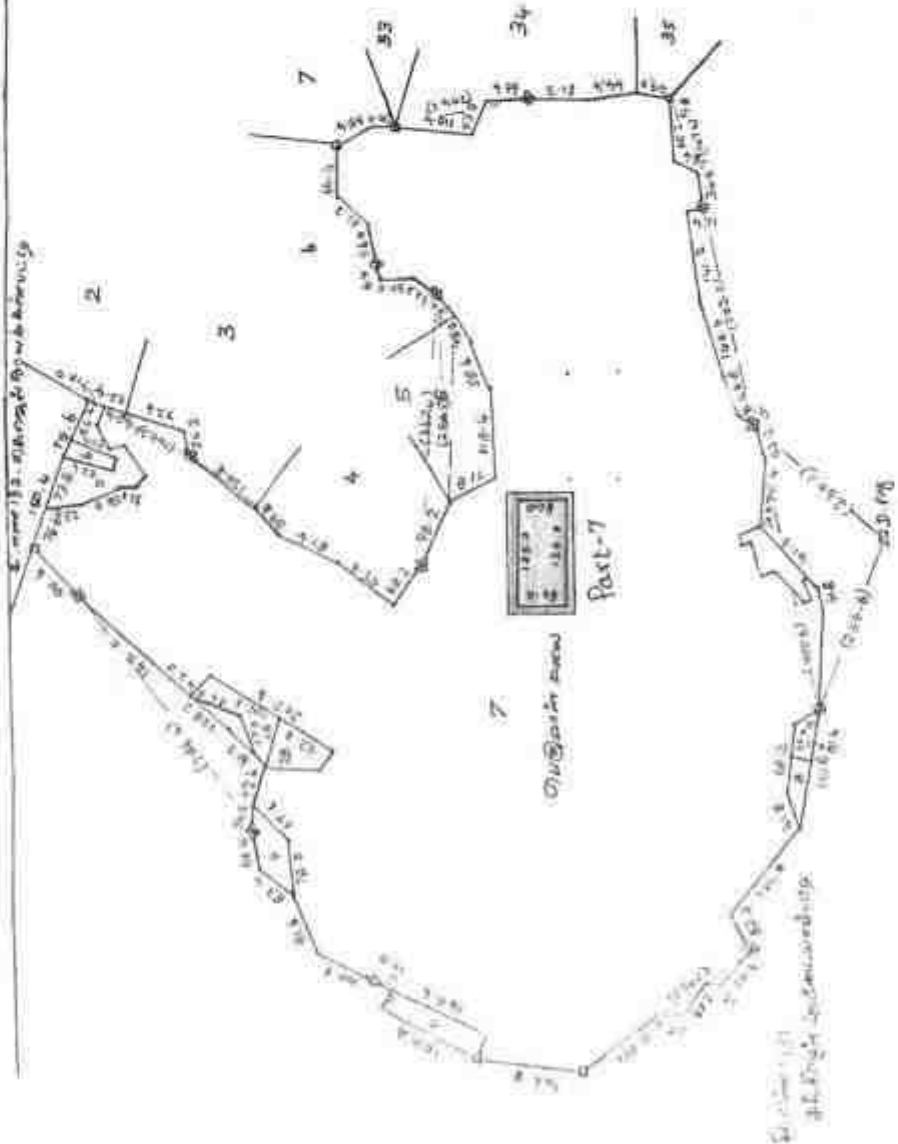




பெயர் : ...  
 மொத்த : ...  
 மீட்டர்கள் : 77.466. 96.5 Acres.

48	48	348.4	24	00.2	18.8	23
0	11.4	284.4			3.4	
47	14.0	204.0			159.8	
		107.0	22	11.4	157.4	31
		204.2			11	
		0			0	
		193.6			296.2	20
		145.4			185.8	10.4
		0	19	17.0	143.1	18
		0			79.4	
		225.4	17	6.4	66.0	
		143.0			315.8	16
		185.4			285.4	
		171.4			42.4	
		154.2	15	14.4	151.0	
		161.4			116.2	8.6
		150.4			31.2	3.2
		142.8			0	
		54.4			254.6	12
		26.6			129.6	37.0
		0			98.2	63.8
		0			232.2	16
		386.6			98.0	9
		245.0			0	6
		199.0			296.0	11.1
		138.6			257.2	24.2
		120.0			144.0	4.4
		59.4			0	0
		29.6			296.0	11.1
		14.0			144.0	4.4
		11.8			0	0
		0			296.0	11.1
		292.8			296.0	11.1
		257.8			296.0	11.1
		237.6			296.0	11.1
		189.4			296.0	11.1

பகுதி - I

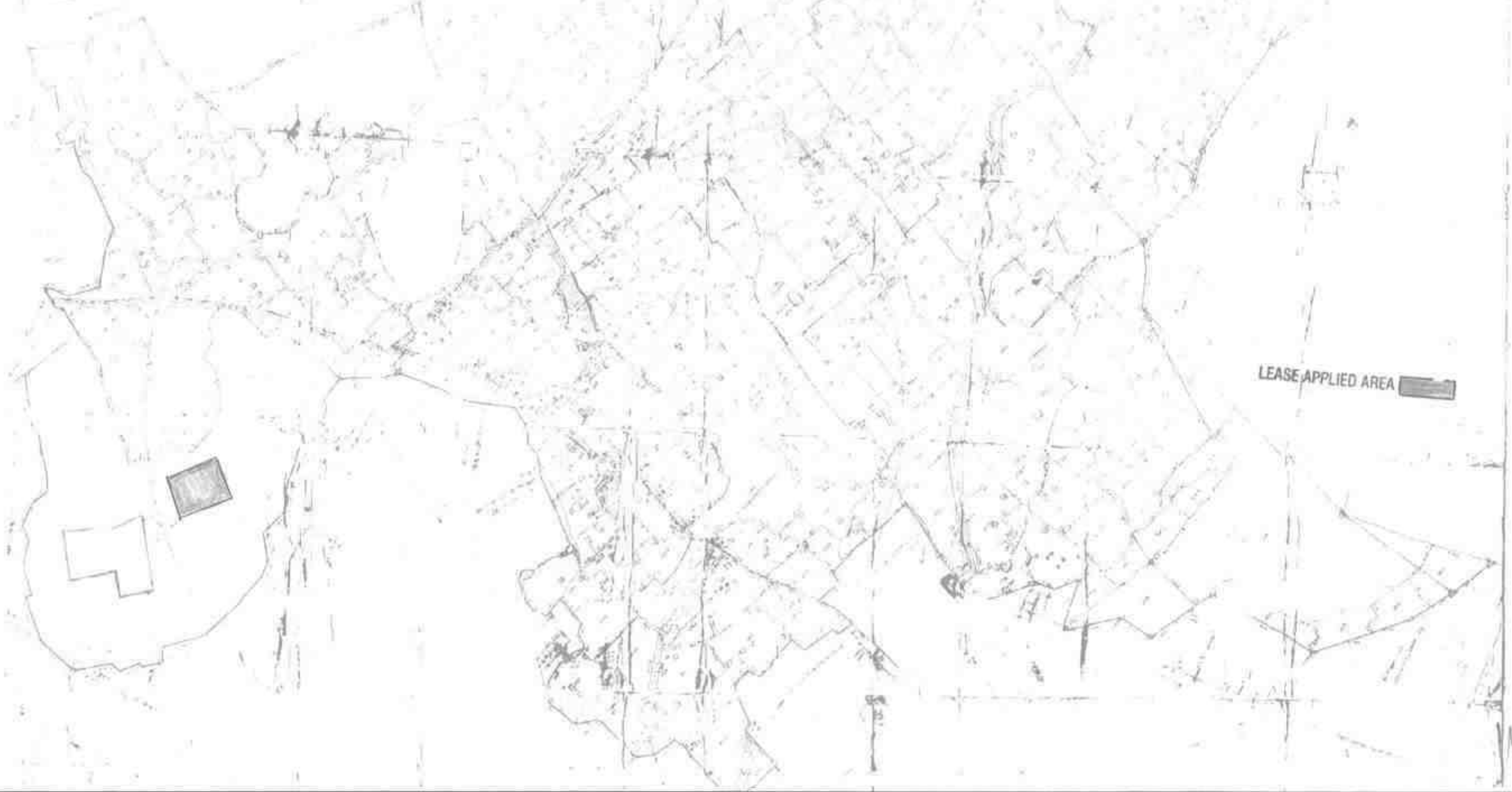


LEASE AREA GRANTED  
 5 No. I/Tant. Bitna. 1000 Hec.  
 100 meters Safety Distance.  
 TAHSILDAR  
 SALEM.

LEASE APPLIED AREA

142

134 1100 1100 1100 1100



143



சேலம் மாவட்டம், சேலம் வட்டம், கி. எண். 134. பன்மரத்துப்படி கிராமத்தின் 'அ' பதிவேடு.

சேலம் வட்டங்களின் அட்டவணை.

எண்:  
 தற்போதைய நில அளவைக்கீழ் 1/80 எண் ஹம், உட்கிராமம்.  
 பன்மரத்துப்படி அளவைக்கீழ் 1/80 எண் அகிலா ஹம்.  
 கத்தளாமி (1), கத்தளாமி (2) அகிலா இலாபம் (1).  
 கத்தளாமி (1), கத்தளாமி (2), கத்தளாமி (3), கத்தளாமி (4), கத்தளாமி (5), கத்தளாமி (6), கத்தளாமி (7), கத்தளாமி (8), கத்தளாமி (9), கத்தளாமி (10), கத்தளாமி (11), கத்தளாமி (12) அகிலா இலாபம் (1).  
 கத்தளாமி (1) அகிலா இலாபம் (1).  
 கத்தளாமி (2) அகிலா இலாபம் (1).

- எண். எண்.
6. கல் வானமும், கத்தளாமி.
  7. கத்தளாமி.
  8. கத்தளாமி (1) அகிலா இலாபம் (1).
  9. கத்தளாமி (2) அகிலா இலாபம் (1).
  10. கத்தளாமி (3) அகிலா இலாபம் (1).
  11. கத்தளாமி (4) அகிலா இலாபம் (1).
  12. கத்தளாமி (5) அகிலா இலாபம் (1).

1	2	3	4	5	6	7	8	9	10	11	12
							கு- எய்- கத்தளாமி				
1	1-1	8	4	...	8-2	6	3 85	0 01-0	0 05	135	சீத்தல்.
2A	2-1	8	4	...	8-2	6	3 85	0 04-5	1 70	155	கு- எய்- கத்தளாமி
3	3-1	8	4	...	8-2	6	3 85	0 07-5	1 30	21	கு- எய்- கத்தளாமி
4	4-1	8	4	...	8-2	6	3 85	0 11-5	0 85	226	கு- எய்- கத்தளாமி
5	5-1	8	4	...	8-2	6	3 85	0 36-5	1 40	34	கு- எய்- கத்தளாமி
6	6-1	8	4	...	8-2	6	3 85	0 71-0	2 75	486	கு- எய்- கத்தளாமி
7	7-1	8	4	...	8-2	6	3 85	0 12-0	0 50	27	கு- எய்- கத்தளாமி
8	8-1	8	4	...	8-2	6	3 85	0 81-0	...	...	...
9	9-1	8	4	...	8-2	6	3 85	0 07-5	0 30	54	கு- எய்- கத்தளாமி
10	10-1	8	4	...	8-2	6	3 85	0 21-0	0 80	54	கு- எய்- கத்தளாமி
11	11-1	8	4	...	8-2	6	3 85	0 02-5	0 10	...	...
12	12-1	8	4	...	8-2	6	3 85	0 40-5	1 55	393	கு- எய்- கத்தளாமி
								79 69-3	11 15		



தமிழ்நாடு அரசு  
2020



## சேலம் மாவட்ட அரசிதழ்

சிறப்பு வெளியீடு

ஆணையின்படி வெளியிடப்பட்டது.

சேலம், ஜனவரி 22, 2020

[விகாரி, தை 8 - திருவள்ளூர் ஆண்டு 2051]

[எண் 3

### மாவட்ட ஆட்சியர் அறிவிக்கை

[ந.க.எண். 430/2018/கலியம்/அ), நாள்: 20.01.2020]

சாதாரண கற்குவாரி ஒப்பந்தப்புள்ளி (டெண்டர்) மற்றும் பொது ஏலம் குறித்த அறிவிப்பு

டெண்டர் விண்ணப்பங்கள் பெற கடைசி நாள் : 05.02.2020

பொது ஏலம் நடத்துதல் மற்றும் டெண்டர்

விண்ணப்பங்களை பிரித்து பரிசீலிக்கும் நாள் : 05.02.2020

1. சேலம் மாவட்டத்தில் அரசு புறம்போக்கு நிலங்களில் அமைந்துள்ள சாதாரண கற்குவாரிகளிலிருந்து சாதாரண பொது உபயோக சிறுகனிமங்கலான சாதாரணகற்களை வெட்டியெடுத்துச் செல்வதற்கு தனிநபர் மற்றும் தனியார் நிறுவனங்களுக்கு குவாரி குத்தகை உரிமம் வழங்க மூடி முத்திரையிடப்பட்ட ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்கள் வரவேற்கும் டெண்டர் மற்றும் பொது ஏல அறிவிப்பு.

2. 1959 ஆம் ஆண்டு தமிழ்நாடு சிறுகனிமச் சலுகை விதிகளின் விதி 8-ன்படி சேலம் மாவட்டத்தில் இத்துடன் இணைக்கப்பட்ட அட்டவணைப்பில் குறிப்பிடப்பட்டுள்ள அரசு புறம்போக்கு நிலங்களில் அமைந்துள்ள சாதாரண கற்குவாரிகளிலிருந்து சாதாரணகற்களை குவாரி செய்து எடுத்துச் செல்ல டெண்டருடன் இணைந்த ஏல முறையில் குவாரி குத்தகை உரிமம் வழங்க மூடி முத்திரையிடப்பட்ட டெண்டர் விண்ணப்பங்கள் 3 பிரதிகளில் சேலம் மாவட்ட ஆட்சியரால் வரவேற்கப்படுகின்றன.

3. இந்த அறிவிக்கையின்படி விண்ணப்பிக்கப்படும் ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பம் 1959 ஆம் வருடத்திய தமிழ்நாடு சிறுகனிமச் சலுகை விதிகளின் பின்னணைப்பு VI-ல் குறிப்பிடப்பட்டுள்ள மடியத்தில் இருக்க வேண்டும். மாதிரி விண்ணப்பப்படிவம் இந்த மாவட்ட அரசிதழ் சிறப்பு வெளியீட்டில் இணைப்பில் பிரசுரிக்கப்பட்டுள்ளது. இணைப்பில் பிரசுரிக்கப்பட்டுள்ள மடியம் VI-ன்படி பூர்த்தி செய்து அனுப்பப்படாத விண்ணப்பங்கள் ஏற்றுக் கொள்ளப்படமாட்டாது.

4. ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்களுடன் இணைத்து அனுப்பப்பட வேண்டிய இணைப்புகளின் விவரங்கள் மற்றும் குத்தகை நிபந்தனைகள் பற்றிய விவரங்கள் குறிப்பிடப்பட்டுள்ள அரசிதழ் சேலம் மாவட்ட ஆட்சியர் அலுவலகம், சேலம் மாவட்டம், முயிப்பல் மற்றும் கரங்கத்தூற, துணை இயக்குநர் அலுவலகம், சேலம் மாவட்டத்திலுள்ள வருவாய் கோட்டாட்சியர், வட்டாட்சியர்கள் மற்றும் காராட்சி ஒன்றிய ஆணையாளர் அலுவலகங்களின் தகவல் பலகையில் விளம்பரம் செய்யப்பட்டுள்ளது.

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5. அட்டவணையில் குறிப்பிட்டுள்ள குவாரிகளின் குத்தகை உரிமை குத்தகை ஒப்பந்த பத்திரம் நிறைவேற்றப்பட்ட தாளிலிருந்து 5 ஆண்டுகள் / 10 ஆண்டுகள் ஆகும்.

6. ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பதாரர் தனது விண்ணப்பத்தில் குவாரியின் மொத்த குத்தகை காலத்திற்குமான ஒரே தரவணையில் செலுத்தக்கூக குத்தகை தொகையை உரிய இடத்தில் எண்ணிலும் எழுத்திலும் தெளிவாக குறிப்பிட வேண்டும்.

7. மாவட்ட ஆட்சியர், வருவாய் கோட்டாட்சியர், வருவாய் வட்டாட்சியர்கள், ஊராட்சி ஒன்றிய ஆணையர், துணை இயக்குநர் (முனியல் மற்றும் சுரங்கத்துறை) அலுவலக தகவல் பலகைகளில் அறிவிப்பு செய்யப்பட்டுள்ள அரசிதழில் கண்டுள்ள நிபந்தனைகளின்படி பூர்த்தி செய்யப்பட்ட ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்களை அனைத்து இணையங்களுடன் கவரில் எய்து மூல முத்திரை இட்டு மாவட்ட ஆட்சித்துறை, சேலம் என்று விவரப்பட்டு தேரிலை அல்லது ஒப்பந்த பெறக்கூக பதிவுச்சு மூலமாகவே மாவட்ட ஆட்சியர் அலுவலக வளாக இரண்டாம் தளத்தில் அறை எண் 206B-ல் உள்ள முனியல் மற்றும் சுரங்கத்துறை, துணை இயக்குநர் அலுவலகத்தில் 2020-ம் ஆண்டு பிப்ரவரி திங்கள் 05-ஆம் நாள் மாலை 05.00 மணிக்குள் கிடைக்கும்படி அனுப்பப்பட வேண்டும். கவரின் மீது விண்ணப்பிக்கும் குவாரியின் விவரம் மற்றும் அட்டவணையில் குறிப்பிட்டுள்ள குவாரியின் வரிசை எண் போன்றவற்றை தவறாமல் குறிப்பிட வேண்டும்.

8. மேலே குறிப்பிட்ட காலக்கெடுவிற்குள் வரப்பெற்ற விண்ணப்பங்கள் மட்டும் மாவட்ட ஆட்சியரால் அல்லது அவரது ஒயர்காரம் பெற்ற அலுவலரால் சேலம் மாவட்ட ஆட்சியர் அலுவலக வளாகத்தில் சேலம், சங்ககிரி, மேட்டு மற்றும் ஆத்தூர் வருவாய் கோட்டத்தில் அமைந்துள்ள கல் குவாரிகளுக்கு 2020-ம் ஆண்டு பிப்ரவரி திங்கள் 06-ஆம் நாளைன்று முற்பகல் 11.00 மணிக்கு ஆணையரிடமிருக்கும் சம்பந்தப்பட்ட குவாரிக்கு விண்ணப்பித்துள்ள விண்ணப்பதாரர்கள் மற்றும் பொது ஏலத்தில் கலந்து கொள்பவர்கள் முன்விவரத்தில் அட்டவணைகளில் உள்ள குவாரிகளின் வரிசை கிரவாக முதலில் பொது ஏலமும் பின்னர் ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்கள் திறப்பும் மேற்கொள்ளப்படும்.

9. மேலே குறிப்பிட்ட நாளில் ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்கள் திறப்பதற்கு முன்னர் ஒவ்வொரு குவாரிக்கும் தனித்தனியே பொது ஏலம் விடப்படும். ஏல நடவடிக்கை முடிவு பெற்ற பின்பு சம்பந்தப்பட்ட குவாரிக்கு வரப்பெற்ற டெண்டர் விண்ணப்பங்கள் பிரித்து பரிசீலிக்கப்படும். டெண்டர் விண்ணப்பம் மூலம் கோரப்பட்டுள்ள உயர்நிலை டெண்டர் தொகை அல்லது ஏலம் மூலம் கோரப்பட்ட உயர்நிலை குத்தகை தொகை இதில் எது அதிகமோ அதனொன்றையே சம்பந்தப்பட்ட குவாரிக்கான உயர்நிலை குத்தகை தொகையாக எடுத்துக்கொள்ளப்பட்டு குவாரி குத்தகை உரிமை வழங்குதல் சம்பந்தமாக நடவடிக்கைகள் மேற்கொள்ளப்படும்.

10. மேற்கண்டபடி வரப்பெறும் டெண்டர் / ஏல விண்ணப்பங்கள், 1959-ஆம் வருடத்திய தமிழ்நாடு சிறுகளியச் சலுகை விதிகள், சுரங்கங்கள் மற்றும் கனிமங்கள் (பெய்குத்துதல் மற்றும் முறைப்படுத்துதல்) சட்டம், 1957 மற்றும் இந்த ஏல அறிவிப்பில் குறிப்பிட்டுள்ள முக்கிய நிபந்தனைகளின்படி பரிசீலிக்கப்பட்டு அலுவலர்மீது மாவட்ட ஆட்சியரால் தக்க ஆணைகள் பிறப்பிக்கப்படும்.

11. இந்த மாவட்ட அரசிதழ் அறிவிக்கை பிரசுரிக்கப்பட்ட பின்னரே, குத்தகை உறுதி ஆணை பிறப்பிப்பதற்கு முன்னரே, நிபந்தனைகளை மாற்றுவோ அல்லது ஏற்று செய்யவோ மற்றும் பட்டியலில் கண்டுள்ள எல்லா குவாரிகளின் குத்தகை உரிமை கோரும் ஒப்பந்தப்புள்ளி மறுக்களை எக்காரணமும் கூறாமல் ஏற்று செய்யவோ அல்லது மேற்படி மறுக்களை மூல முத்திரையிடப்பட்ட உறுதிகளை திறக்கும் நாள் நேரம் மற்றும் ஏலம் நடக்கும் நாள் மற்றும் நேரம் ஆகியவைகளை தள்ளிவைக்கவோ நிறுத்திவைக்கவோ மாவட்ட ஆட்சியருக்கு முழு அதிகாரம் உண்டு. ஏதாவது வரணத்தினால் ஒத்திவைக்க தேர்ந்தால் அதற்கு மறுதாரர்கள் யாருக்கும் நஷ்ட எடு மேட உரிமை இல்லை.

12. விண்ணப்பதாரர் ஒவ்வொரு குவாரிக்கும் தனித்தனியே ஒரு ஒப்பந்தப்புள்ளி விண்ணப்பத்தை உரிய இணையங்களோடு அனுப்ப வேண்டும். ஒரே விண்ணப்பத்தில் ஒரு குவாரிக்கு மேல் பல குவாரிகளை குறிப்பிட்டு அனுப்பும் விண்ணப்பம் நிராகரிக்கப்படும்.

13. ஒப்பந்தப்புள்ளி விண்ணப்பம் அனுப்புவதற்கு முன் / ஏலத்தில் கலந்து கொள்வதற்கு முன் இம்மாவட்ட அரசிதழ் அறிவிக்கையுடன் இணைக்கப்பட்டுள்ள பட்டியலில் கண்ட சம்பந்தப்பட்ட குவாரியை / குவாரிகளை விண்ணப்பதாரர் தனது சொந்த செலவிலேயே நேரில் பார்வையிட்டு பாறை வசதி, கனிமத்தின் தரம் மற்றும் கனிமத்தின் இருப்பு ஆகியவற்றை ஆராய்ந்து பின்னர் குத்தகை உரிமை கோரி விண்ணப்பிக்க வேண்டும் மற்றும் ஏலத்தில் கலந்து கொள்ளவேண்டும். ஆணை வழங்கப்பட்ட பின் குவாரி அமைந்துள்ள புவணம், பரப்பு, குவாரிகளின் தரம், பாறை வசதி, கனிமத்தின் தரம், கனிமத்தின் இருப்புக்கூற்த்து எவ்வித தாவரம் செய்ய குத்தகைதாரருக்கு உரிமை கிடைப்பது.





14. 1959ஆம் வருடத்திய தமிழ்நாடு சிறுகுறியை சீர்திருத்த விதிகளில் கண்டுள்ள அனைத்து சாரங்கங்களையும் உள்ளடக்கிய அனைத்து நிபந்தனைகளையும் நன்கு தெரிந்து கொண்டு, பின் ஒப்பந்தப்புள்ளி விண்ணப்பங்களை உரிய நிகழ்வுகளை அனுப்பவேண்டும். விண்ணப்பம் அனுப்பிய பிறகு விதிகள் மற்றும் சூத்திரங்களை நிபந்தனைகள் பற்றி சரியாக தெரியாது என மனுதாரர் வாதிட்டால் அது ஏற்றுக்கொள்ளப்பட மாட்டாது.

15. ஒப்பந்தப்புள்ளி (டெண்டர்) மற்றும் ஏல் நிபந்தனைகள் :

1) ஒவ்வொரு குவாரிக்கும் இந்த அரசினால் பிற்பேர்க்கையில் பிரகடிக்கப்பட்டுள்ள இணைப்பு VI-ல் காணும் மாதிரி விண்ணப்பப் படிவத்தின்படி தனித்தனி விண்ணப்பங்களில் விண்ணப்பிக்க வேண்டும்.

2) நடப்பில் ஒரு நபருக்கு இரண்டு குவாரிகளுக்கு மட்டும் தான் சூத்திரங்களை உரிய வழங்கப்படும்.

3) இந்த அரசினால் அட்டவணையில் குறிப்பிட்டுள்ள குவாரிகளின் சூத்திரங்களை காலம் சூத்திரங்களை ஒப்பந்த பத்தியும் பிறகு வேறப்பட்ட நாளிலிருந்து 5 ஆண்டுகள் / 10 ஆண்டுகள் ஆகும். சூத்திரங்களை ஒப்பந்தப்பத்தியில் குறிப்பிடப்படும் இறுதி தாளில் சூத்திரங்களை காலம் முடிவடையும், சூத்திரங்களை காலம் எக்காரணத்திற்கொண்டும் நீட்டிக்கப்பட மாட்டாது.

4) ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பத்தின் கீழ்க்கண்டவற்றை இரண்டாண்டு அனுப்ப வேண்டும்.

(அ) திருப்ப வரங்க இயலாத விண்ணப்பக் கட்டணமாக ரூ. 1,500/-க்கான கேட்பு வரைவோலையை (Demand draft) ஏதேனும் ஒரு தேசிய மயமாக்கப்பட்ட வங்கியில் மாவட்ட ஆட்சியர், சேலம் மாவட்டம் அவர்களின் பதவியின் பெயரில் பெற்று இணைக்க வேண்டும்.

(ஆ) பிணை வைப்புத்தொகை (Earnest Money Deposit) ரூ. 25,000/- (ரூபாய் இருபத்தைந்து ஆயிரம் மட்டும்)-க்கான கேட்பு வரைவோலை ஏதேனும் ஒரு தேசியமயமாக்கப்பட்ட வங்கியில் மாவட்ட ஆட்சியர், சேலம் மாவட்டம் அவர்களின் பதவியின் பெயரில் பெற்று இணைக்க வேண்டும். சூத்திரங்களை உரிய வழங்கப்படும் செலுத்த வேண்டிய டெண்டர்/ஏலத் தொகையில் இந்த தொகை மீளனர் சரி செய்து கொள்ளப்படும்.

(இ) ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பத்தில் குறிப்பிட்டுள்ள மொத்த சூத்திரங்களை தொகையில் 10 சதவீதத் தொகைக்கான கேட்பு வரைவோலை (Demand draft) மாவட்ட ஆட்சியர், சேலம் மாவட்டம் அவர்களின் பதவியின் பெயரில் ஏதேனும் ஒரு தேசியமயமாக்கப்பட்ட வங்கியில் பெற்று இணைக்க வேண்டும்.

5) ஏலத்தில் நேரடியாக கலந்து கொள்பவர்கள் திருப்பித்தரப்படாத விண்ணப்பக்கட்டணம் ரூ. 1,500/- மற்றும் பிணை வைப்புத்தொகை ரூ. 25,000/- ஆகியவற்றிற்கான கேட்பு வரைவோலைகள் (Demand draft) மாவட்ட ஆட்சியர், சேலம் மாவட்டம் அவர்களின் பதவியின் பெயரில் ஏதேனும் ஒரு தேசியமயமாக்கப்பட்ட வங்கியில் பெற்று ஏலத்தில் நேரடியாக கலந்து கொள்வதற்கு முன்னர் ஏலம் நடத்தும் அலுவலரிடம் சமர்ப்பிக்க வேண்டும். மேலும் ஏலம் மூலம் கோரப்பட்ட உயர்ந்தபட்ச தொகை டெண்டர் மூலம் கோரப்பட்ட உயர்ந்த பட்ச தொகையைவிட அதிகமாக இருந்தால் ஏலத்தொகையில் 10 சதவீதத்தொகையை உடனே ஏலம் நடத்தும் அலுவலரிடம் தேசிய மயமாக்கப்பட்ட ஏதேனும் ஒரு வங்கியில் பெறப்பட்ட கேட்பு வரைவோலையாகவோ அல்லது ரொக்க தொகையாகவோ செலுத்தி தக்க இரசீதுகள் பெற்றுக்கொள்ள வேண்டும்.

6) மாவட்ட வாரியக களிய வாரியக விண்ணப்பதாரர் / ஏலதாரர் நேரடியாகவோ அல்லது பங்குதாரராகவோ தொடர்புள்ள குவாரிகள் பற்றிய கீழ்க்கண்ட விவரங்களை ஆணை உறுதி வாக்குமூலம் (அபி-சி.) மூலம் தெரிவிக்க வேண்டும்.

- i. அனுபவத்திலிருக்கும் குவாரி சூத்திரங்களை அனுமதி பற்றிய விவரம்
- ii. ஏற்கனவே விண்ணப்பித்து இதுவரை அனுமதி வழங்கப்படாத குவாரி சூத்திரங்களை அனுமதி பற்றிய விவரம்.
- iii. தற்போது உடன்திகழ்வாக விண்ணப்பிக்கும் குவாரி சூத்திரங்களை அனுமதி விவரம்.
- iv. விண்ணப்பதாரருக்கு களிய சூத்திரங்களை மாவட்ட ஆட்சியரால் வழங்கப்பட்ட செலுத்தக்க கருவகாரி திறமை இல்லாத சான்றிதழ் அல்லது கரங்கையி நிறுவன இல்லாத சான்றிதழ்களை ஆணையறுதி வாக்குமூலம் இணைக்கப்பட வேண்டும்.
- v. வருமான வரி செலுத்திய சான்றிதழ் அல்லது வருமானவரி பாக்கியில்லை சான்றிதழ்களை ஆணையறுதி வாக்குமூலம் இணைக்கப்பட வேண்டும்.

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7) ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்கள் பெறக்கூறிய இணைப்புக்குடன் தேர்வோ அல்லது ஒப்புதலை பெறக்கூறிய பதிவுநகல் மூலமாகவோ மாவட்ட ஆட்சியர் அலுவலக கட்டடத்தில், இரண்டாம் தளத்தில் அறை எண்.206B-ல் இயங்கி வரும் சேலம் மாவட்டம், புவியியல் மற்றும் காலக்கத்தறை, துணை இயக்குநர் அலுவலகத்தில் 2020-ஆம் ஆண்டு பிப்ரவரி திங்கள் 05-ஆம் நாள் மாலை 05.00 மணிக்குள் விடைக்குட்பட்ட செய்ய வேண்டும். தேரில் விண்ணப்பங்கள் அளித்தால் அமைப்பெற்றுக்கொண்டதற்கான ஒப்புதல் உடனடியாக அண்ணாது தியேயே வழங்கப்படும். தபால் மூலம் பெறப்படும் விண்ணப்பத்திற்கு ஒப்புதல் உடனடியாக அண்ணாது தியேயே வழங்கப்படும். தபால் மூலம் பெறப்படும் விண்ணப்பத்திற்கு ஒப்புதல் உடனடியாக அண்ணாது தியேயே வழங்கப்படும். டெண்டர் விண்ணப்பங்கள் மூலம் முத்திரையிடப்பட்ட கவர்களில் மட்டுமே அனுப்பிவைக்கப்பட வேண்டும். கவரின் மேல்புறத்தில் விண்ணப்பதாரரின் பெயர் மற்றும் விவரம் தெளிவாக குறிப்பிடப்பட வேண்டும். கவரின் இடது மூலையில் கனிமத்தின் பெயர், குவாரி அமைந்துள்ள கிராமம், புல எண், பரப்பு, அரசிதழின் இணைப்பில் பிரகடிக்கப்பட்டுள்ள குவாரிகவரின் பட்டியலில் உள்ள வரிசை எண் ஆகியவற்றை தவறாமல் குறிப்பிட வேண்டும்.

8) மாவட்ட ஆட்சியரால்/அல்லது அவரால் அங்கீகாரம் வழங்கப்பட்ட அலுவலரிடம் உள்ள வருகை பதிவேட்டில் விண்ணப்பதாரர்கள் / ஏலதாரர்கள் கையொப்பமிட்டபின்னரே ஏல அறைக்குள் அனுமதிக்கப்படுவார்கள்.

9) குறிப்பிட்ட காலகெடுவிற்குள் வரப்பெற்ற விண்ணப்பங்கள் மாவட்ட ஆட்சியர் அல்லது அவரால் அங்கீகாரம் வழங்கப்பட்டுள்ள அலுவலரால் மாவட்ட ஆட்சியர் அலுவலகத்தில் 2020-ம் ஆண்டு பிப்ரவரி திங்கள் 05-ஆம் நாள்ன்று மூலம் 11.00 மணிக்கு வருகை தந்திருக்கும் தொடர்புள்ள குவாரிக்கு விண்ணப்பித்துள்ள விண்ணப்பதாரர்கள் மற்றும் ஏலம் கோர வந்திருக்கும் நபர்களின் மூன்றாவது ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்கள் திறக்கப்படுவதற்கு முன்னர் ஏலம் நடத்தப்படும் ஏலத்தில் கலந்து கொள்ள விரும்புவோர் பிணை வைப்பத்தொகை ரூ.25,000/-க்கான கேட்பு வரவேலோலை மற்றும் விண்ணப்பக்கட்டணம் ரூ.1,500/-க்கான கேட்பு வரவேலோலை, சரங்க நிலுவையில்லாச் சான்று அல்லது உறுதிமொழி ஆவணம், ஏலதாரர் தேரிடையாகவோ பங்குதாரராகவோ உள்ள குவாரிகள் தொடர்பான உறுதிமொழி ஆவணம், வருமானவரி நிலுவையில்லாசான்றிதழ் அல்லது உறுதிமொழி ஆவணம் முதலிய ஆவணங்களை ரூ.20/- மதிப்புள்ள நீதி சாரா முத்திரைத்தாளில் சான்று உறுதி அலுவலரிடம் (Notary Public) கையொப்பம் பெற்று விண்ணப்பத்துடன் ஏலம் நடாப்பெறுவதற்கு முன் அனுப்பிவைக்கவேண்டும். ஏலம் மற்றும் ஒப்பந்தப்புள்ளி (டெண்டர்) கலந்துகொள்பவர் செலுத்தும் விண்ணப்பக் கட்டணத்தொகை ரூ.1,500/- திருப்பித்தரப்படாது. ஏலத்தில் தேரிடையாக பங்குபெறுபவர்கள் அளிக்கும் விண்ணப்பத்தில் குத்தகை தொகையை குறிப்பிட தேவையில்லை. ஏற்கனவே டெண்டர் விண்ணப்பம் கொடுத்தவர்கள் ஏலத்தில் கலந்துகொள்ள முடியாவிடில் அவருக்குப்பதிலாக அவரால் நிபந்திக்கப்பட்ட வேறு ஒரு நபர் மட்டுமே தேர்ச்சியாளிக் முன்பு விண்ணப்பதாரர் மற்றும் நிபந்திக்கப்பட்ட நபர் கையொப்பத்துடன் சான்றுபெறப்பட்ட உறுதிமொழி ஆவணம் (அபிட்விட்) தாக்கல் செய்வதின் பேரில் ஏலத்தில் கலந்து கொள்ள அனுமதிக்கப்படுவார்கள்.

10) ஒப்பந்தப்புள்ளி விண்ணப்பப்படிவத்தில் மறு செய்யும் நபர்கள் தங்கள் மறு செய்யும் குவாரிக்கு குத்தகை தொகையாக செலுத்த விரும்பும் தொகையை விண்ணப்பத்தில் குறிப்பிடாமல் இருந்தாலோ அல்லது விண்ணப்ப கட்டணம், பிணைவைப்புத் தொகை, அதிகபட்சமாக குறிப்பிடும் குத்தகை தொகையின் 10% தொகை ஆகியவற்றிற்கான வங்கி வரவேலோலைகளை விண்ணப்பத்துடன் இணைக்காமல் இருந்தாலோ விண்ணப்பத்தாளில் விண்ணப்பதாரர் தன் கையொப்பம் செய்யாமல் இருந்தாலோ 1959-ம் ஆண்டு துமித்ராடு சிறுகளிய சலுகை விதிகளில் கூறப்பட்ட கடினமளி பாக்கியிணை சான்றிதழ், வருமானவரி பாக்கியிணை சான்றிதழ் அல்லது இவைகளுக்காக வழங்கப்படும் ஆணை உறுதி ஆவணம் மற்றும் ஏற்கனவே மறுதாரர் நோடியாகவோ, பங்குதாரராகவோ உள்ள குவாரிகள் தொடர்பான உறுதிமொழி ஆவணம் ஆகியவற்றை இணைக்கப்படாமல் இருந்தாலோ மேற்படி ஒப்பந்தப்புள்ளி விண்ணப்பம் மாவட்ட ஆட்சியரால் அல்லது அவரால் அங்கீகரிக்கப்பட்ட அலுவலரால் நிராகரிக்கப்படும். மேற்கூறியிட்டவாறு விண்ணப்பம் நிராகரிக்கப்பட்ட ஒப்பந்தப்புள்ளி விண்ணப்பதாரர்களுக்கு ஒப்புதல் புள்ளிகள் திறக்கும் சமயத்தில் விண்ணப்பதாரர் ஆணையில் இருந்தால் மட்டும் மாவட்ட ஆட்சியர் அல்லது அவரால் அங்கீகாரம் பெற்ற அலுவலரால் விண்ணப்பதாரரிடம் தக்க ஒப்புதல் பெற்று வங்கிவரவேலோலை திருப்பி வழங்கப்படும். ஒப்பந்தப்புள்ளி திறக்கும் சமயத்தில் ஆணையில் இல்லாத நபருக்கு பதிவுநகல் மூலம் வங்கி வரவேலோலைகள் தளியே அனுப்பி வைக்கப்படும்.

11) ஒப்பிவாரு குவாரிக்கும் பொது ஏலம் நடத்தி முடித்தபின்னர் சம்பந்தப்பட்ட குவாரிக்கான டெண்டர் விண்ணப்பங்கள் வருகை தந்திருக்கும் சம்பந்தப்பட்ட டெண்டர் விண்ணப்பதாரர்கள் மற்றும் ஏலதாரர்கள் அல்லது அவர்களது அதிகாரம் பெற்ற நபர்கள் மூன்றாவது ஒப்பந்தப்புள்ளி முத்திரைகளால் திறக்கப்படும். ஒப்பந்தப்புள்ளி (டெண்டர்) திறக்கும் நேரத்தில் விண்ணப்பதாரர் அல்லது ஏலதாரர் அல்லது அங்கீகாரம் பெற்ற நபர் ஆணையில் இல்லாததற்கு மாவட்ட நிர்வாகம் பொறுப்பு அல்ல. மேலும் ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பம் நிறுப்பதோ ஏலம் நடத்துவதோ திருத்தி வைக்கப்படாது.



12) மாவட்ட ஆட்சியர் அல்லது அவரது அலுவலர் பெற்ற அலுவல் மேற்கண்ட குவாரிக்கு உட்பட்ட தொகுதிகளில் உள்ள விண்ணப்பங்கள், விண்ணப்பதாரர்களின் பெயர்கள், ஒவ்வொரு விண்ணப்பதாரராலும் குறிப்பிடப்பட்ட அதிகம்பட்ச டெண்டர் தொகை ஆகியவற்றையும், அதிகம்பட்ச தொகைக்கு ஏலம் கேட்ட நபரின் பெயர் மற்றும் அதிகம்பட்ச ஏலத்தொகை ஆகியவற்றையும் ஏலம் முடிவடைந்தவுடன் அறிவிப்பார். ஏலத்தொகை, ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பத்தில் குறிப்பிடப்பட்டுள்ள குத்தகை (டெண்டர்) தொகையை விட குறைவாக இருந்து ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்கள் மூலமாக கோரப்படும் குத்தகை தொகைகள் ஒன்றுக்கும் மேற்பட்ட விண்ணப்பதாரர்களால் ஒரே மாதிரியாக குறிப்பிடப்பட்ட குத்தகை மாவட்ட ஆட்சியர் அல்லது அவரால் அலுவலர் ஆளிக்கப்பெற்ற அலுவல் சம்பந்தப்பட்ட விண்ணப்பதாரர்களை மட்டும் அழைத்து சம்பந்தப்பட்ட குவாரிக்கு மட்டும் மறுகேட்பு மூலம் உயர் குத்தகை தொகை பெற நடவடிக்கை எடுக்கப்படும். அதிகம்பட்ச குத்தகைத்தொகை கேடரும் நபர் அதிகம்பட்ச ஏலத்தொகை கோரிய நபராக அறிவிக்கப்படுவார். ஒவ்வொரு குவாரிக்கும் பெறப்பட்ட ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்களில் குறிப்பிடப்பட்டுள்ள அதிகம்பட்ச குத்தகைத்தொகை அல்லது பொது ஏலத்தின் மூலம் கேட்கப்படும் அதிகம்பட்ச குத்தகைத் தொகை இவற்றில் எது அதிகமோ அந்த தொகை மேற்கண்ட குவாரிக்கு கோரப்பட்ட அதிகம்பட்ச குத்தகை தொகை என அறிவிக்கப்பட்டு அதிகம்பட்ச குத்தகைத் தொகை குறிப்பிடலாக அறிவிக்கப்படுவார். அதிகம்பட்சத்தொகைக்கு டெண்டர்/ ஏலம் மூலம் கேட்ட நபர் என மாவட்ட ஆட்சியர் அல்லது அவரால் அலுவலர் பெற்ற நபர் மூலம் உறுதிசெய்யப்பட்டவுடன், டெண்டர்/ ஏலம் கேட்ட நபர் அவரால் அதிகம்பட்சமாக கோரப்பட்ட தொகையில் பத்து சதவிகித தொகையினை கேட்பு வரைவோலைகளோ / பணமாகவோ உடனடியாக செலுத்தி வேண்டும். அவ்வாறு செலுத்தத் தவறும் பட்சத்தில் அவரது ஏலம் / டெண்டர் ரத்து செய்யப்பட்டு அவருக்கு அடுத்தபடியாக அதிகம்பட்சத்தொகை கேட்ட நபருக்கு வாய்ப்பளிக்கப்படும். அவரும் பத்து சதவிகிதத்தொகையினை செலுத்த தவறும் பட்சத்தில் இதே நடைமுறையை தொடர்ந்து நடத்துவது அல்லது மறு ஏலம் விட ஆணையிடுவது போன்றவை மாவட்ட ஆட்சியரின் இறுதி முடிவு மற்றும் அதிகார வரம்பிற்கு உட்பட்டதாகும். அதிகம்பட்ச ஏலம் / டெண்டர் கேட்ட நபரை தவிர மற்றவர்களுக்கு அவர் தாம் செலுத்திய பிணைவைத்தொகை திரும்ப தரப்படும். ஏலம் / டெண்டர் உறுதி செய்யப்பட்ட நபர் மீதமுள்ள 90 சதவிகித தொகையினை ஏழு தினங்களுக்குள் செலுத்திவிட வேண்டும். தவறும் பட்சத்தில் ஏலம் / டெண்டர் ரத்துசெய்யப்பட்டு அவர் செலுத்திய அனைத்து தொகைகளும் பறிமுதல் செய்து அரசு கணக்கில் சேர்க்கப்படும்.

13) (அ) சிறப்பு நிபந்தனைகள்:

(i) இந்த டெண்டர் மற்றும் ஏலமுறையில் கலந்து கொள்ளும் விண்ணப்பதாரர்கள் அனைவரும் இந்திய அரசின் வருமான வரித்துறையினரால் வழங்கப்படும் நிரந்தர கணக்கு எண் (PAN - CARD) அட்டையை பெற்றிருக்கவேண்டும்.

(ii) இந்த நிரந்தர கணக்கு எண்ணை சமர்ப்பித்து டெண்டர் மற்றும் ஏலம் கோரும் தொகைக்கு 2.00 சதவிகித வருமான வரியை சேலம் மாவட்ட புலியியல் மற்றும் சுரங்கத்துறை, துணை இயக்குநர் அவர்களுக்கு வருமான வரித்துறையினரால் அளிக்கப்பட்டுள்ள TAN.No.CHEA10399E-ன் கீழ் உரிய வருமானவரித்துறை செலுத்துச்சீட்டில் மூலம் செலுத்தவேண்டும்.

(iii) மேலும் குத்தகை உரிமம் பெற்ற பின்னர் கனிமங்களை எடுத்துச் செல்ல போக்குவரத்து அனுமதி சீட்டுபெற ஒவ்வொருமுறையும் செலுத்துகின்ற சீரியரேஜ் தொகையின் மீது 2.00 சதவிகித வருமான வரி தொகை செலுத்தவேண்டும்.

(iv) மேலும் குத்தகை உரிமம் பெற்ற பின்னர் கனிமங்களை எடுத்துச் செல்ல போக்குவரத்து அனுமதி சீட்டுபெற ஒவ்வொருமுறையும் செலுத்துகின்ற சீரியரேஜ் தொகையின் மீது 10 சதவிகித தொகை சேலம் மாவட்ட கனிம அறக்கட்டளையின் வசில் கணக்கில் செலுத்தவேண்டும்.

14) ஒரு குவாரிக்கு ஒரு டெண்டர் விண்ணப்பம் மட்டும் வரப்பெற்று ஏலம் கேட்க யாரும் முன்வரவில்லை எனில் அந்த ஒரு விண்ணப்பதாரர் குறிப்பிட்ட தொகை நிபாயமானது என்றும் கனிம அபிவிருத்திக்கு உகந்தது என்றும் மாவட்ட ஆட்சியரால் கருதப்பட்டால் அவருக்கு மாவட்ட ஆட்சியரால் குத்தகை உரிமம் வழங்கப்படும். அந்த ஒரு விண்ணப்பதாரரால் குறிப்பிடப்பட்ட தொகை நிபாயமானது அல்ல என்றும் அவருக்கு உரிமம் வழங்குவது கனிம அபிவிருத்திக்கு உகந்ததல்ல என்றும் மாவட்ட ஆட்சியர் கருதினால், அவருடைய விண்ணப்பம் மாவட்ட ஆட்சியரால் நிராகரிக்கப்படும். ஒரு குவாரிக்கு ஒன்றுக்கு மேற்பட்ட விண்ணப்பங்கள் வரப்பெறின் அதிகம்பட்ச ஏலத்தொகை / டெண்டர் தொகை நிபாயமானது எனக் கருதப்படும் பட்சத்தில் குவாரி குத்தகை வழங்க நடவடிக்கை எடுக்கப்படும். ஒரு குவாரிக்கு பெறப்பட்ட அதிகம்பட்ச ஏலத் தொகை / டெண்டர் தொகை நிபாயமானது அல்ல மற்றும் கனிம அபிவிருத்திக்கு உகந்ததல்ல என மாவட்ட ஆட்சியர் கருதும் பட்சத்தில் அதனை ஏற்கனவே நிராகரித்து ஏலத்தொகை / டெண்டர் தொகையில் 10 % தொகையை பெற மறுத்து மறு ஏலம் மற்றும் டெண்டருக்கு கொண்டு வர நடவடிக்கை மேற்கொள்ளப்படும்.



15) 1959-ம் வருடத்தில் தமிழ்நாடு சிறுகாவிய சலுகை விதிகளின் விதி எண். 41 மற்றும் 42-ன் படி அனைத்து சிறுகாவிய குவாரியலுக்கும் குவாரி குத்தகை உரிமை வழங்கும் முன்பு அங்கீகரிக்கப்பட்ட கரங்கத்திட்டம் மற்றும் மாநில / சேலம் மாவட்ட அளவிலான கற்றுக்குழல் தாக்க மதிப்பீட்டு ஆணையம் / இந்திய அரசு கற்றுக்குழல் மற்றும் வளத்துறையின் தடையின்மை சான்று மற்றும் தமிழ்நாடு மாக கட்டுப்பாட்டு வாரியத்தின் இசைவு ஆகியவற்றினை பெற்று சமர்ப்பித்த பின்பு மட்டுமே குவாரி குத்தகை உரிமை வழங்க முடியும்.

16) அநிகர்ப்புக்கு குவாரி குத்தகை உரிமை உறுதிசெய்யப்படுமாயின் அப்பகுதி குவாரி குத்தகை உரிமை வழங்கப்பட்டவுள்ள குவாரியின் புல எண், பரப்பளவு ஆகிய விவரங்கள் அடங்கிய அறிவிக்கை வழங்கப்பட்டு அங்கீகரிக்கப்பட்ட கரங்கத்திட்டம் மற்றும் மாநில / சேலம் மாவட்ட கற்றுக்குழல் தாக்க மதிப்பீட்டு ஆணையம் / மத்திய அரசின் கற்றுக்குழல் மற்றும் வளத்துறையின் தடையின்மைச்சான்று மற்றும் தமிழ்நாடு மாககட்டுப்பாட்டு வாரிய இசைவு ஆகியவற்றை உரிய காலத்திற்குள் சமர்ப்பிக்குமாறு தெரிவிக்கப்படும்.

- மேற்கண்ட அறிவிக்கை பெற்றுக்கொண்ட மனுதாரர் கரங்கத்திட்டத்தை அங்கீகாரம் பெற்ற தகுதி வாய்ந்த நபர் (QP) மூலம் அரசு தெரிவித்துள்ள விதிகள் மற்றும் வழிகாட்டுதலின் படி தயாரித்து அறிவிக்கை பெறப்பட்ட நாளிலிருந்து முன்று மாத காலத்திற்குள் சேலம், புதியியல் மற்றும் கரங்கத்துறை, துணை இயக்குநரிடம் அங்கீகாரம் பெற சமர்ப்பிக்க வேண்டும்.
- மேற்கண்ட மனுதாரர் சேலம், புதியியல் மற்றும் கரங்கத்துறை, துணை இயக்குநரால் அங்கீகாரம் வழங்கப்பட்ட கரங்கத்திட்டத்தை மாநில / சேலம் மாவட்ட கற்றுக்குழல் தாக்க மதிப்பீட்டு ஆணையம் / மத்திய அரசின் கற்றுக்குழல் மற்றும் வளத்துறையின் முன்பு சமர்ப்பித்து தடையின்மை சான்று கோரி விண்ணப்பித்து தடையின்மை சான்று மற்றும் தமிழ்நாடு மாககட்டுப்பாட்டு வாரிய இசைவு ஆகியவற்றை பெற்று சமர்ப்பிக்க வேண்டும்.
- அங்கீகரிக்கப்பட்ட கரங்கத்திட்டம் முதல் ஐந்து ஆண்டு காலத்திற்கு மட்டுமே செல்லுதக்கதாகும்.
- மேற்கண்ட ஆவணங்களை சமர்ப்பித்தபின்பு மனுதாரருக்கு குவாரி குத்தகை வழங்கி மாவட்ட ஆட்சியரால் ஆணையிடப்படும். அங்கீகரிக்கப்பட்ட கரங்கத்திட்டம் மற்றும் மாநில / சேலம் மாவட்ட கற்றுக்குழல் தாக்க மதிப்பீட்டு ஆணையத்தின் தடையின்மை சான்று ஆகியவற்றை குறிப்பிட்ட காலக்கெடுவிற்குள் சமர்ப்பிக்க தவறினால் மாவட்ட ஆட்சியர் அவர்களால் மனுதாரருக்கு மாவட்ட ஆட்சியர் முன்பு விசாரணைக்கு ஆயுறாக வாய்ப்பளித்து விசாரணை நடத்தப்பட்டு ஏற்கனவே வழங்கப்பட்ட உத்தரவு ரத்து செய்யப்படும்.

17) குறிப்பாக, பின்வரும் கல் குவாரி அட்டவணை வரிசை எண். 18-ல் காணும் கல்வளங்களுக்கு பகுதி Hill Area Conservation Authority (HACA)-என்பது உள்ள பகுதியாகும். இப்பகுதியை ஏலத்தில் எடுப்பவர் மேற்படி நிபந்தனைகள் பூர்த்தி செய்து HACA தடையின்மைச் சான்று பெற்று பின்னரே குவாரிப்பணி செய்ய ஒப்புநிபந்தித்தும் நிவாரணவெற்றும்படும். மேலும், இப்பகுதியானது மாண்புமிகு சென்னை உயர்நீதிமன்றத்தில் தொடரப்பட்ட வழக்கு எண் W.P.No.35506/2019-ன் இறுதி ஆணைக்கு உட்பட்டது.

18) மேற்கூறிய உத்தரவு மாவட்ட ஆட்சியரிடமிருந்து கிடைக்கப்பெற்றவுடன் விண்ணப்பதாரர் மாவட்ட ஆட்சியரின் ஆணையில் குறிப்பிடப்பட்ட காலக்கெடுவிற்குள் கீழ்க்கண்ட ஆவணங்களை குத்தகை ஒப்புநிபந்த ஆவணம் நிவாரணவெற்றுவது தொடர்பாக மாவட்ட ஆட்சியருக்கு சமர்ப்பிக்க வேண்டும்.

(அ) விண்ணப்பதாரரின் கையொப்பமிட்ட வரைவு குத்தகை ஒப்புநிபந்தித்தும் மற்றும் வரைபடம்.

(ஆ) அரசு குத்தகை ஒப்புநிபந்தித்தும் தயார் செய்வதற்கு தேவையான நிதி சாரா முத்திரைத்தாள்.

(இ) காப்பித்தொகைக்காக ஏலம் / டெண்டர் தொகையில் இருந்து சதவீதம் அல்லது ரூ.10,000/-ய் இதில் எது அதிகமோ அதை உரிய அரசு கணக்கு தடையில் வங்கியில் செலுத்தியதற்கான அரசு செலுத்துக்கீட்டு (சலான்).

(ஈ) மாவட்ட ஆட்சியர் ஆணையில் குறிப்பிட்டுள்ள பொத்த குத்தகை பரப்பிற்கான பரப்புலரி செலுத்தியதற்கான அரசு சலான்.



19) அல்வாரா குறிப்பிட்ட காலத்திற்குள் மேற்கண்ட ஆவணங்களை மாவட்ட ஆட்சியரிடம் சமர்ப்பிக்க தாமதமாகாதபடி ஆட்சியரால் வழங்கப்பட்ட குத்தகை உரிமை ரத்து செய்யப்பட்டு அவர் செலுத்திய அனைத்து தொகைகளும் அரசுக்கு திரும்பிச் சென்று அரசு கணக்கில் சேர்க்கப்படும்.

20) மேற்கண்ட ஆவணங்களை ஒப்படைத்து குவாரி குத்தகை ஒப்பந்த ஆவணம் நிறைவேற்றிய பின்பே குவாரிப்பணியை தொடங்கவேண்டும். குவாரி குத்தகை ஆவணம் நிறைவேற்றமுன் குவாரிப்பணி செய்யது கண்டறியப்பட்டால் அது அனுபத்தியின் கீழ் கணியம் தொடர்புபெற்றதற்காக கருதப்பட்டு ஒழிந்து சிறுகணி சலுகை விதிகள், 1959-ன் விதி எண். 36-A-ன் படி உரிம நடவடிக்கை எடுக்கப்படுவதுடன் குற்றவியல் நடவடிக்கையும் எடுக்கப்படும்.

21) குவாரி குத்தகைக்காக கோரப்பட்ட பொத்த குத்தகை காலத்திற்குமுள்ள ஒரே தடவையில் பொத்தாக செலுத்தப்படும் குத்தகைத்தொகை நிபந்தனை குத்தகைதாரர் மேற்படி குவாரியில் இருந்து எடுத்துச்செல்ல உத்தேசிக்கவும் சிறுகணிமத்திற்கு 1959-ம் வருடத்திய தயிற்சாடு சிறுகணி சலுகை விதிகளின் அட்டவணை II-ல் குறிப்பிடப்பட்டுள்ள விதிகளின்படி சீரமைப்பு நடவடிக்கை மேற்குறி பொத்த-இடைக்காலம்சீட்டு மற்றும் அனுப்புகை சீட்டு பெற்றுள்ள சிறுகணிமத்தினை எடுத்துச்செல்லவேண்டும். மேலும் அரசால் அவ்வப்போது திருத்தி நிர்ணயிக்கப்படும் சீரமைப்பு தொகையை செலுத்தி அனுமதிச்சீட்டுப்பெற வேண்டும். மேலும் கணியங்களை எடுத்துச் செல்ல போக்குவரத்து அனுமதி சீட்டுப்பெற ஒவ்வொருமுறையும் செலுத்துகின்ற சீரமைப்பு தொகையின் மீது 10 சதவீத தொகை சேலம் மாவட்ட கனிம அறக்கட்டளையின் வங்கி கணக்கில் செலுத்தவேண்டும்.

22) குத்தகைதாரர் ஒவ்வொரு மாதமும் குவாரிப்பணி செய்த தொழிலாளர்கள், குவாரி செய்த கனிமத்தின் அளவிற்குரிய கணக்குகளை பிரதி மாதம் ஹ்தாம் நாளுக்குள் துணை இயக்குநர், புலியெல் மற்றும் கரங்கத்தறை, சேலம் அவர்களுக்கு தனித்தனிக் கு அனுப்பவேண்டும்.

23) குவாரிகளுக்கு அருகில் உள்ள போக்குவரத்து சாலைகள், கிராம சாலைகள் குடியிருப்பு பகுதிகள், வீடுகள், வளர்ச்சியாளர்கள், மின் மற்றும் தொழையேசி கம்பிகள், மின்மாற்றிகள், ரயில்பாதைகள், பொதுப்பணித்துறை வாய்க்கால், மதசம்பந்தமான வழிபாட்டுத்தலங்கள் மற்றும் இரா நிவையான அமைப்புகள் இவற்றிலிருந்து 1959-ம் ஆண்டைய தயிற்சாடு சிறுகணி சலுகை விதிகளின்படி பாதுகாப்பு இடைவெளி வீட்டு மீதுமுள்ள இடத்திற்குள் தான் குவாரிப்பணி செய்யவேண்டும். பொதுமக்கள் உபயோகத்திற்கும் இடங்கள், குடியிருப்புகள், பட்டா நிலங்கள் அல்லது பொதுச்சொத்துக்கள் ஆகியவற்றிற்கு சேலம் ஏதும் ஏற்படாமல் குவாரிப்பணி செய்யவேண்டும். குவாரி பணியால் சேலம் ஏதும் ஏற்பட்டால் அதற்கு குத்தகைதாரர் முழு பொறுப்பிற்கு அடிக் ஏற்படும் நடவடிக்கை எடு செய்ய தரவேண்டும்.

24) குத்தகைதாரரை மேற்குறிப்பிட்ட நிபந்தனைகள் அங்கமாய் 1959-ம் ஆண்டைய தயிற்சாடு சிறுகணி சலுகை விதிகள், கணியங்கள் மற்றும் கரங்கங்கள் (மேம்படுத்துகல் மற்றும் முறைப்படுத்துகல்) சட்டம் 1957 மற்றும் இந்த அரசிதழில் குறிப்பிடப்பட்டுள்ள சிறப்பு நிபந்தனைகள் மற்றும் அரசால் அவ்வப்போது கொண்டுவரப்படும் ஆணைகளும் விதிகளும் கட்டுப்படுத்தும்.

25) இவ்விதிகளின்கீழ் வழங்கப்படும் குவாரிகளின் குத்தகை காலம் எக்காரணத்திற்கு கொண்டும் குத்தகை வழங்கப்பட்ட காலத்திற்கு மேல் நீட்டிக்கப்படவோ அல்லது குத்தகை காலம் புதுப்பிக்கப்படவோ மாட்டாது. குத்தகை காலம் முடிந்தபின் குத்தகைதாரர்கள் குத்தகைக்கு விடப்பட்ட பகுதிகளில் எவ்விதமான உரிமையும் கொண்டுவரக்கூடாது.

26) 14 வயதுக்குட்பட்ட குழந்தை தொழிலாளர்களை குவாரிப்பணியில் ஈடுபடுத்தக்கூடாது.

27) இந்த அரசிதழில் குவாரி குத்தகை உரிமத்திற்காக அறிவிக்கப்பட்டபடிக்கும் பட்டியலில் உள்ள குத்தகைக்கு விடப்படும் குவாரியை டெண்டர் / ஏலம் நடவடிக்கைக்கு முன்பாக நிறுத்தி வைக்கவோ, நீக்கவோ, புதியதாக சேர்க்கவோ, குவாரி மடிப்பாலை மாற்றவோ, மாவட்ட ஆட்சியருக்கு அதிகாரம் உண்டு.

28) நிர்வாக குழுல் காரணமாக டெண்டர் மற்றும் ஏலத்தை ரத்து செய்ய மாவட்ட ஆட்சியருக்கு அதிகாரம் உண்டு.

29) மேல்திற்தான் மூலமாகவோ, மாவட்ட அரசிதழ் மூலமாகவோ, அறிவிப்பு செய்யப்படாத குவாரிகளுக்கு ஏதாவது ஒப்பந்தப்புள்ளி விண்ணப்பங்கள் கிடைக்கப்பெற்றால் அவ்வயாவும் முதிர்ச்சி அடையாத விண்ணப்பமாக கருதப்பட்டு மாவட்ட ஆட்சியரால் உடனடியாக நிராகரிக்கப்படும். குறித்த காலக்கெடுவிற்குள் வந்து சேராத விண்ணப்பங்கள் காலவரையறை கடந்த விண்ணப்பமாக கருதப்பட்டு அவ்வயாவும் மாவட்ட ஆட்சியரால் நிராகரிக்கப்படும். நிராகரிக்கப்பட்ட விண்ணப்பங்களின் வங்கி வசூல்களை மாவட்டம் விண்ணப்பதாரருக்கு திரும்பி அனுப்பி வைக்கப்படும்.

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30) 1959-ம் வருடத்திய தமிழ்நாடு சிறுகணிம சலுகை விதிகள் பின் இணைப்பு 1-ல் கண்ட ஒப்பந்தப்பத்திரத்தில் தேவையான அளவிற்கு நிபந்தனைகளை பதியதாக சேர்க்கலோ, நீக்கலோ மாற்றி அமைக்கலோ மாவட்ட ஆட்சியருக்கு அதிகாரம் உண்டு. குத்தகை ஒப்பந்தப் பத்திரம் ஏற்படுத்திய பின்பு புள் ஷனர் மற்றும் குவாரி செயல் ஒதுக்கப்பட்ட பரப்பு குறித்து எவ்வித தாலாவும் செய்ய குத்தகைதாரருக்கு உரிமை கிடையாது.

31) குத்தகை ஒப்பந்தப்பத்திரத்தை புலவரைபடத்துடன் சொத்து மாற்றுகைக்கட்டம் 1882-ன் பிரிவு 107-ன் கீழ் குத்தகைதாரர் தானு சொந்த செலவில் பதிவுசெய்து, பதிவுசெய்து ஒப்பந்தப்பத்திரத்தினை சேலம், புவியியல் மற்றும் கரங்கத்தறை, துணை இயக்குநர் அலுவலகத்தில் உடன் ஒட்டிக்க வேண்டும்.

32) தமிழ்நாடு சிறுகணிம சலுகை விதிகள், 1959-ன் விதி எண், 36(1) மற்றும் (1A)(e)-ல் வரையறுக்கப்பட்டுள்ளவாறு அருகியுள்ள குடியிருப்புகளுக்கு பாதுகாப்பு இடைவெளியாக 300 மீட்டரும், கிராம சாலைகளுக்கு 10 மீட்டரும், இரா சாலைகள், கட்டடங்கள், வழிபாட்டு நவங்கள், மின்கம்பி பாறைகள், தொலைபேசி பாறைகள், புறகவண்டிப்பாதைகள், மின்மாற்றிகள், ஆறு, ஏரி, குளம், குட்டை மற்றும் இரா பொது சொத்துக்கள் ஆகியவற்றிற்கு பாதுகாப்பு இடைவெளியாக 50 மீட்டரும் விட்டு மீதமுள்ள இடத்திற்குள் தான் குவாரிப்பணி செய்யக்க வேண்டும். புராதன சின்னங்களுக்கு தொல்பியல் துறையால் வரையறுக்கப்பட்டுள்ள பாதுகாப்பு இடைவெளி விட்டும் குவாரிப்பணி செய்யவேண்டும். பொதுமக்கள் உபயோகிக்கும் இடங்களான குடியிருப்புகள், பட்டா நிலங்கள் மற்றும் இரா பொதுசொத்துக்கள் ஆகியவற்றிற்கு சேலம் ஏதம் நேரிட்டால் அங்கு குத்தகைதாரரே முழுபொறுப்பேற்று அதில் ஏற்படும் நடத்தலை ஈடுசெய்து தரவேண்டும்.

33) நிர்வாக காரணம் மற்றும் பொதுநலனை கருத்தில் கொண்டு குத்தகைக்கு விடப்பட்ட பரப்பினை பின்னர் குறைத்து நிர்ணயிக்கவும், குவாரி குத்தகையை ரத்து செய்யவும் மாவட்ட ஆட்சியருக்கு அதிகாரம் உண்டு.

34) குத்தகைதாரர் 1959-ம் வருடத்திய தமிழ்நாடு சிறுகணிம சலுகை விதிகளின்படியும், மாவட்ட அரசிதழில் கண்டுள்ள நிபந்தனைகளின்படியும், ஒப்பந்தப்பத்திர நிபந்தனைகளின்படியும் நடந்துகொள்ள கடமைப்பட்டவராவார். குத்தகைகாலத்தில் கட்டப்பட்டங்கள், குவாரி குத்தகை நிபந்தனைகள் மற்றும் ஒப்பந்த விதிகளுக்கு முரண்பட்டு குத்தகைதாரர் நடந்துகொண்டால் குத்தகை ரத்துச்செய்யப்படுவதுடன் காப்புத்தொகை மற்றும் அவர் செலுத்திய அனைத்து தொகைகளும் அரசுக்கு பரிமூலம் செய்யப்படும். அக்குவாரிக்கு மீண்டும் குவாரி குத்தகை வழங்க நடவடிக்கை மேற்கொள்ளப்படும்.

35) குவாரி குத்தகை வழங்கப்பட்ட இடத்தில் சாதாரண கற்களை குவாரி செய்வதில் ஏற்படக்கூடிய நஷ்டங்களுக்கு அரசால் எவ்வித நஷ்ட ஈடும் வழங்கப்பட மாட்டாது.

36) வழங்கப்பட்ட குத்தகை உரிமத்திற்கு பொதுமக்கள் மற்றும் அரசு துறை மூலம் கடுமையான ஆட்சேபம் இருப்பின் பொதுநலன்மையை கருதி மாவட்ட ஆட்சியர் குத்தகையை ரத்துச்செய்ய நேரிட்டால் அதனால் ஏற்படும் இழப்பிற்கு ஈடுகேள் குத்தகைதாரருக்கு உரிமை இல்லை.

37) குத்தகைதாரர் குவாரியை வேறு யாருக்கும் மாற்றலோ உள் குத்தகைக்கு விடலோ கூடாது. அப்படி ஏதாவது செய்திருப்பது தெரியவந்தால் மேற்படி குத்தகை ரத்துச்செய்யப்படுவதுடன் குத்தகைதாரர் செலுத்திய தொகையும் அரசுக்கு ஆதாயம் செய்யப்படும்.

38) குத்தகைதாரர் அரசு குறிப்பிட்ட படிவத்தில் அனுப்புகைச் சீட்டுகளை அச்சிட்டு புவியியல் மற்றும் கரங்கத்தறை, துணை இயக்குநர் அலுவலகத்தில் சமர்ப்பிக்க வேண்டும். குத்தகைதாரர் சிறுகணிம எடுத்து செல்லும் வாகனத்துடன் அனுப்புகைச் சீட்டு கொடுத்து அனுப்ப வேண்டும். இந்த நடைச்சீட்டினை இரு பிரதிகள் அச்சிட்டு வரிசை எண்ணிட்டு தாங்கள் உத்தேசமாக எடுக்க இருக்கும் லோடுகளுக்கு லோடு ஒன்றுக்கு ஒரு சீட்டு வீதம் கணக்கிட்டு அலற்குரிய சீரியரேஜ் தொகையில் 2% தொகை வருமான வரி, 10% தொகை மாவட்ட கணிம துறக்கட்டளைக்கு செலுத்திய பின்னர், சேலம், புவியியல் மற்றும் கரங்கத்தறை, துணை இயக்குநரிடம் அனுப்புகைச் சீட்டு மற்றும் பொத்த இணைலாணைச் சீட்டு ஆகியவற்றில் உரிய முத்திரையும் னையொட்டியும் பெற்றுப்பெ யப்படுத்த வேண்டும்.

39) ஒப்புதல் பெறப்படாத அனுப்புகைச் சீட்டுடன் கணிம கொண்டு செல்லும் வாகனங்கள் அதிலுள்ள சிறுகணிமத்தை முறையற்ற வகையில் எடுத்துச்செல்வதாக கருதப்பட்டு உரிய கட்டத்தின்படி உரிய அலுவலர்களால் கைப்பற்றப்பட்டு முடிபாதம் விடுக்கப்படும்.



40) புலியில் மற்றும் கரங்கத்துறை அறுவடைகள் அல்லது வசூலாயத்தறை அறுவடைகள் முதலிய அறுவடைகள் செய்ப்போரது உரிய கணக்குகள் மற்றும் அறுப்புமைச் சீட்டு முதலானவைகளை குவாரி குத்தகை உரிமம் பெறும் கணக்கீடுகளை வேண்டும்.

41) அரசு அறுவடைகள் தணிக்கை செய்யும் போது சிறுகனிமங்கள் கொண்டு செல்லும் வாகனங்களை தணிக்கைக்கு உட்படுத்த வாகன ஓட்டுநர்களை குத்தகைதாரர்கள் அறிவுறுத்த வேண்டும்.

42) அறுப்புமைச்சீட்டில் உள்ள கண்கள் பூர்த்தி செய்யப்படாமலோ அல்லது தவறாக எழுதப்பட்டு வாகனங்களுக்கு கொடுக்கப்பட்டிருந்தாலோ சிறுகனிமம் கொண்டு செல்லும் வாகன உரிமையாளருக்கு அபராதம் விதித்து வசூல் செய்யப்படும் மற்றும் குவாரி குத்தகையை ரத்து செய்ய நடவடிக்கை மேற்கொள்ளப்படும்.

43) குத்தகைதாரர் ஒவ்வொரு நாளும் குவாரியில் எவ்வளவு சிறுகனிமங்கள் வெட்டி எடுக்கப்பட்டது என்பதைப் பற்றி அளவு கனிமங்கள் லாசி, வண்டி மூலம் வெளியே அறுப்புப்பட்டது என்ற விவரத்தையும் காட்டும் பதிவேடு பாபமரிக்க வேண்டும். குவாரி குத்தகை சம்பந்தமான இதர பதிவேடுகளை பாபமரிக்க வேண்டும்.

44) அரசு மற்றும் மாவட்ட ஆட்சியரால் குவாரி குத்தகை உரிமம் சம்பந்தமாக ஏற்படுத்தப்பட்டுள்ள மற்றும் அளவப்போது ஏற்படுத்தப்படும் சட்ட திட்டங்களுக்கும், நிபந்தனைகளுக்கும் குத்தகைதாரர் கட்டுப்பட்டு நடக்க வேண்டும். குத்தகை காலத்திலே அல்லது அதற்குப்பின்னரோ விதிமுறை மீறி குத்தகையை பயன்படுத்தியதினால் ஏற்படும் சகல நடவடிக்கைகளுக்கும் குத்தகைதாரர்கள் பொறுப்பேற்க வேண்டும். இதற்காக விதிக்கப்படும் அபராதத்தையும் செலுத்தவேண்டும்.

45) குத்தகை நிபந்தனை மீறப்பட்டால் குத்தகையை ரத்துச் செய்யலோ, செய்யப்பட்ட தவறுகளுக்கு குத்தகைதாரருக்கு தண்டனை விதிக்கலோ, கிரிமினல் வழக்குதொடரலோ மாவட்ட ஆட்சியருக்கு முழு அதிகாரம் உண்டு. குத்தகை ரத்துச் செய்யப்பட்டால் கடிப்பத்தொகை உட்பட அனைத்து தொகைகளும் அரசுக்கு ஆதாயம் செய்யப்படும். மாவட்ட ஆட்சியர் எக்ஸாண்டித்திராகாவது குவாரி குத்தகையை ரத்துசெய்யும் பட்சத்தில் அதனால் ஏற்படும் எவ்வித நடவடிக்கைக்கும் அரசு பொறுப்பில்ல. குத்தகை எடுத்தவர் எந்த காரணத்தால் முன்னிட்டும் தனக்கு இழப்பு ஏற்பட்டால் நஷ்டாடு கேட்கக்கூடாது.

46) குத்தகை எடுத்தவர் குத்தகையை அனுபவிக்காமல் விட்டாலும், செலுத்தப்பட்ட குத்தகை தொகை எக்ஸாண்டித்திராக முன்னிட்டும் திரும்ப வழங்கப்படமாட்டாது.

47) குவாரிகளின் எல்லைகள் பற்றி பிரச்சினைகள் ஏற்பட்டால் மாவட்ட ஆட்சியரின் தீர்ப்பே இறுதியானது.

48) கற்குவாரி குத்தகை உரிமம் வழங்கப்பட்ட பின்னர் அக்கற்குவாரியின் ஏதாவது ஒரு பகுதியில் வரலாற்று முக்கியத்துவம் வாய்ந்த புராதனகால கல்வெட்டுக்கள், சிற்ப வடிவமைப்புகள் போன்றவைகள் காணப்பட்டால் அது குறித்து அரசுக்கு தகவல் தரவேண்டும். மேலும், அப்பகுதியில் கற்கள் உடைப்பது நிறுத்தப்பட்டு அப்புராதன சின்னங்கள் பாதுகாக்கப்பட வேண்டும்.

49) டெண்டரில் கோரப்படும் புல எண்களின் பேரில் எவ்வெவ்வும் நீதிமன்றத்தின் ஆணை / தடையாணை முதலானவை நீதிமன்றத்தில் பெறப்பட்டதாக தெரியவந்தால் அவைகள் மீது குத்தகை உரிமம் வழங்குவதில் மாவட்ட ஆட்சியரின் முடிவே இறுதியானது.

50) குத்தகைதாரர் குத்தகை வழங்கப்பட்ட குவாரி முகப்பில் குவாரியின் புல எண், பரப்பு, குத்தகைதாரர் பெயர், குத்தகை வழங்கப்பட்ட மாவட்ட ஆட்சியர் செயல்முறை எண், குத்தகை தொகை, குத்தகை காலம் போன்ற விவரங்கள் குறிக்கப்பட்ட தகவல் பலகையை தனது சொந்த செலவில் வைத்து குத்தகை காலம் முழுவதும் பாபமரிக்க வேண்டும்.

51) குத்தகைதாரர் குவாரியின் எல்லைகளை தெளிவாக தெரிவிப்படி வண்ணமிட்ட எல்லைக்கற்கள் ஊன்றி அடையாளமிட்ட பின்பே குவாரிப்பணி செய்ய வேண்டும். எல்லைக்கற்களை குத்தகை காலம் முழுவதும் தனது சொந்த செலவில் நன்றி பாபமரிக்க வேண்டும்.

52) குத்தகைக்கு வழங்கப்பட்ட கற்குவாரிகளில் சாதாரண கற்கள், கட்டுக்கள், சக்கை கற்கள், மூலிகற்கள் ஆகியவைகளை மட்டுமே குவாரி செய்ய வேண்டும். அயல் நாட்டிற்கு ஏற்றுமதி செய்வதற்கும், வெளியே ஏற்றுமதிக்கும் பயன்படும் வடிவமைக்கப்பட்ட கற்களை உற்பத்தி செய்யக்கூடாது.

53) குவாரியில் வெடி வைத்து கற்களை உடைக்க ஆங்கீகாரம் பெற்ற வெடி பொருள் விற்பனையாளரிடம் (Licenced Explosive Dealer) வெடி பொருட்களை கொள்முதல் செய்து சான்று பெற்ற வெடி வெடிப்பவரைக் (Licenced shot Firer ) கொண்டு அளவற்ற பாதுகாப்பு நிபந்தனைகளையும் கடைபிடித்து வெடிகளை வெடிக்க வைக்க வேண்டும்.

54) குவாரியில் சாதாரண ஏர் கம்பர்சர்வைசை கொண்டு தூளையிட்டு வெடி வைக்க வேண்டும். ஆழ்தூளை கிணறு உபகரணங்களை (Rig Bore) கொண்டு தூளையிட்டு வெடி வைக்கக்கூடாது. அருகிலுள்ள விவசாய நிலங்கள், பொதுச் சொத்துக்கள் மற்றும் பொதுக்கள் ஆகியோருக்கு எவ்வித பாதிப்பும் ஏற்படாமல் வெடி வைக்க வேண்டும்.

55) அரசு, ஆணையர், புவியியல் மற்றும் சுரங்கத்துறை மற்றும் மாவட்ட ஆட்சியர்கள் இது தொடர்பாக ஏற்படுத்தப்பட்டுள்ள மற்றும் அவ்வப்போது ஏற்படுத்தப்படும் சட்ட திட்டங்களுக்கும் நிபந்தனைகளுக்கும் குத்தகைதாரர் கட்டுப்பட்டு நடக்க வேண்டும்.

56) 1961-ம் வருடத்திய மெட்டாளியெரல் ஸ்டான்ஸ் ரெகுலேஷன்ஸ், 1935 ஆம் வருடத்திய சம்பளம் வழங்குதல் சட்டம், 1984 ஆம் வருடத்திய இந்திய வெடி பொருட்கள் சட்டம், 1954 ஆம் வருடத்திய குறைந்தபட்ச ஊதியச்சட்டம் ஆகியவற்றிற்கு உட்பட்டு குத்தகைதாரர் களியங்கள் வெட்டி எடுத்து வெளியேற்ற வேண்டும்.

### அட்டவணை - 1

கல்குவாரிகள் அட்டவணை

சேலம் கோட்டம்

சேலம் வட்டத்தில் அமைந்துள்ள சாதாரண கற்குவாரி பட்டியல்

வ. எண்	விராமத்தின் பெயர்	புல எண்ணும் உட்பிரிவும்	மொத்த பரப்பு (ஹெக்ட்).	குத்தகை விலையும் பரப்பு (ஹெக்ட்).	நிலத்தின் வகைப்பாடு	குத்தகை விடப்படும் கால அளவு
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	பனாமரத்துப்பட்டி	1/7 (பாகம்-5)	76.81.0	1.00.0	கரடு	5 ஆண்டுகள்
2	பனாமரத்துப்பட்டி	1/7 (பாகம்-7)	76.81.0	1.00.0	கரடு	10 ஆண்டுகள்
3	பனாமரத்துப்பட்டி	1/7 (பாகம்-8)	76.81.0	4.90.0	கரடு	10 ஆண்டுகள்
4	பனாமரத்துப்பட்டி	1/7 (பாகம்-10)	76.34.5	1.00.0	கரடு	10 ஆண்டுகள்
5	பனாமரத்துப்பட்டி	1/7 (பாகம்-11)	76.34.5	1.00.0	கரடு	10 ஆண்டுகள்
6	எருமாபாளையம்	417 (பாகம்)	48.81.5	1.00.0	கரடு	10 ஆண்டுகள்

வாழப்பாடி வட்டத்தில் அமைந்துள்ள சாதாரண கற்குவாரி பட்டியல்

7	பெரியகவுண்டாபுரம்	158/1 (பாகம்-2) (பி-1)	15.81.5	1.00.0	பாறை	5 ஆண்டுகள்
8	பெரியகவுண்டாபுரம்	158/1 (பாகம்-2) (பி-2)	15.81.5	2.00.0	பாறை	5 ஆண்டுகள்
9	மாசிநாயக்கன் பட்டி	212/3 (பாகம்)	6.43.5	1.00.0	குன்று	5 ஆண்டுகள்
10	மாசிநாயக்கன் பட்டி	241/14 (பாகம்)	7.03.5	1.00.0	குன்று	10 ஆண்டுகள்
11	பாண்டிப்பட்டி	106 (பாகம்-1)	26.55.5	1.00.0	கரடு	10 ஆண்டுகள்
12	பாண்டிப்பட்டி	106 (பாகம்-2)	26.55.5	1.50.0	கரடு	10 ஆண்டுகள்





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(1)	(2)	(3)	(4)	(5)	(6)	(7)
13	பாடப்படி	100 (பாகம்-3)	26.55.5	150.0	காடு	
14 ✓	பாடப்படி	106 (பாகம்-4)	26.55.5	150.0	காடு	10 ஆண்டுகள்
15	மின்மையப்பள்ளி	58/3 (பாகம்-3)	28.64.0	4.90.0	பாளையம்	10 ஆண்டுகள்
16	மின்மையப்பள்ளி	58/3 (பாகம்-4)	28.64.0	4.90.0	பாளையம்	10 ஆண்டுகள்
17	ஏரிப்பூழர்	35/3 (பாகம்-3)	63.66.0	2.00.0	காடு	10 ஆண்டுகள்
18	தேக்கல்படி X	36/1 (பாகம்)	8.25.5	1.00.0	கல்வாய்க்குத்து	10 ஆண்டுகள்

**சங்கலிரி கோட்டம்**

சங்கலிரி வட்டத்தில் அமைந்துள்ள சாதாரண கற்குவாரி பட்டியல்

19 ✓	தேவண்ணா கவுண்டினார்	352/5 (பாகம்)	4.56.0	1.00.0	கல்வாய்க்குத்து	10 ஆண்டுகள்
20 X	தேவூர்	114 (பாகம்)	35.39.0	2.00.0	கல்வாய்க்குத்து	10 ஆண்டுகள்

எடப்பாடி வட்டத்தில் அமைந்துள்ள சாதாரண கற்குவாரி பட்டியல்

21 ✓	வேம்பனாரி	11 (பாகம்)	6.03.0	1.00.0	குன்று	5 ஆண்டுகள்
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**மேட்டுர் கோட்டம்**

மேட்டுர் வட்டத்தில் அமைந்துள்ள சாதாரண கற்குவாரி பட்டியல்

22 ✓	மூலக்காடு	137 (பாகம்)	4.53.0	1.50.0	பாளையம்	10 ஆண்டுகள்
23 ✓	முல்லைப்படி	21 (பாகம்)	3.03.5	2.50.0	குன்று	10 ஆண்டுகள்

ஓமலூர் வட்டத்தில் அமைந்துள்ள சாதாரண கற்குவாரி பட்டியல்

24	எங்கீதப்படி	6/2 (பாகம்-1)	9.80.0	1.00.0	குன்று	5 ஆண்டுகள்
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காண்டலாம்படி வட்டத்தில் அமைந்துள்ள சாதாரண கற்குவாரி பட்டியல்

25	குண்டுகல்	328/3	1.43.0	1.43.0	தரிசு	10 ஆண்டுகள்
26	காண்டலாம்படி வடக்கு	80 (பாகம்)	82.80.5	2.00.0	காடு	10 ஆண்டுகள்

**ஆத்தூர் கோட்டம்**

ஆத்தூர் வட்டத்தில் அமைந்துள்ள சாதாரண கற்குவாரி பட்டியல்

27	நரசிங்கபுரம்	344/3 (பாகம்-2)	71.11.5	1.00.0	கல்வாய்க்குத்து	5 ஆண்டுகள்
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கெங்கவல்லி வட்டத்தில் அமைந்துள்ள சாதாரண கற்குவாரி பட்டியல்

28	முடக்குப்படி	100/1 (பாகம்)	71.04.5	1.00.0	காடு	10 ஆண்டுகள்
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சேலம்,  
20-01-2020.

சி. அ. ராமன்,  
மாவட்ட ஆட்சியர்,  
சேலம் மாவட்டம்

தமிழ்நாடு எழுதுபொருள் மற்றும் அச்சுத்துறை இயக்குநரால் சேலம் அரசினர் கிளை அச்சகத்தில் அச்சிட்டு மாவட்ட ஆட்சியரால் வெளியிடப்பட்டது

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## பின் இணைப்பு - VI

டெண்டர் விண்ணப்பம் / குவாரி குத்தகை உரிமம் வழங்குவதற்கான விண்ணப்பம்  
(மூன்று பிரதிகளில் சமர்ப்பிக்கப்பட வேண்டும்)

விருள்

பெறுவர்

மாவட்ட ஆட்சித்தளையார்,  
சேலம்.

அப்பா,

சேலம் மாவட்ட அரசிதழ் (சிறப்பு வெளியீடு) எண். நான் .01.2020 தினசரியில் வெளியிட்ட நான். .01.2020-ன் படி இத்துடன் தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி எண்.8-ன் கீழ் எனது / எங்களது விண்ணப்பத்தினை சமர்ப்பிக்கின்றேன் / சமர்ப்பிக்கின்றோம்.

தமிழ்நாடு சிறு கனிம சலுகை விதிகள் 1959 விதி 8-ன் கீழ் குவாரி குத்தகை உரிமம் வழங்கும் படி நான் கேட்டுக்கொள்கிறேன் / நாங்கள் கேட்டுக்கொள்கிறோம்

தேவையான விவரங்கள் கீழே கொடுக்கப்பட்டுள்ளது

1. விண்ணப்பதாரர் பெண் மற்றும் முழு முகவரி

2. விண்ணப்பதாரர்

- அ) 1) தனிநபரா  
2) தனிப்பட்ட நிறுவனமா  
3) நிறுவனமா அல்லது கழகமா

ஆ) தனிநபரானால் விண்ணப்பதாரர்  
எந்த நாட்டைச் சார்ந்தவர்

இ) தனிப்பட்ட நிறுவனமானால்/ கழகமானால்  
மேற்கண்ட நிறுவனத்தின் / கழகத்தின்  
இயக்குநர்களின் தாய் நாட்டை பற்றிய  
விவரம் (எழுத்துப் பூர்வ ஆதாரங்கள்  
இணைக்கப்பட வேண்டும்)



3. பிணை வைப்பதினொகை செலுத்திய விவரம் வேட்டி வரைவேலையில் எவர் மற்றும் தாள் (வயி விவரவேலவை இணைக்கப்பட்ட வேண்டும்)
4. விண்ணப்பதாரரால் கீழ்க்கண்ட இனக்களுக்கு ஆதவை உறுதி ஆவணம் (அபிடமிட்) இணைக்கப்பட்டுள்ளதா?
- அ) நடப்பு ஆண்டு வரை வருமானவரி விவரப்பட்டியல் அத்தொகுக்கு சொடுக்கப்பட்டது உள்ளதா
- ஆ) துறையினரால் கணக்கிடப்பட்ட வருமானவரி சட்டத்தின்படி வருமான வரி செலுத்தப்பட்டுள்ளதா
- இ) 1961-ஆம் வருடத்திய வருமான வரி சட்டத்தின்படி வருமான வரி செலுத்தப்பட்டுள்ளதா
5. விண்ணப்பதாரர் குவாரி செய்ய விரும்பும் சிறுகனிமத்தின் பெயர் மற்றும் விவரம்
6. குவாரி குத்தகை உரிமம் கோரும் காவல்
7. விண்ணப்பிக்கும் இடத்தின் மொத்த பரப்பளவு
8. டெஸ்டர் விண்ணப்பம் அல்லது விண்ணப்பம் செய்யப்படும் இடத்தின் விவரம்
- மாவட்டம்
- வட்டம்
- கிராமம்
- புல எண்
- பரப்பளவு (ஹெக்டேரில்)
9. குத்தகை உரிமம் பெறுவதற்கு விண்ணப்பதாரரால் செலுத்தப்பட்டவள்ள அதிக பட்ச ஒரு தடவை குவாரி குத்தகை தொகை (எண்ணமும் எழுத்தாலும் எழுதப்பட்ட வேண்டும்)
10. ஏற்கனவே துரித்தாட்டம் குவாரி குத்தகை உரிமம் பெற்ற இடத்தின் விவரம்

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11. (அ) குவாரிகளுக்கு உரிய நிழலைய செறுத்ததன் தொடர்பாக கரங்க நிழலைய இயல்பு சான்று இணைக்கப்பட்டுள்ளதா?
- (ஆ) விண்ணப்பிக்கும் நாளில் குத்தகை உரிமம் ஏதும் விண்ணப்பதாரருக்கு இல்லை எனில் அதற்கு உண்டான ஆணை உறுதி ஆவணம் இணைக்கப்பட்டுள்ளதா?
12. விண்ணப்பதாரரால் அளிக்கப்படும் வேறு ஏதேனும் கட்டுதல் விவரங்கள்

எண்ணால்/ எங்கனால் மேலே கொடுக்கப்பட்ட விபரங்கள் அனைத்தும் உண்மை. நான்/நாங்கள் அரக /மாவட்ட ஆட்சித்தலைவர், மாவட்ட வன அலுவலர் ஆகியவர்களால் கேட்கப்படும் இது விபரங்கள் மற்றும் பிணை வைப்பு தொகையினை அளிக்க சம்பதிக்கின்றேன் / சம்பதிக்கிறேன். தமிழ்நாடு சிறுகளில் சலுகை விதிகள் 1959-ன் கீழ் குத்தகை உரிமம் வழங்க உள்ள விதிகள் மற்றும் சூலாரி செய்ய கொடுக்கப்பட்ட இது நிபந்தனைகள் அனைத்தையும் தெரிந்து கொண்டேன் / கொண்டேன் என உறுதி அளிக்கின்றேன் / அளிக்கின்றேன். மேலும் எந்த சூழ்நிலையிலும் மேற்கண்ட குத்தகை உரிம இடத்திலிருந்து ஏற்றுமதிக்கு ஏற்ற அல்லது அறுத்து மெருகேற்றுவதற்கு (Polish) உகந்த பரிமாணமுள்ள கற்கள் (Dimension stone) மற்றும் பலகை கற்கள் (Slabs) வெட்டி வெடுக்க மாட்டேன் / மாட்டேன் என உறுதி அளிக்கின்றேன் / அளிக்கின்றேன்.

நான் :

தங்கள் உண்மையுள்ள,

இடம் :

விண்ணப்பதாரரின் கையொப்பம்.



GOVERNMENT OF TAMIL NADU  
CERTIFICATE OF FIRM REGISTRATION  
**FORM-C**  
SEE RULE 9 (a)

The registrar of firms, Salem (West) hereby acknowledges the Receipt of the statement prescribed by Section 58 (I) of the Indian Partnership Act, 1932 the Statement has been filed and the name of the firm

**ROYAL STONES**

has been entered in the Register of Firms as No. 576 of 2018



*[Signature]*  
Registrar of Firms  
Salem (West)  
29.10.18



Dated the 29<sup>TH</sup> day of OCTOBER 2018

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தமிழ்நாடு தமில்நாடு TAMILNADU  
25606 / 1.10.18 / 100  
Royal Stones,  
Salem.

BT 629682  
K. S. N. S.  
கே.எஸ்.உஷா  
முதுகிரந்தலாள் வீடுபாளையம்  
உரிமை எண் 6424-5 / 97  
சென்னை-4 தமிழ்நாடு

M/s. ROYAL STONES  
207A, CHINNAMMAL BUILDING,  
No.102-A,PERAMANUR MAIN ROAD, FOUR ROADS,SALEM - 636 007

INSTRUMENT OF PARTNERSHIP

THIS DEED OF PARTNERSHIP is made on this 1<sup>st</sup> Day of October 2018 between:

1. Mr.MBHARRANITHARAN S/o. Sri. Moharajan, aged about 38 years residing in Poyyapatty Post, Harur Taluk, Dharmapuri Dist - 636 906 being party of the first part.
2. Mr.P.DHARMALINGAM S/o. Sri. Ponnusamy, aged about 42 years residing in No.5/71-C, Mottur Semmandapatty Post, Kadayampatty T.K, Salem Dist - 636 309 being party of the second part witnesseth as under.

WHEREAS the parties of first and second parts mentioned hereinabove intend to carry on business in quarrying of blue metal and manufacturing and trading of all kinds of building materials such as M Sand, R Sand, Fly ash/hollow bricks including entering into works contract especially in construction of roads and hiring and operating of earth moving equipment's and also to carry on other

1. *M. Bharranitharan*  
2. *P. Dharmalingam*



தமிழ்நாடு தமில்நாடு TAMILNADU  
 25605 / 1.10.18 / 100  
 Royal Stones,  
 Salem,

BT 629681  
 K.S.V.K.  
 சே.க.எஸ். உஷா  
 சே.க.எஸ். உஷா  
 சே.க.எஸ். உஷா  
 சே.க.எஸ். உஷா  
 சே.க.எஸ். உஷா

allied business joining together in the name and style of M/s. ROYAL STONES on and from the date herein mentioned above.

AND WHEREAS in order to avoid any future difficulties and to have better understanding the parties hereto have agreed themselves to reduce the terms and conditions of partnership in to writing by a formal instrument of partnership and thereby regulate and control the relationship between the partners inter se, this instrument of partnership is executed on the date herein mentioned above.

TERMS AND CONDITIONS

Name of the Firm:

1. The name of the firm shall be M/s. ROYAL STONES

Places of Business:

2. The registered office of the firm shall be carried on presently 207A, Chinnammal Building, No.102-A, Peramanur Main Road, Four Roads, Salem - 638 007 from the date mentioned herein above. The quarrying operations will be carried out from leasehold lands identified anywhere in the country and unit shall be established in the nearest to the quarry considering the feasibility of operations. The firm may also carry on its business at such other place or places as the partners may decide from time to time.

1. *[Signature]*  
 2. *[Signature]* 155



தமிழ்நாடு தமில்நாடு TAMILNADU  
 25604 / 1.10.18 / 100  
 Royal Stones,  
 Salem.

BT 629680  
 K. S. [Signature]  
 முதுகிணர்ந்தகல் விநியோகஸ்தர்  
 உதயகல், 6424-5 / 97  
 சேலம், தமில்நாடு

Nature of Business:

- The parties of first and second parts mentioned hereinabove intend to carry on business in quarrying of blue metal and manufacturing and trading of all kinds of building materials such as M Sand, R Sand, Fly ash/hollow bricks including entering into works contract especially in construction of roads and hiring and operating of earth moving equipment's on and from the date herein mentioned above. The partners may also carry on any other business or businesses that the partners may decide from time to time.

Duration of the firm:

- The duration of the firm will be one AT WILL. But death or retirement of a partner will not dissolve the firm. The remaining partners with or without modification will carry on partnership firm.

Capital of the Firm:

- The necessary capital of the firm shall be agreed to subscribe by the partners as may be required from time to time. The amount standing to the credit of respective capital account as of 31<sup>st</sup> March of every year represents their capital contributions. Necessary capital as well as further funds required for

1. [Signature]

2. P. [Signature] 156





the purposes of the partnership business shall be contributed or arranged by the partners in such manner as may be mutually agreed upon by and between the partners from time to time.

**Interest on Capital :**

6. Interest at the rate of 12% per annum or as may be prescribed under section 40(b)(iv) of the Income tax Act or any other applicable provisions as may be in force in Income tax assessment of the partnership firm for the relevant accounting period shall be payable to the partners on the amount standing to the credit of the account of the partners irrespective of whether the account is termed as capital a/c, loan a/c, current a/c as the case may be, such interest shall be calculated and credited to the accounts of each partners at the close of the accounting year. However in case of loss or lower income, the partners may either waive the interest, in full or accept lower rate of interest as may be mutually agreed to by and between the partners from time to time.

**Remuneration to Partners :**

7. In consideration of the parties of first and second parts having agreed to keep themselves actively engaged in conducting the affairs of the partnership business as working partners, the parties of the first and second parts are entitled to receive remuneration. The remuneration payable to the above said working partners shall be computed in the manner laid down in section 40(b)(v) of Income tax Act, 1961, or any other applicable provisions as may be in force in the Income tax assessment of the partnership firm for the relevant accounting year. The maximum remuneration that can be distributed among the working partner shall be Rs.10,00,000/- per annum and it will be shared by all the partners EQUALLY

Such Remuneration shall be calculated and credited to the accounts of each working partners. The working partners shall be entitled to withdraw amounts from the firm for their personal needs from time to time out of that remuneration. The partners hereto may also agree to revise the mode of calculating the above said remuneration either in accordance with any further Amendment made to the provisions governing the payment of salary to working partners as per the Income Tax Act, 1961 or as may be mutually agreed to by and between partners from time to time. However in case of loss or lower income, the partners may either waive the remuneration, in full or accept lower remuneration as may be mutually agreed to by and between the partners from time to time.

1. *M. Anand*

2. *P. Anand*

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**Share of Profit/Loss :**

8. The Net profit or loss of the firm after deducting all business expenses as well as Interest and remuneration payable to partners in accordance with deed shall be divided among the partners at the close of the accounting year in the following proportions

M.BHARRANITHARAN	(Party of the first part)	50%
P.DHARMALINGAM	(Party of the second part)	50%
<b>Total</b>		<b>100%</b>

**Operation of Bank Accounts:**

9. The parties of first and second parts shall conduct the business of the above firm and the bank accounts in the name of the firm shall be opened and operate by any one of the party of the first and second parts independently

**Accounts:**

10. The accounts of the firm shall be maintained and closed on 31<sup>st</sup> of March every year, and Income and expenditure account or profit and loss account and Statement of Affairs shall be drawn out as on that date.

**Borrowals :**

11. All outside borrowals for the business of the firm either from Bank, Financial Institutions or from outside parties shall be done by all the partners joining together and such loan documents shall be signed by party of the first part and second parts jointly. The personal borrowings of the partners do not bind the firm in whatsoever manner.

**Admission/Retirement:**

12. Any partner who wishes to retire from the firm shall give a month notice of his intention to do so and the retiring partner shall be entitled only to the amount standing to his credit in the books of account of the firm. No new partners shall be admitted into partnership without the consent of all the partners. Any partners who desire to withdraw from the firm shall transfer his share in the partnership only to other continuing partners and not to any outsiders.

1. M. Bharranitharan

2. P. Dharmalingam



Arbitration:

13. In case of dispute arising among the partners hereto in relation to the affairs of the firm or as to the interpretation or implementation of the terms and conditions agreed to by them, the same shall be referred to body of arbitrators and shall be settled in accordance with the provisions of Arbitration and Conciliation Act, 1996.

Exceptions:

14. Except to the extent provided in the foregoing clauses all other provisions of the Indian Partnership Act, 1932 shall apply with all its latest amendments from time to time to this partnership.


IN WITNESSETH whereof the parties herein have unto set and subscribed their hands in token of their acceptance of the above on the day, month and year above mentioned.

In the presence of

1. T. Ngany  
Parakkalloor St,  
Banapuram Po,  
Mettur Tk.  
Pin - 636 451.

2. T. P. S. P.  
Parakkalloor,  
Banapuram Po,  
Mettur Tk.  
Pin - 636 451.

Signatories to the deed

1. 

2. 

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தமிழ்நாடு தமில்நாடு TAMILNADU

Royal Stones,  
Salem

- 3 AUG 2020

CA 870189

**V. Anand**  
 Mr. V. Anand, Partner,  
 L.C.No. 15203/83

Authorization Form

Declaration for Authorised Signatory

- We, 1) M.Bharanitharan  
 2) P.Dharmalingam

The partners of M/s. ROYAL STONES, hereby solemnly affirm and declare that Mr. M.Bharanitharan, Partner is hereby authorized to act as an authorized signatory for the business M/s. ROYAL STONES, for which application for registration is being filed under the Act. All his actions in relation to this business will be binding on us.

Signature of the person competent to sign

1) M.Bharanitharan (Partner)

2) P.Dharmalingam (Partner)

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Acceptance as an authorized signatory

I, M. Bharanitharan, hereby solemnly accord my acceptance to act as authorized signatory for the above referred business and all my acts shall be binding on the business.

Signature of Authorised Signatory

(M. Bharanitharan)

Partner

Place: Salem

Date: 10.08.2020

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भारत सरकार  
GOVERNMENT OF INDIA



பரணிதரன் மோகராஜன்

Bharanitharan Moharajan

பிறந்த நாள்/ DOB: 20/06/1979

ஆண் / MALE



8322 6279 2664

எனது ஆதார், எனது அடையாளம்.



भारतीय विशिष्ट पहचान प्राधिकरण  
UNIQUE IDENTIFICATION AUTHORITY OF INDIA

முகவரி:

S/O: மோஹராஜன், 3/880,  
பொய்யப்பட்டி,  
பொய்யப்பட்டி, தருமபுரி,  
தமிழ் நாடு - 636906

Address:

S/O: Moharajan, 3/880,  
POYYAPATTI, Poyyapatti,  
Dharmapuri,  
Tamil Nadu - 636906



1800 300 1947

help@uidai.gov.in

www.uidai.gov.in

P.O. Box No. 1947



அறிவியல் துறை  
FACULTY OF SCIENCE

தமிழ்நாடு பல்கலைக்கழகம்  
தமிழ்நாடு  
1994  
சென்னை  
பொருள்  
பொருள்  
பொருள்  
பொருள்

The Senate of the UNIVERSITY OF MADRAS hereby  
makes known that P. Thangaraju  
has been admitted to the Degree of Master of Science, in fact  
having been certified by duly appointed Examiners to be qualified  
to receive the same in Geology and was placed in the  
First Class, at the Examination held in April 1994.

Given under the seal of the University



சென்னை  
25-01-1994

H.T. [Signature]  
The Chancellor

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GOVERNMENT OF INDIA  
MINISTRY OF LABOUR AND REHABILITATION  
OFFICE OF THE DIRECTOR GENERAL OF MINES SAFETY



Certificate of Practical experience granted by the Manager to a candidate for a Manager's / Surveyor's / Foremen's / Over man's / Sirdar's / Mate's / Short firer's/ Blaster's Certificate of competency (Restricted) examination under the Metalliferous Mines Regulations 1961.

I **T.VENKATARAJAGOPALAN** being the Mines Agent of **M/S.LIMENAPH CHEMICALS, RAJAPALAYAM OF LIMESTONE PRODUCTS (Thenmali Limestone Mine)** do hereby certify that Thiru. **P.THANGARAJU**, son of **S.PERIASAMY** (whose signature is appended) worked as a Geologist in the above mine from 02.05.1994 to 30.12.1999. During his term of work aforesaid, he has obtained practical experience as detailed overleaf. The duties connected with his work have involved continuous attendance at the mine and have been efficiently performed by him.

I believe him to be of good character and a fit and proper candidate to be examined for Certificate of Competency.

THEMMLAI LIME STONE MINES  
10/6/96  
Agent (Mines)  
(Signature with date and official Seal)  
[T.VENKATARAJAGOPALAN]

Mines Agent:

P.O. : ARUKANGULAM

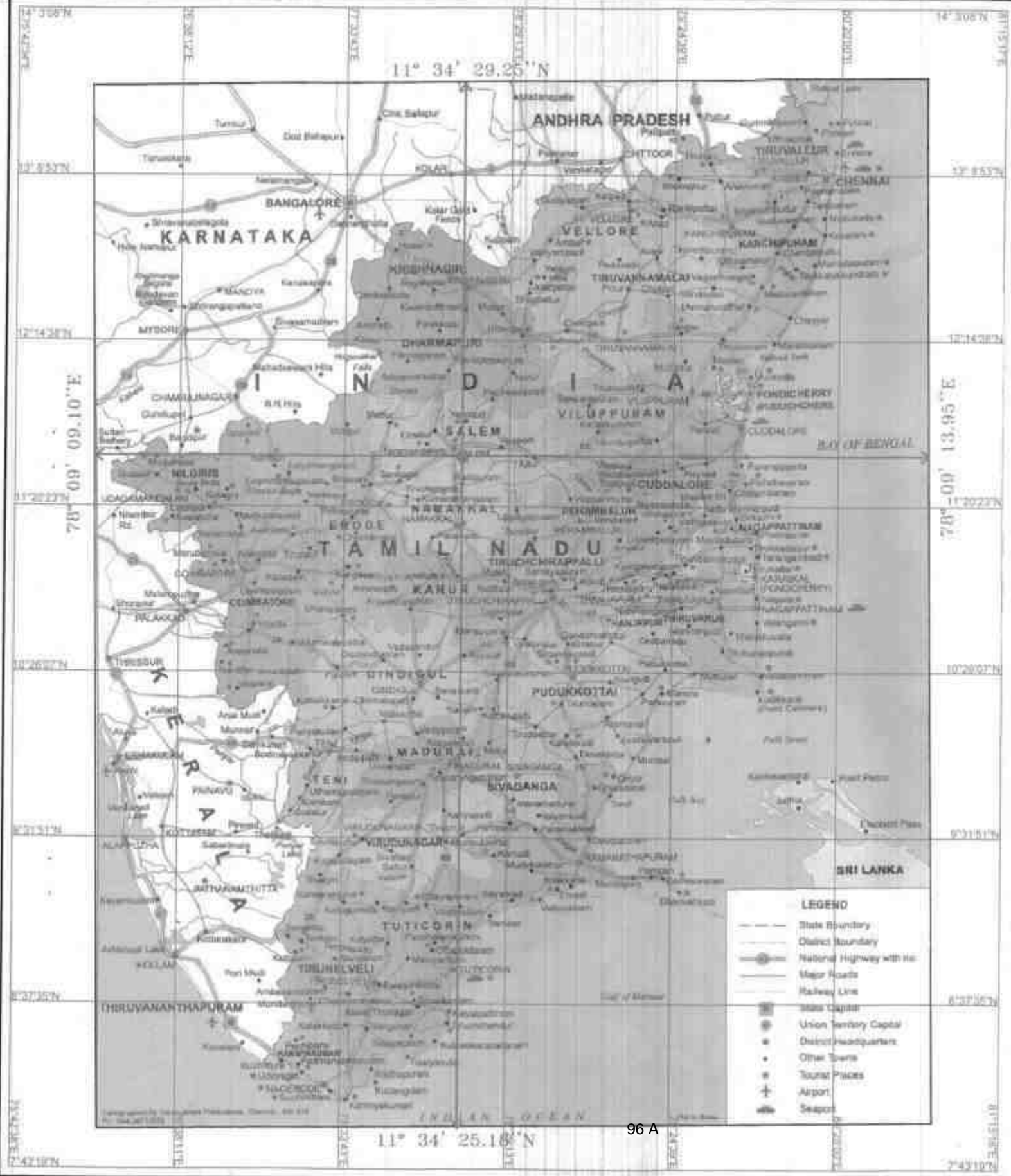
District : TIRUNELVELI

State : TAMIL NADU

  
(Signature of Candidate)

(State name of Mineral) : LIMESTONE

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**PLATE NO: I**

DATE OF SURVEY : 03.08.2020

**APPLICANT:**

M/s.ROYAL STONES,  
207A, CHINNAMMAL BUILDING,  
No.102-A,PERAMANUR MAIN ROAD,  
FOUR ROAD.SALEM DISTRICT-636 007.

**LOCATION OF QUARRY  
LEASE APPLIED AREA:**

S.F.NO : 1/7(Part-7),  
EXTENT : 1.00.0 Ha.  
VILLAGE : PANAMARATHUPATTI,  
TALUK : SALEM,  
DISTRICT : SALEM,  
STATE : TAMIL NADU.

**INDEX**

Q. L.A. AREA : ●

TOPO SHEET NO. : 58 1/02

LATITUDE : 11° 34' 25.18''N to 11° 34' 29.25''N

LONGITUDE : 78° 09' 09.10''E to 78° 09' 13.95''E

**LOCATION PLAN**

SCALE 1 : 24,00,000

**PREPARED BY :**

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS  
PLATE IS TRUE AND CORRECT TO THE  
BEST OF MY KNOWLEDGE BASED UPON THE LEASER'S  
AUTHENTICATION BY STATE GOVERNMENT.

*[Signature]*  
THIRAKARAJU, M.Sc., P.T.C.,  
QUALIFIED PERSON





**APPLICANT:**  
 M/s.ROYAL STONES,  
 207A,CHINNAMMAL BUILDING,  
 No.102-A,PERAMANUR MAIN ROAD,  
 FOUR ROAD,SALEM DISTRICT-636 002

**LOCATION OF QUARRY  
 LEASE APPLIED AREA:**

S.F.NO : 1/7(Part-7),  
 EXTENT : 1.00.0 Ha.  
 VILLAGE : PANAMARATHUPATTI,  
 TALUK : SALEM,  
 DISTRICT : SALEM,  
 STATE : TAMIL NADU.

**INDEX**

CONVENTIONAL SYMBOLS		
Stream (River) with well bridge with direction arrow		
Roads marked according to formation		
Roads, roads cartingway, crossing to irrigation		
Unimproved road, Cart track, Path track with gate, Foot path		
Stream with bank in red, unimproved, Canal		
Deep reservoir or sea (Red) unimproved, Well		
Flow of water shown with level 5 scale, High tide mark		
Submerged area, River, Spring, Well		
Well, open, closed, Tub well, Spring, Tank, unimproved by		
Field boundary, forest or soil with stream, ground		
Water, open, closed, Tank, well, unimproved, well, unimproved		
Wells, open, closed, Tub well, spring, well, unimproved, well		
Water, open, closed, Tub well, spring, well, unimproved, well		
Compartment (Hatched) with stream, 20%		
Sea level (100) (Contour) (unimproved) (unimproved)		
Tanks or Wells, unimproved, unimproved, well		
High, unimproved, unimproved, unimproved, unimproved		
Temple, Church, Church, Mosque, Temple, Temple, Temple		
Light house, Light house, Light house, Light house		
Min. (unimproved) (unimproved) (unimproved)		
Power station, other, Power, Cable, Station, other, other		
Area, unimproved, unimproved, unimproved, unimproved		
Drainage, unimproved		
with, unimproved, unimproved		
with, unimproved, unimproved, unimproved, unimproved		
Boundary, plain, unimproved, unimproved		
Height, unimproved, unimproved, unimproved, unimproved		
Boundary, unimproved, unimproved, unimproved, unimproved		
Frontline, unimproved, unimproved, unimproved, unimproved		
Substance, unimproved, unimproved, unimproved, unimproved		
Carrying, ground, unimproved, unimproved, unimproved		
Green, unimproved, unimproved, unimproved, unimproved		
Region, unimproved, unimproved, unimproved, unimproved		
Asbestos, unimproved, unimproved, unimproved, unimproved		
Flowline, with, unimproved, unimproved, unimproved, unimproved		

**TOPO SKETCH OF QUARRY  
 LEASE APPLIED AREA FOR  
 10KM RADIUS**

SCALE- 1:100000

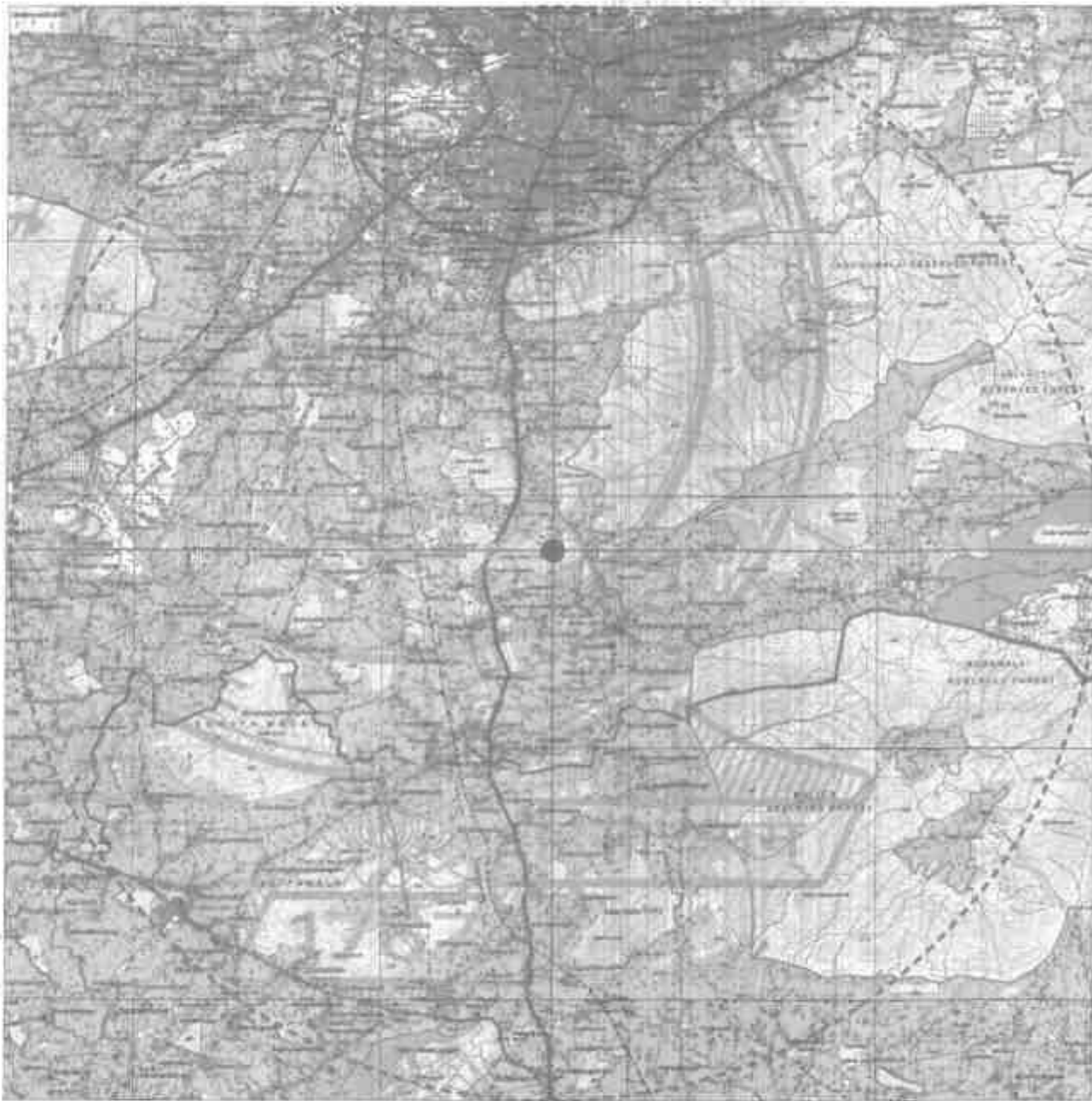
**PREPARED BY :**

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M. PRAGASAM, S. Ph.D.  
 QUALIFIED PERSON



11° 39' 54.42" N



78° 03' 39.33" E

78° 14' 43.75" E

11° 29' 00.01" N

TOPO SHEET NO. : 58 I/02

LATITUDE : 11° 34' 25.18" N to 11° 34' 29.25" N

LONGITUDE : 78° 09' 09.10" E to 78° 09' 13.95" E

10KM RADIUS :

Q. APPLIED AREA :

97A

**LANDUSE PATTERN**

DESCRIPTION	PERCENTAGE
ROADS	(05%)
HABITATION	(15%)
TREES	(10%)
AGRICULTURAL LAND	(40%)
QUARRY PIT \ CRUSHER	(05%)
HILLOCK	(35%)

OCTOBER TO DECEMBER



**PLATE NO: I-B**

DATE OF SURVEY : 03.08.2020

1km Radius

500m Radius

D.L. Applied Area

TOPO SHEET NO. : 58 I/02

LATITUDE : 11° 34' 25.18" N to 11° 34' 25.18" N

LONGITUDE : 78° 09' 09.10" E to 78° 09' 13.95" E



**APPLICANT:**

M/s. ROYAL STONES,  
207A, CHINNAMMAL BUILDING,  
No. 102-A, PERAMANUR MAIN ROAD,  
FOUR ROAD, SALEM DISTRICT-636 007.

**LOCATION OF QUARRY**

**LEASE APPLIED AREA:**

S.F.NO : 1/7 (Part-7)  
EXTENT : 1.00.0 Ha.  
VILLAGE : PANAMARATHUPATTI,  
TALUK : SALEM,  
DISTRICT : SALEM,  
STATE : TAMIL NADU.

**INDEX**

APPROACH ROAD	
MAJOR ROAD	
HABITATION	
TREES	
AGRICULTURAL LAND	
PIT	
WIND DIRECTION	
CRUSHER PLANT	
TANK	
NH ROAD	
HILLOCK	

**ENVIRONMENTAL AND**

**LANDUSE PLAN FOR 1km RADIUS**

SCALE- 1:10,000

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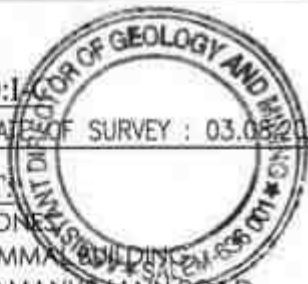
JULY TO SEPTEMBER





PLATE NO: 1

DATE OF SURVEY : 03.05.2020



**APPLICANT:**

M/s.ROYAL STONE  
207A, CHINNAMMA BUILDING,  
No.102-A,PERAMANUR MAIN ROAD,  
FOUR ROAD,SALEM DISTRICT-636 007.

**LOCATION OF QUARRY**

**LEASE APPLIED AREA:**

S.F.NO : 1/7(Part-7),  
EXTENT :1.00.0 Ha.  
VILLAGE : PANAMARATHUPATTI,  
TALUK : SALEM,  
DISTRICT : SALEM.  
STATE : TAMIL NADU.

**INDEX**

Q.LEASE AREA	
NH-ROAD	
MAJOR ROAD	
PANCHAYAT ROAD	
APPROACH ROAD	

**ROUTE MAP**

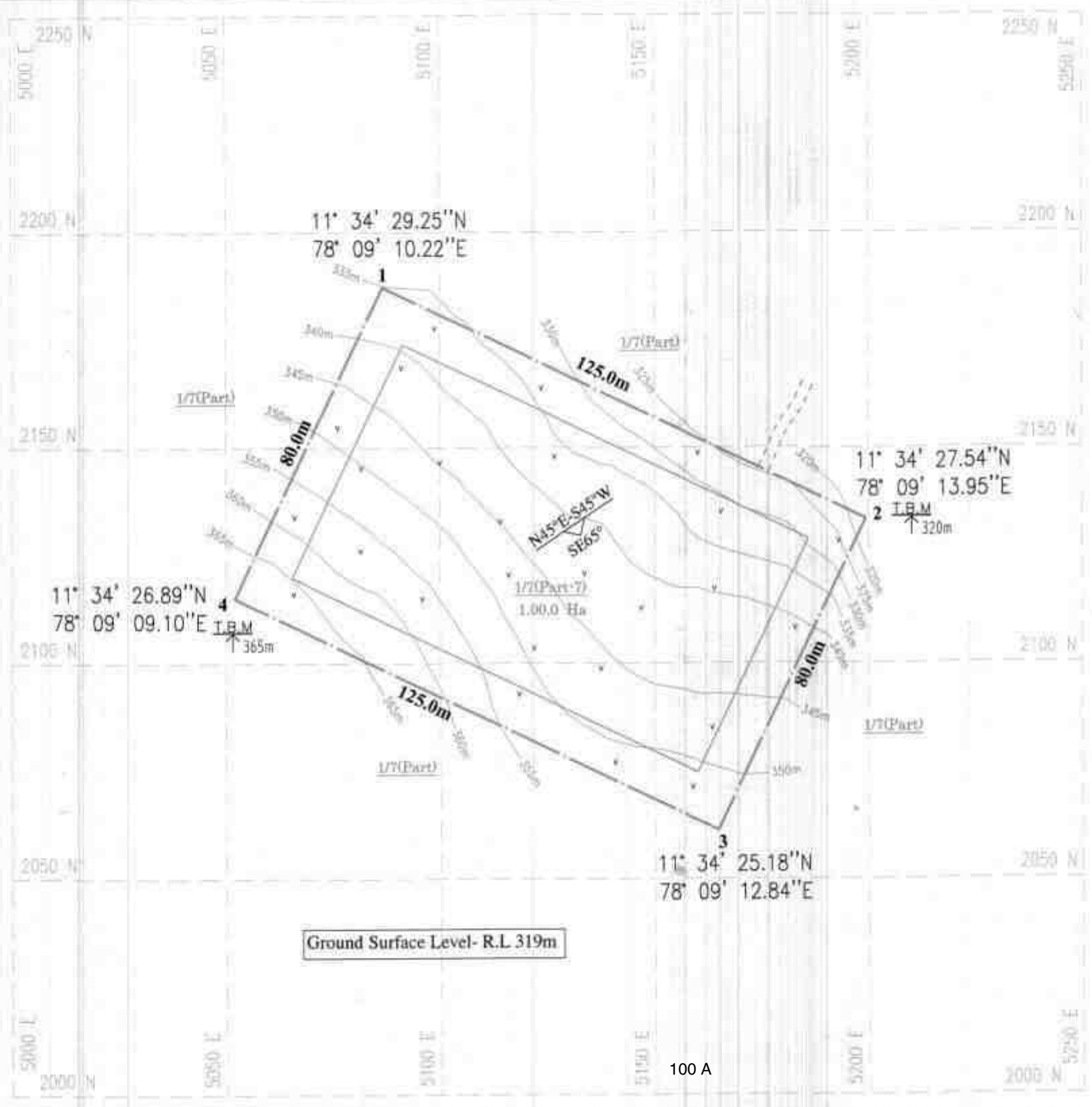
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D.P.R. NANDHARAJU, M.Sc., Ph.D.,  
QUALIFIED PERSON





**PLATE NO-II**  
DATE OF SURVEY : 03.08.2020

**APPLICANT:**  
M/s.ROYAL STONES,  
207A.CHINNAMMAL BUILDING,  
No.102-A,PERAMANUR MAIN ROAD,  
FOUR ROAD,SALEM DISTRICT-636 007.

**LOCATION OF QUARRY LEASE APPLIED AREA:**  
S.F.NO : 1/7(Part-7),  
EXTENT :1.00.0 Ha.  
VILLAGE : PANAMARATHUPATTI,  
TALUK : SALEM,  
DISTRICT : SALEM,  
STATE : TAMIL NADU.

**INDEX**

Q.L. APPLIED AREA BOUNDARY	
10m SAFETY DISTANCE	
TEMPORARY BENCH MARK	
APPROACH ROAD	
CONTOUR	
STRIKE AND DIP	
TOP SOIL	

**QUARRY LEASE & SURFACE PLAN**  
SCALE 1 : 1000

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*Amey M.V.*  
DEPUTY DIRECTOR OF GEOL. & MINING,  
QUALIFIED PERSON



**PRESENT & POST LAND USE PATTERN**

DESCRIPTION	PRESENT AREA (Ha)	AREA AT THE END OF THIS QUARRYING PERIOD (Ha)
AREA UNDER QUARRYING	Nil	0.76.0
INFRASTRUCTURE	Nil	Nil
ROADS	Nil	Nil
GREEN BELT	Nil	Nil
UN-UTILIZED AREA	1.00.0	0.24.0
<b>GRAND TOTAL</b>	<b>1.00.0</b>	<b>1.00.0</b>

- I Yr. EXCAVATION
- II Yr. EXCAVATION
- III Yr. EXCAVATION
- IV Yr. EXCAVATION
- V Yr. EXCAVATION



**PLATE NO-III**  
DATE OF SUBMISSION: 08.09.2020

**APPLICANT:**  
M/s.ROYAL STONES,  
207A,CHINNAMMAL BUILDING,  
No. 102-A,PERAMANUR MAIN ROAD,  
FOUR ROAD,SALEM DISTRICT-636 007.

**LOCATION OF QUARRY**  
**LEASE APPLIED AREA:**  
S.F.NO : 1/7(Part-7).  
EXTENT : 1.00.0 Ha.  
VILLAGE : PANAMARATHUPATTI,  
TALUK : SALEM,  
DISTRICT : SALEM,  
STATE : TAMIL NADU.

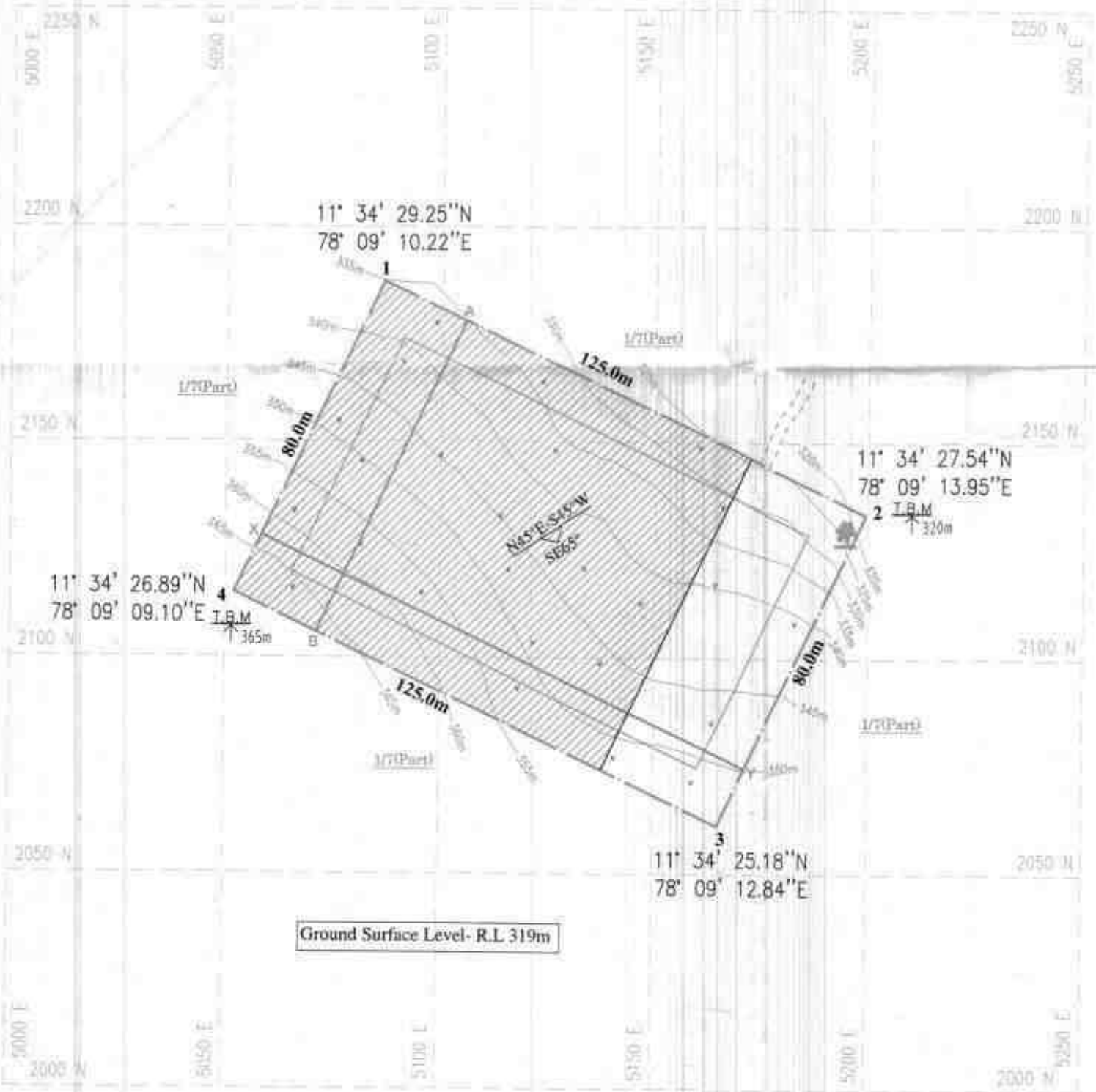
**INDEX**

- Q.L APPLIED AREA BOUNDARY
- 10m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- APPROACH ROAD
- CONTOUR
- STRIKE AND DIP
- TOP SOIL
- ROUGH STONE

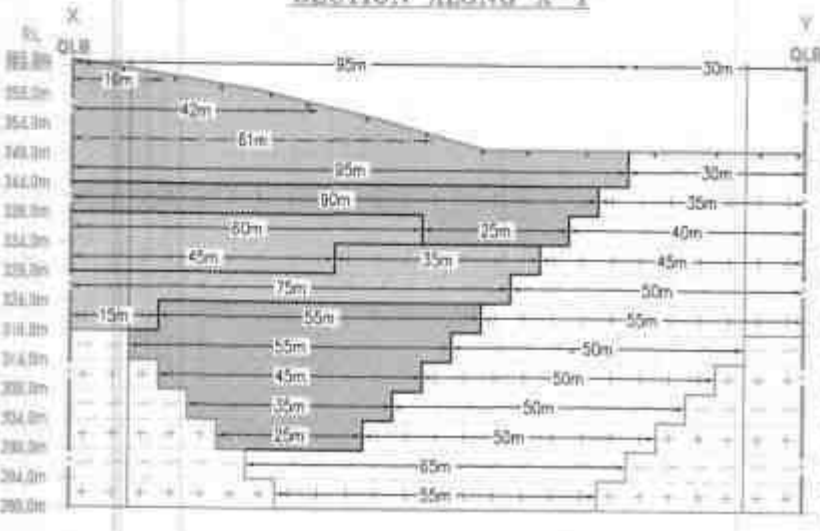
**TOPOGRAPHY, GEOLOGICAL,  
YEARWISE DEVELOPMENT &  
PRODUCTION PLAN & SECTIONS**  
SCALE 1 : 1000

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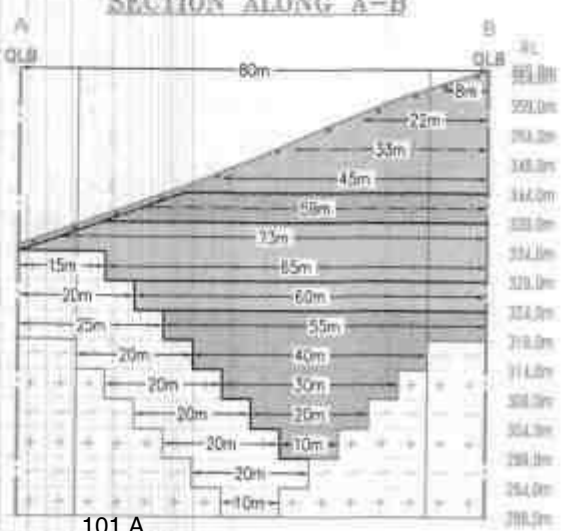
*[Signature]*  
QUALIFIED PERSON

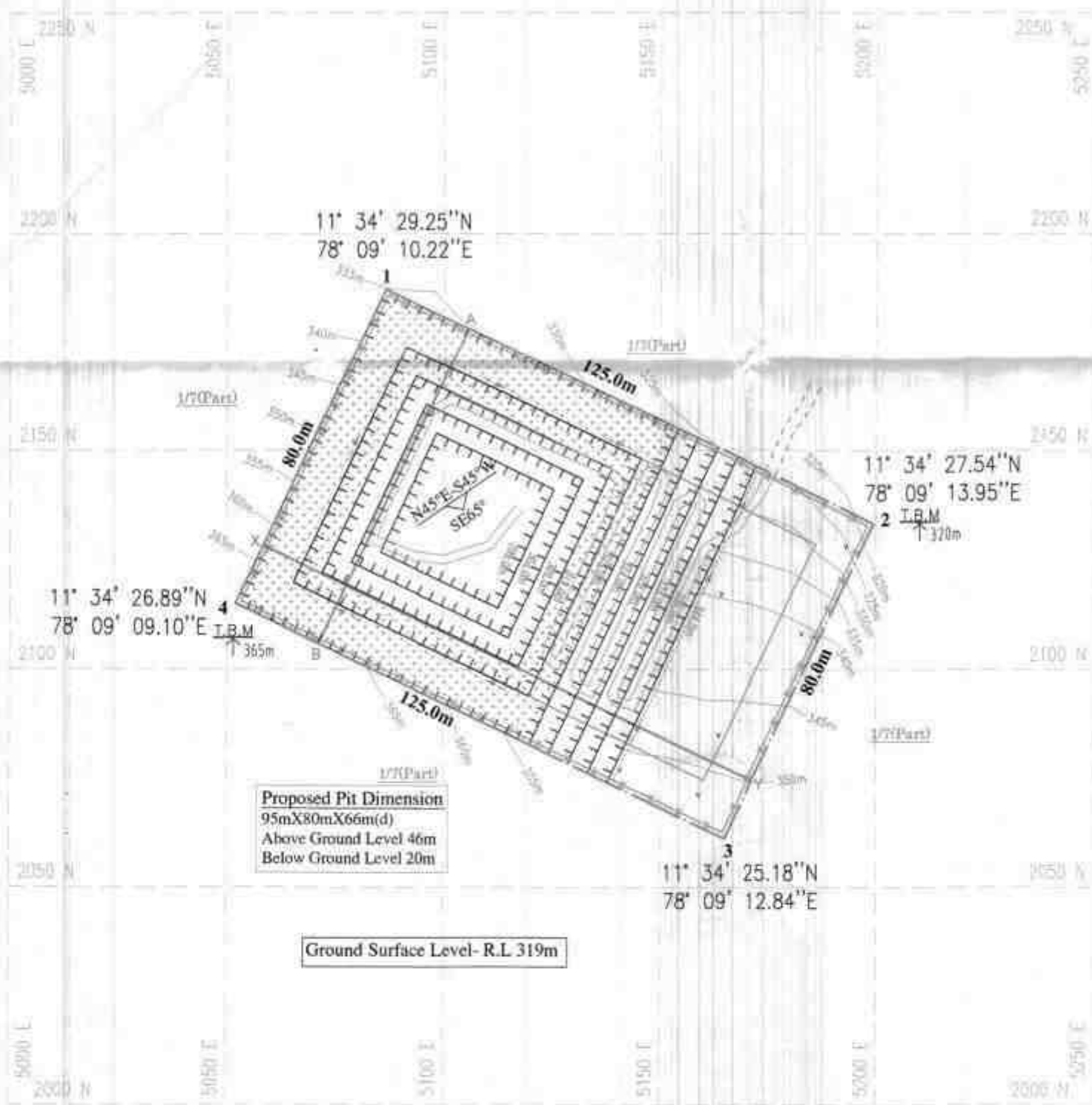


**SECTION ALONG X-Y**



**SECTION ALONG A-B**

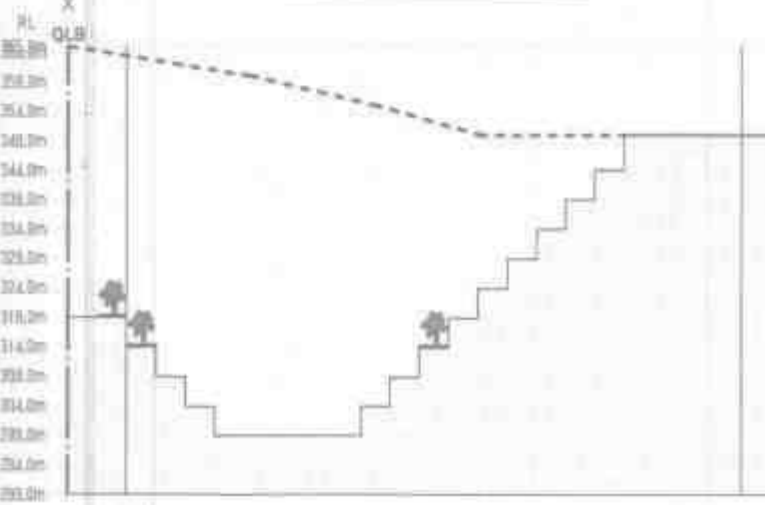




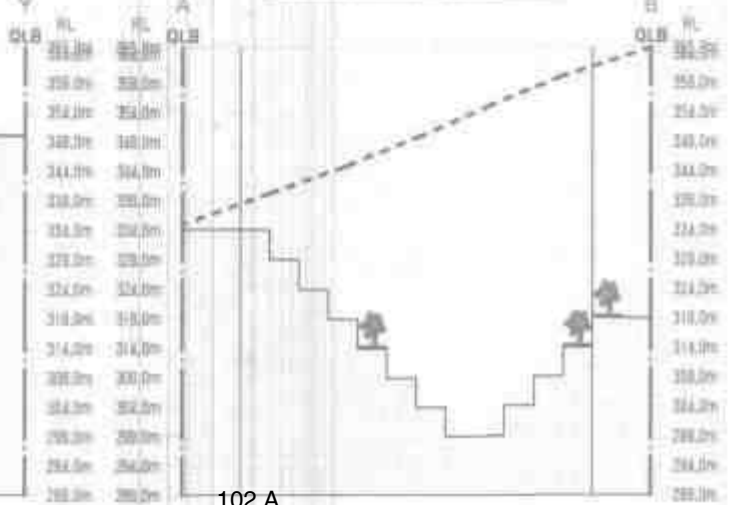
**Proposed Pit Dimension**  
 95mX80mX66m(d)  
 Above Ground Level 46m  
 Below Ground Level 20m

**Ground Surface Level- R.L. 319m**

**SECTION ALONG X-Y**



**SECTION ALONG A-B**



**PLATE NO-IV**  
 DATE OF SURVEY : 03.08.2020

**APPLICANT:**  
 M/s.ROYAL STONES,  
 207A,CHINNAMMAL BUILDING,  
 No.102-A,PERAMANUR MAIN ROAD,  
 FOUR ROAD,SALEM DISTRICT-636 007.

**LOCATION OF QUARRY**  
**LEASE APPLIED AREA:**  
 S.F.NO : 1/7(Part-7),  
 EXTENT :1.00.0 Ha.  
 VILLAGE : PANAMAMURUPATTI,  
 TALUK : SALEM,  
 DISTRICT : SALEM,  
 STATE : TAMIL NADU.

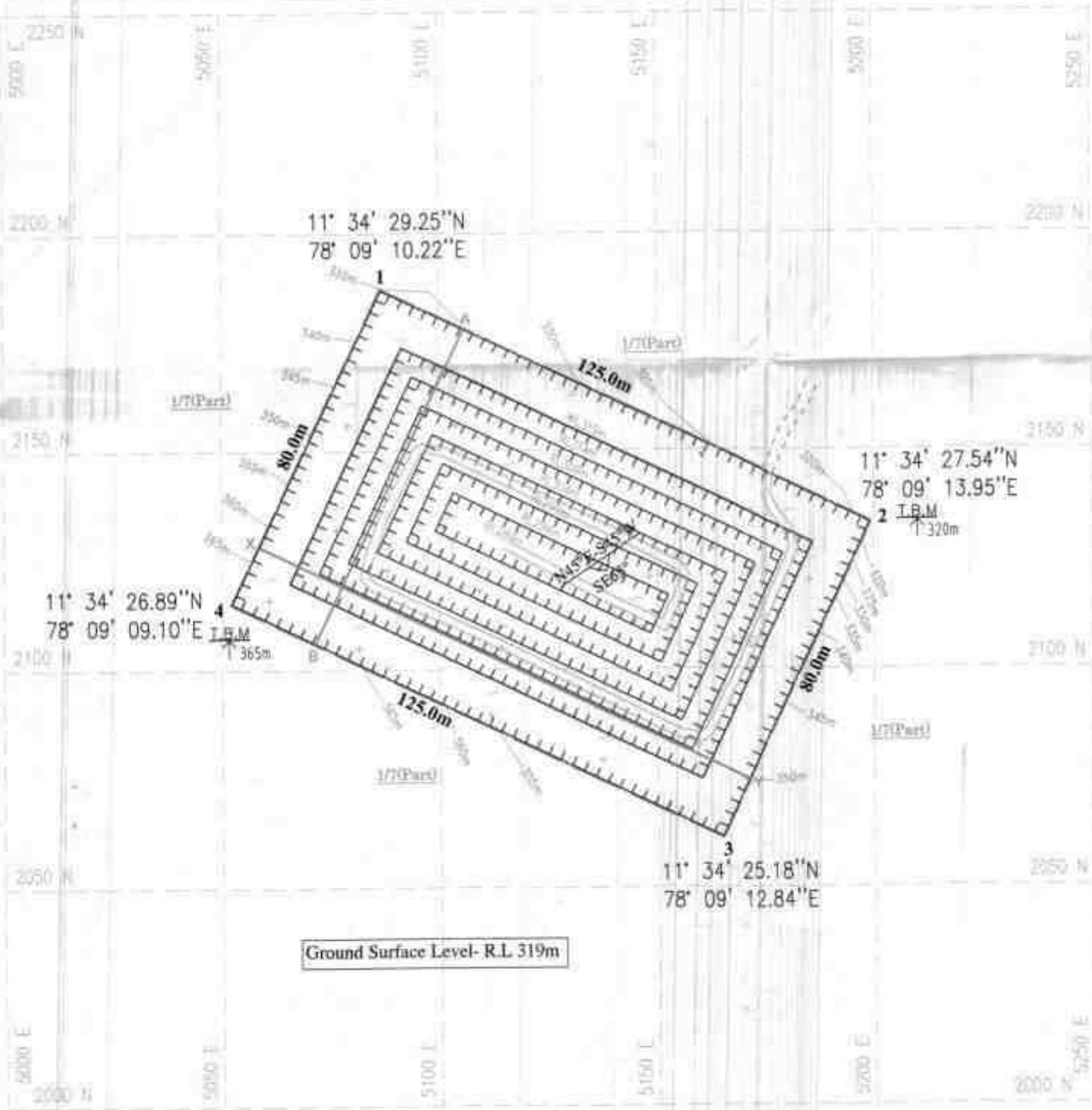


- Q.L. APPLIED AREA BOUNDARY
- 10m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- APPROACH ROAD
- CONTOUR
- STRIKE AND DIP
- QUARRY PIT
- QUARRY ROAD
- EXISTING LANDFORM
- OLD SURFACE LEVEL
- FINISHED SURFACE LEVEL
- TREES
- SOIL LAYER
- FENCING
- PROPOSED GARLAND DRAIN
- REHABILITATED LANDFORM

**PROGRESSIVE QUARRY**  
**CLOSURE PLAN & SECTIONS**  
 SCALE 1 : 1000

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 QUALIFIED PERSON



**Ultimate Pit Dimension**  
 125mX80mX76m(d)  
 Above Ground Level 46m  
 Below Ground 1



**PLATE NO.** /  
**DATE OF SURVEY :** 18.08.2020  
**APPLICANT**  
 M/s.ROYAL STONE INDUSTRIES  
 207A, CHINNAMMAI BUILDINGS  
 No.102-A,PERAMANUR MAIN ROAD,  
 FOUR ROAD,SALEM DISTRICT-636 007.

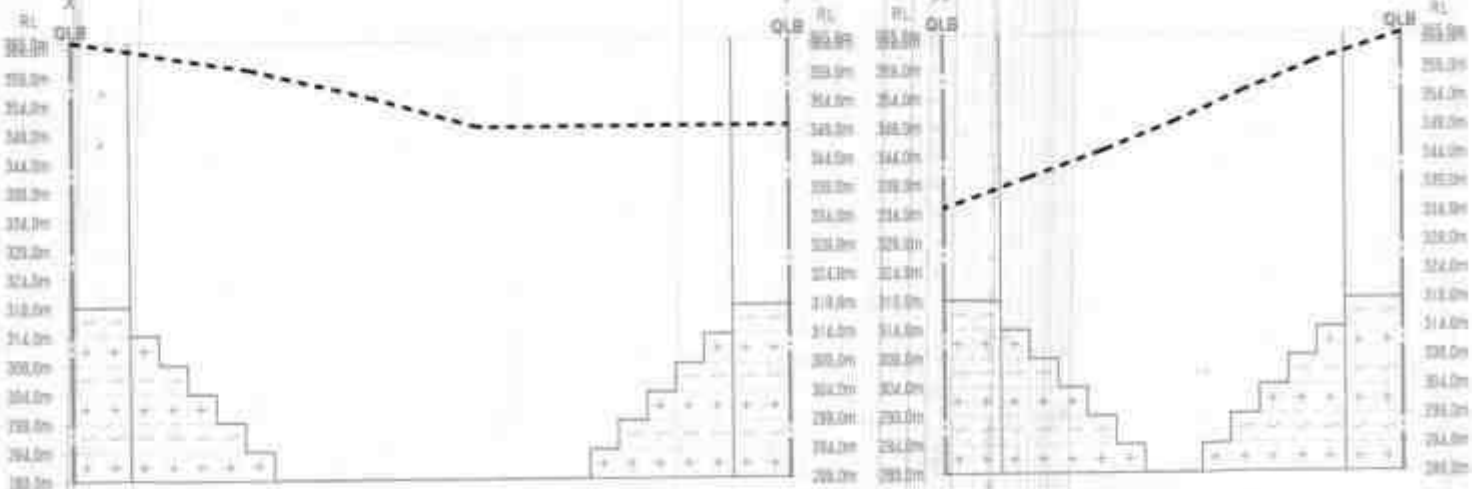
**LOCATION OF QUARRY LEASE APPLIED AREA:**  
 S.F.NO : 1/7(Part-7),  
 EXTENT :1.00.0 Ha.  
 VILLAGE : PANAMARATHUPATTI,  
 TALUK : SALEM,  
 DISTRICT : SALEM,  
 STATE : TAMIL NADU.

**INDEX**

- Q.L. APPLIED AREA BOUNDARY
- 10m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- APPROACH ROAD
- CONTOUR
- STRIKE AND DIP
- TOP SOIL
- ROUGH STONE
- QUARRY PIT
- QUARRY ROAD

**SECTION ALONG X-Y**

**SECTION ALONG A-B**



**CONCEPTUAL PLAN & SECTIONS**  
 SCALE 1 : 1000

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*Alamy m...*  
 QUALIFIED PERSON



# HYDROGEOLOGICAL REPORT FOR PANAMARATHUPATTI

## ROUGH STONE QUARRY

### 1. INTRODUCTION

#### NAME OF THE APPLICANT AND ADDRESS

**Name of the applicant** : **M/s. Royal Stones,**  
**1.Thiru.M.Bharanitharan (Partner)**  
**2.Thiru.P.Dharmalingam (Partner)**

**Address** : 207A, Chinnammal Building,  
No.102-A, Peramanur Main Road,  
Four Roads,  
Salem - 636 007

**State** : Tamilnadu

**Contact Number** : +91 98658 68222 & 99760 88008

#### DETAILS OF THE AREA

**Land Classification** : Government Poramboke Land

**Survey No** : 1/7 (Part-7)

**Extent in Hectares** : 1.00.0Ha

**Village** : Panamarathupatti

**Taluk** : Salem

**District** : Salem

The Client requires detailed information on Ground Water Occurrences at Proposed Project Site of rough stone quarry. The objective of the present study is to assess the availability of groundwater and comment on aspects of depth to potential aquifers, aquifer availability and type, possible yields and water quality. For this purpose all available hydrogeological information of the areas has been analyzed, and a geophysical survey was done.

The investigations involved hydrogeological, geophysical field investigations and a detailed study in which the available relevant geological and hydrogeological data were collected, analyzed, collated and evaluated within the context of the Client's requirements.

The data sources consulted were mainly:

- a) Central Ground Water Board (CGWB) Data
- b) State & District Geological and Hydrogeological Reports and Maps.
- c) Technical reports of the area by various organizations.

## **2. SCOPE OF THE WORKS –**

The scope of works includes:

- Site visits to familiarize with the project areas. Identify any issues that might impact the Ground Water Scenario due to proposed mining activities.
- To obtain, study and synthesize background information including the geology, hydrogeology and existing borehole data, for the purpose of improving the quality of assessment and preparing comprehensive hydrogeological reports,
- To carry out hydrogeological evaluation and geophysical investigations in the selected sites in order to determine potential for groundwater at project site.
- To prepare hydrogeological survey reports in conformity with the provisions of the rules and procedure outlined by the Central Ground Water Board (CGWB), by Assessment of water quality and potential infringement of National standards, Assessment of availability of groundwater and Impact of proposed activity on aquifer, water quality and other abstractors.

## **3. GEOGRAPHICAL INFORMATION**

### **Location**

The investigated site falls in the **Topo sheet No: 58-I/02** Latitude between **11°34'25.18"N to 11°34'29.25"N** and Longitude between **78°09'09.10"E to 78°09'13.95"E** on WGS datum-1984.

## **4. GEOLOGY AND GEOMORPHOLOGY**

### **Regional geology of Salem District**

Salem District is mostly underlain by the archaean crystalline and metamorphic complex. The geology of the district is complicated due to recurring tectonic and magmatic activities occurred during pre-Cambrian period. The famous Sithampoondi complex which is known for its complex geology is situated in this district. Gneisses are the oldest rocks of the district. It is present widely in plains. The gneisses rock formations are highly weathered. The Charnockites are coarse grained and their colour is bluish dark to grey. They are the second largest rock type present in the district. They are massive and less weathered than the gneisses. Iron ore deposits associated with quartz felspathic gneiss and garnetiferous quartz gneisses are present in some areas. These rocks are highly folded and jointed and less weathered.

Calcite quartzites and crystalline limestones are exposed in patches in north and central parts of the district. The thickness of these bands varies from a few meters to ten meters and the length extends to few kilometres. Massive and poorly jointed anorthosites bearing rocks are also found. They are associated with wide range of Chromite, Pyroxenite, Anthophyllite, Diopside, etc. There are number of basic intrusive of Dolerite dykes present in the district.

Granites and Syenites types of rocks are found in some parts of the district. They are massive jointed poorly. Thin veneer of alluvium is found along the course of the Cauvery and Thirumanimuthar. However, alluvium of few meters thickness is found near the junction of river Thirumanimuthar and river Cauvery. Several faults and shears are occurring mostly with north east-south west trend. They are expected to influence the course of groundwater movement, its storage and developmental potentials in the district.

#### **Black Granite and Multi Color Granite**

The Black Granite (Dolerite) is a ferromagnesian mineral bearing rock, due to the presence of high specific gravity mineral in the rock type it has heavy weight and dark coolers. The Multicoloured Granite rocks are mainly available in Paramathi - Velur, Kabilarmalai areas.

#### **Gneisses**

The gneisses are perhaps the oldest rocks (Fundamental gneisses) in the Salem occurring widely in the plains. The general direction of foliation varies from E-W to ENE-SWW with a high magnitude dip towards north or south east. Segregated Quartz-felspathic and mafic layers give rise to banded structure at some places. The Gneisses are highly weathered, Ultramafic and basic rocks parallel to the direction of foliation of the gneisses.

#### **Charnockites**

The Charnockites, Salem area thalamalai coarse-grained and bluish dark to grey in color, have the second largest occupying area. They are exposed in the Shevaroys hills. Some of the Charnockites are garnetiferous and are massive and less weathered than the gneisses.

#### **Dunities and Peridotites**

The rocks appear in the areas of Sithampoondi Villages of Salem, which are known. Charnockites occur as lenses within the ultramafic and hence it can be said that these intrusive are of post Charnockite period. Dunite have undergone enormous mineralogical change, firstly to serpentine and secondly Magnesite, Chalcedony etc. Magnesite occurs in the forms of veins. These ultra-basics cut across the Foliation planes of the gneisses and are highly weathered and talc occurs at many places as economic deposits. The Talc-schist, Felspathic-schist and Hornblende-schist formed by deformation of basic igneous rocks are also seen in a few places.

#### **Pyroxenites**

Pyroxenites occur in rest and south of the Sithampoondi, and also massively and poorly jointed in the Nagarmalai. Pyroxenites patches occur in one most of the place in the Chalk hills. The contact between the Pyroxenites and Peridotites in not clearly identified.

#### **Limestone**

**Crystalline limestone** calc gneiss occurs as an enclave within the hornblende biotite gneiss/ fissile biotite gneiss (Bhabani Gneiss) and pink migmatite in the district. These are small band, lenses, boudinage with strike length of 100m to 2 km and limited width. These are formed from recrystallization of impure limestone-calcareous sediments due to



metamorphism. Many places, crystalline limestones are traversed by later quartz and pegmatite veins. On surface, crystalline limestone-calc gneiss showed ribbed type weathering pattern. Basically, two type limestones are found i.e. Greyish white color limestone and pink color limestone. The greyishwhite limestone found of calcite, quartz, diopside and garnet. Calcite is the dominating mineral, which is completely recrystallized and thus producing a granoblastic texture. Calcite crystals occur as equigranular crystals and euhedral in shape. They show perfect rhombohedral cleavage. The primary assemblages of the grayish-white limestone are calcite + quartz + diopside such mineral assemblages belong to amphibolite to granulite facies of metamorphism.

Similar to the greyish-white limestone, the pink limestone also composed predominantly of calcite. The pink colour is due to presence of about 2% of iron impurities ( $\text{Fe}^{+2}$ ) in the lattice of calcite. A perfect rhombohedral cleavage and symmetrical extinction suggest complete recrystallisation. The grains are anhedral and show granoblastic texture. The quartz in pink limestone is less dominant as compared to the greyish-white limestone. The pyroxenes attached to the rock are present as accessory minerals. The typical pyroxene occurring is diopside, The pyroxenes are exhibiting cataclastic texture. The mineral assemblage of the pink limestone is calcite + quartz + diopside, which also reflects amphibolite to granulite facies of metamorphism.

The calc-gneiss occurs as host rock for the crystalline limestone formation. As observed from the hand specimen, the rock consists of alternating bands of light and dark coloured minerals, thus, showing a typical gneissic structure. The mineral assemblage of the calc-gneiss is quartz, plagioclase, calcite and hornblende along with the clinopyroxenes. The quartz is generally anhedral showing its peculiar wavy extinction. The plagioclase mineral in the rock is bytownite, showing a twin lamellae and the extinction angle of  $29^\circ$ . The mineralogical assemblages of the rock are quartz + plagioclase + hornblende + pyroxene.

### **Magnesite**

Magnesite ( $\text{MgCO}_3$ ) occurs as veins in and as an alteration product of ultramafic rocks, serpentinite, dunite and other magnesium rich rock types, in both contact and regional metamorphic terrains. Magnesite is chiefly used as refractory materials. It is also used as a slag former in steelmaking furnaces, in conjunction with lime, in order to protect the magnesium lining. Magnesite can also be used as a binder in flooring material. It can also be used as a catalyst and filler in the production of synthetic rubber and in the preparation of magnesium chemicals and fertilizers. These rocks are highly weathered and give yellowish colour soil with kankar/calcrete. Magnesite veins are very thin 1-5cm width and irregularly traversed in the host rock. Basically it is a differentiated sequence of Pyroxenite-Dunite-Peridotite.

### **Quartz-Feldspar**

Quartz and feldspar spar are extensively mined for Glass industry, steel industry and Pottery manufacturing. These are occurred as younger intrusive (Vein and reef type) within

host like hornblende biotite gneiss, anorthosite, limestone etc. These veins have more than hundred meters of strike length but limited width. Mineralogically, it composed of Quartz (Smoky, transparent, milky varieties), feldspar (orthoclase, plagioclase) and less mica books. Transparent variety contains more 95% of silica with 1-2% iron hence readily used in glass industry. Pink feldspar (Orthoclase) is its main application being as a constituent of both body and glaze in true porcelain, white ware, and vitrified sanitary ware and of the "slip" (under glaze) and glaze in so-called "porcelain" sanitary ware and enameled brick.

### **GEOMORPHOLOGY**

Salem district forms part of the upland plateau region of Tamil Nadu with many hill ranges, hillocks and undulating terrain with a gentle slope towards east. The prominent geomorphic units identified in the district are 1) Structural hills, 2) Bazada zone, 3) Valley fill, 4) Pediments, 5) Shallow Pediments 6) Deep Pediments. A number of hill ranges are located in the eastern and northeastern parts of the district, whereas the southern, western and northern parts of the district are plain to undulating, dotted with a few isolated hillocks.

### **Soils**

The soils of Salem district can be broadly classified into 5 major soils types viz., Red Soil, Black Soil, Brown soil, Alluvial and Mixed Soil. Major part of the district is covered Red Soil. Block soils are mostly seen in Salem taluk. Brown Soil occupies only a small portion of Tiruchengode taluk and the Alluvial Soil is seen along the river courses in Salem, Paramathi and Tiruchengode taluks. Mixed soil is the second major soil type occurring all the taluks of the districts.

### **5. GEOPHYSICAL INVESTIGATION METHODS**

A variety of methods are available to assist in the assessment of geological sub-surface conditions. The main emphasis of the fieldwork undertaken was to determine the thickness and composition of the sub-surface formations and to identify water-bearing zones. This information was principally obtained in the field using, and vertical electrical soundings (VES). The VES probes the resistivity layering below the site of measurement. This method is described below.

#### **Resistivity Method**

Vertical electrical soundings (VES) were carried out to probe the condition of the sub-surface and to confirm the existence of deep groundwater. The VES investigates the resistivity layering below the site of measurement.

#### **Basic Principles**

The electrical properties of rocks in the upper part of the earth's crust are dependent upon the lithology, porosity, and the degree of pore space saturation and the salinity of the pore water. Saturated rocks have lower resistivity than unsaturated and dry rocks. The higher the porosity of the saturated rock, or the higher the salinity of the saturating fluids, the lower is the resistivity. The presence of clays and conductive minerals also reduces the resistivity of the rock.

The resistivity of earth materials can be studied by measuring the electrical potential distribution produced at the earth's surface by an electric current that is passed through the earth. Current is moved through the subsurface from one current electrode to the other and the potential difference is recorded as the current passes. From this information, resistivity values of various layers are acquired and layer thickness can be identified.

The apparent resistivity values determined are plotted as a log function versus the log of the spacing between the electrodes. These plotted curves identify thickness of layers. If there are multiple layers (more than 2), the acquired data is compared to a master curve to determine layer thickness.

This method is least influenced by lateral in-homogeneities and capable of providing higher depth of investigation.

The resistance R of a certain material is directly proportional to its length L and cross-sectional area A, expressed as:

$$R = R_s * L/A \text{ (in Ohm)}$$

Where  $R_s$  is known as the specific resistivity (characteristic of the material and independent of its shape or size)

With Ohm's Law,

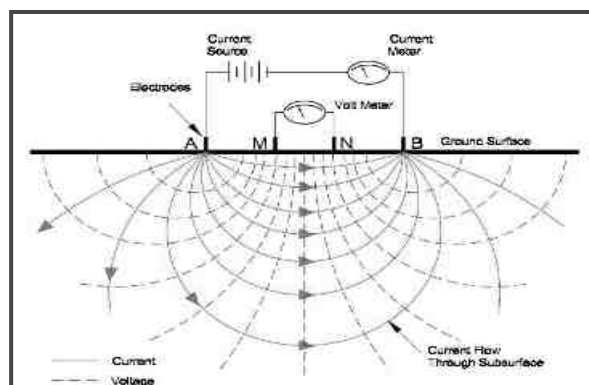
$$R = dV/I \text{ (Ohm)}$$

Where dV is the potential difference across the resistor and I is the electric current through the resistor. The specific resistivity may be determined by:

$$R_s = (A/L) * (dV/I) \text{ (in Ohm m)}$$

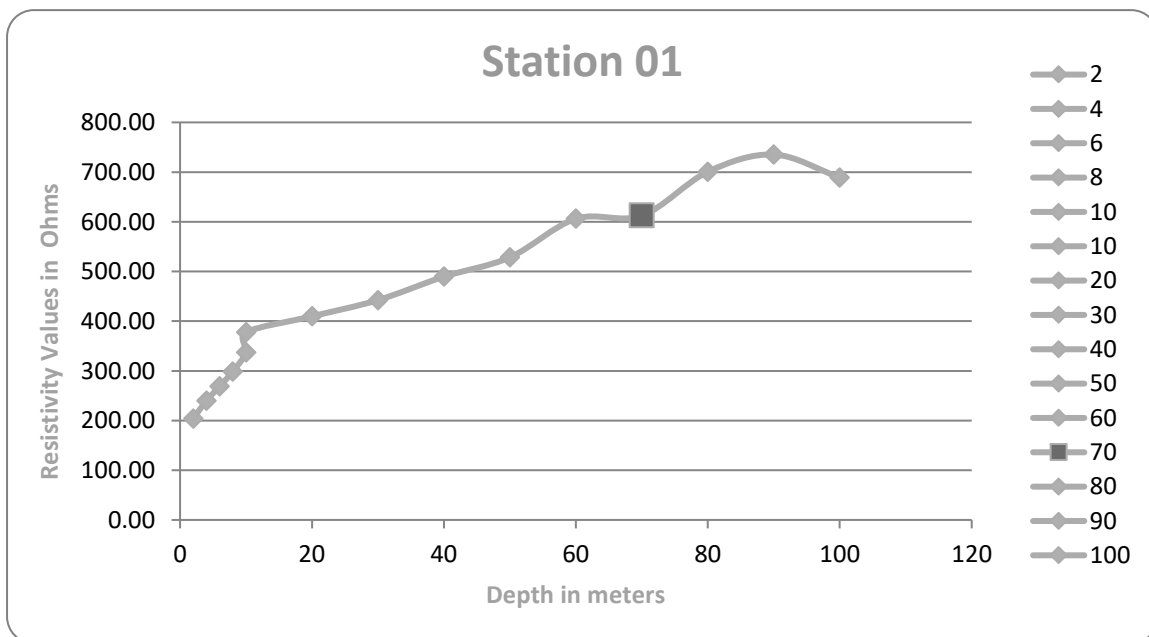
### Vertical Electrical Sounding (VES)

When carrying out a resistivity sounding, current is led into the ground by means of two electrodes. With two other electrodes, situated near the center of the array, the potential field generated by the current is measured. From the observations of the current strength and the potential difference, and taking into account the electrode separations, the ground resistivity can be determined. During a resistivity sounding, the separation between the electrodes is step-wise increased (known as a Schlumberger Array), thus causing the flow of current to penetrate greater depths. When plotting the observed resistivity values against depth on double logarithmic paper, a resistivity graph is formed, which depicts the variation of resistivity with depth. This graph can be interpreted with the aid of a computer, and the actual resistivity layering of the subsoil is obtained. The depths and resistivity values provide the hydro geologist with information on the geological layering and thus the occurrence of groundwater.

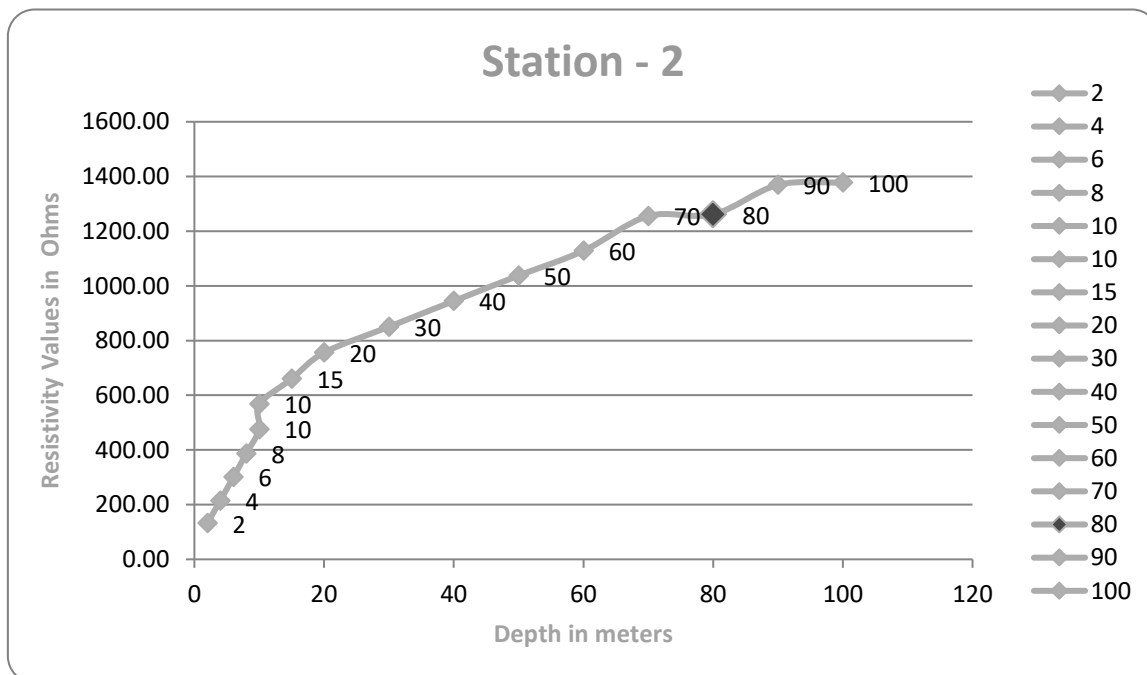


### Geophysical Data and graph Diagram.

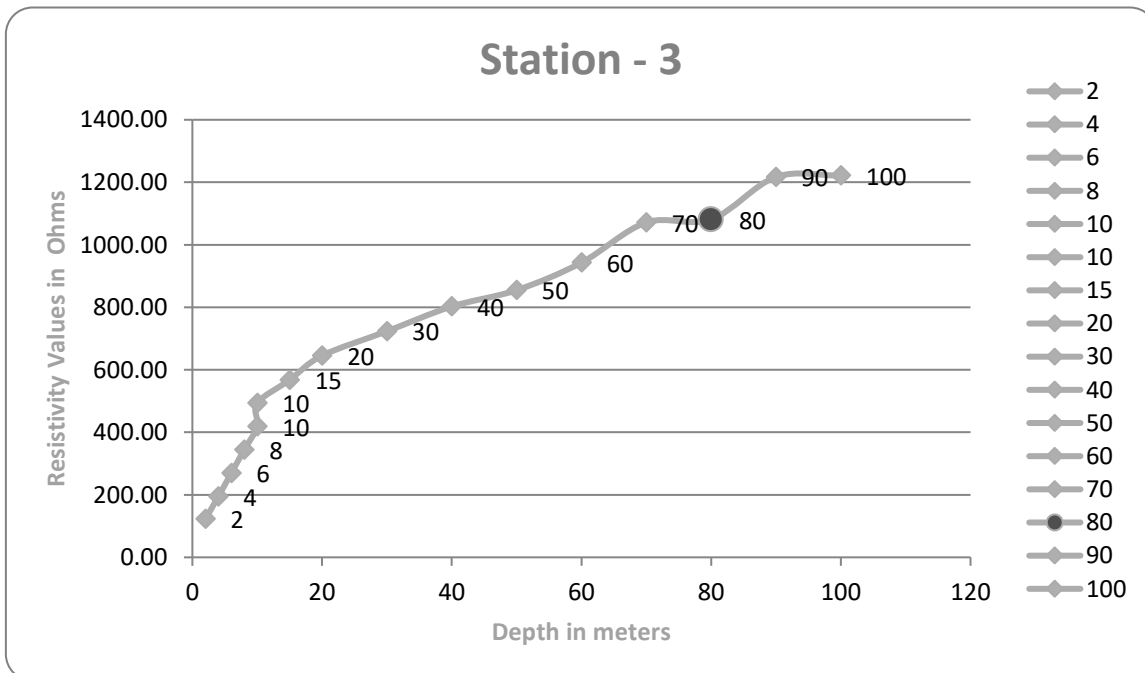
STATION-1					
GPS Coordinates - 11°34'41.51"N 78° 9'32.33"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical factor (G)	Resistance Value in Ohms	Apparent Resistance in Ohms
1	2	1	4.71	26.00	122.46
2	4	1	23.55	8.18	192.64
3	6	1	54.95	4.86	267.06
4	8	1	98.91	3.46	342.23
5	10	1	155.45	2.71	421.27
6	10	5	23.55	21.31	501.85
7	15	5	62.80	9.27	582.16
8	20	5	117.75	5.63	662.93
9	30	5	274.75	2.74	752.82
10	40	5	494.55	1.70	840.74
11	50	5	777.15	1.20	932.58
12	60	5	1122.55	0.92	1027.13
13	70	5	1530.75	0.74	1132.76
14	80	5	2001.75	0.58	1161.02
15	90	5	2535.55	0.50	1267.78
16	100	5	3132.15	0.44	1378.15



STATION-2					
GPS Coordinates - 11°34'38.32"N 78° 9'32.42"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical factor (G)	Resistance Value in Ohms	Apparent Resistance in Ohms
1	2	1	4.71	28.00	131.88
2	4	1	23.55	9.12	214.78
3	6	1	54.95	5.47	300.30
4	8	1	98.91	3.91	386.74
5	10	1	155.45	3.06	475.68
6	10	5	23.55	24.09	567.32
7	15	5	62.80	10.51	660.03
8	20	5	117.75	6.42	755.96
9	30	5	274.75	3.10	850.35
10	40	5	494.55	1.91	944.59
11	50	5	777.15	1.34	1037.50
12	60	5	1122.55	1.01	1128.16
13	70	5	1530.75	0.82	1255.22
14	80	5	2001.75	0.63	1261.10
15	90	5	2535.55	0.54	1369.20
16	100	5	3132.15	0.44	1378.15



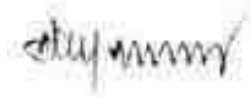
STATION-3					
GPS Coordinates - 11°34'35.06"N 78° 9'32.52"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical factor (G)	Resistance Value in Ohms	Apparent Resistance in Ohms
1	2	1	4.71	26.00	122.46
2	4	1	23.55	8.25	194.29
3	6	1	54.95	4.91	269.80
4	8	1	98.91	3.48	344.21
5	10	1	155.45	2.70	418.94
6	10	5	23.55	20.95	493.37
7	15	5	62.80	9.04	567.71
8	20	5	117.75	5.48	645.27
9	30	5	274.75	2.63	723.42
10	40	5	494.55	1.62	802.65
11	50	5	777.15	1.10	854.87
12	60	5	1122.55	0.84	942.94
13	70	5	1530.75	0.70	1071.53
14	80	5	2001.75	0.54	1080.95
15	90	5	2535.55	0.48	1217.06
16	100	5	3132.15	0.39	1221.54



## 5. CONCLUSION –

Based on the available information and the geophysical investigations it is concluded that the project area is considered to have medium groundwater potential. Productive aquifers are expected at depth of 75m to 80m where minor fractures are observed and shallow aquifers are expected above 65m-70m BGL. The ultimate pit limit as per the approved mining plan depth is **76m [46m AGL + 30m BGL]** which will have no impact on the Ground Water.

Prepared By



**Dr. P. Thangaraju, M.Sc., Ph.D.,**

Govt. Approved Hydro Geologist

M/s. Geo Exploration and Mining Solutions,

Regd. Office: No. 17, Advaita Ashram Road,

Alagapuram, Salem – 636 004, Tamil Nadu

Mobile: +91 - 94433 56539

E-Mail: [infogeoexploration@gmail.com](mailto:infogeoexploration@gmail.com)



VG. VISSHWANATHAN



# VISHNU EXPLOSIVES

Blasting Contractor

Cell : 98427 44073



Office : Flat No. 55, R.G. Avenue, Engineer's Colony Extension, Jagir Reddipatti, SALEM - 636 302.  
Ph : 0427 - 2341788, Cell : 9443744073

Date 17.08.2020

*Ref:* To

M/s. Royal Stones,  
207 A Chinnammal Building,  
No.102-A,Peramanur Main Road,  
Four Roads, Salem-636007,  
Tamilnadu.

Respected Sir,

**Sub:** Regarding supply of explosives in your proposed quarry site -Reg.

.....  
Sir, we are having explosives license in Form 22 Holding No.E/SC/TN/22/521 (E49472)SF No. 138/1, Kolathur Village, Mettur Taluk, Salem District, TamilNadu, Our Office functioning at address: No. 55, RG Avenue, Engineers Colony Extension, Jagirreddipatti, Salem District, TamilNadu-635302.

We are enacting our own explosives van for transporting explosives from magazine to your site. We are supplying Explosives as per the requirement of explosives placed by the Mining Personnel appointed by the Mine Owner depends on holes drilled at your Rough stone quarry at Sf. No. 1/7(Part-7), Extent in 1.00.0 hectares, Panamarathupatti Village, Salem District, Tamilnadu .After Completion of blasting operations, left out or unused explosives will be returned to the magazine on the same day, from where the supply was effected.  
Assuring you best of our Services and thanking you,

For VISHNU EXPLOSIVES.  
For VISHNU EXPLOSIVES

PROPRIETOR

Enclosure: Magazine License Copy.



## अनुज्ञप्ति प्ररूप एल.ई.-3 | LICENCE FORM LE-3

(विस्फोटक नियम, 2008 की अनुसूची 4 के भाग 1 के अनुच्छेद 3(क) से (घ) देखिए।)  
(See article 3(a) to (d) of Part 1 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 मींगजीन में वर्ग 6 के विस्फोटक रखने के लिए अनुज्ञप्ति  
Licence to possess - (c) for use, explosives of class 1, 2,3,4,5,6 or 7 in a mine/mine.अनुज्ञप्ति सं. (Licence No.) : E/SC/TN/22/521(E49472)  
वार्षिक फीस रूपर (Annual Fee Rs): 5400/-

1. Licence is hereby granted to

M/s. Vishnu Explosives, Prop. V.G. Vishwanathan (अधिभोगी / Occupier : Shri V.G. Vishwanathan), (Formerly G. Viswanathan) 55, R.G. Avenue, Engineers Colony Extension Jagir Reddipatty, Salem Dist. state : Tamilnadu. -636302., Town/Village - Kolathur, District-SALEM, State-Tamil Nadu, Pincode - 636302

को अनुज्ञप्ति अनुदत्त की जाती है।

2. अनुज्ञप्तिधारी की प्रास्थिति / Status of licensee : Individual

3. अनुज्ञप्ति निम्नलिखित प्रयोजनों के लिए विधिमाम्य है।  
Licence is valid only for the following purpose. : possess for use of Nitrate mixture - Slurry and Emulsion Explosives, Safety Fuse, Detonating Fuse, Detonators, - के उपयोग के लिए4. अनुज्ञप्ति विस्फोटकों के निम्नलिखित किस्मों, 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 - Slurry and Emulsion Explosives	2,0	0	1000 Kg.
2.	Safety Fuse	6,1	0	10000 Mtrs
3.	Detonating Fuse	6,2	0	30000 Mtrs
4.	Detonators	6,3	0	30000 Nos.

(ख) किसी एक कैलेंडर मंसा में खरीदे जाने वाले विस्फोटक की मात्रा [अनुच्छेद 3(ख) और (ग) के अधीन अनुज्ञप्ति के लिए] 20 times as above.

(b) Quantity of explosives to be purchased in a calendar month [applicable for licensee under article 3(b) and (c)].

5. निम्नलिखित रेखाचित्र (रेखाचित्रों) से अनुज्ञप्त परिसर की पुष्टि होती है।  
The licensed premises shall conform to the following drawing(s): रेखाचित्र क्र. (Drawing No.) E/SC/TN/22/521(E49472)  
दिनांक (Dated) 27/04/2009

6. अनुज्ञप्ति परिसर निम्नलिखित पते पर स्थित है। The licensed premises are situated at following address:

Survey No(s). 138/1. ग्राम (Town/Village) : Kolathur Village, Mettur Taluk, Dist. पुलिस थाना (Police Station) : Kolathur  
जिला (District) SALEM राज्य (State) Tamil Nadu पिनकोड (Pincode) 636303  
दूरभाष (Phone) 04272341788 ई.मेल (E-Mail) फैक्स (Fax) 98427440737. अनुज्ञप्ति परिसर में निम्नलिखित सुविधाएं अंतर्विष्ट हैं।  
The licensed premises consist of following facilities. one Room for High Explosives, Lobby and one Room for Detonators and watchman shed.8. अनुज्ञप्ति समय - समय पर ब्यासशोधित 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 से 5 में यथा कथित रेखाचित्र (स्थान, सज्जिमाण संबंधी और अन्य विवरण दर्शित करते हुए)।  
(Drawings showing site, constructional and other details) as stated in serial No. 5 above.
- अनुज्ञप्ति प्राधिकारी द्वारा हस्ताक्षरित इस अनुज्ञप्ति 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 अनुज्ञप्ति तारीख 31 मार्च 2014 तक विधिमाम्य रहेगी। This licence shall remain valid till 31st day of March 2014.

यह अनुज्ञप्ति अधिनियम या उसके अधीन विरचित नियमों या अनुसूची V के भाग 4 के प्रति निदिष्ट सेट-VII के अधीन तथा उपरोक्त इस अनुज्ञप्ति की शर्तों का अधिकरण करने या यदि अनुज्ञप्त परिसर योजना या उससे संलग्न उपबंध में दर्शित विवरण के अनुरूप नहीं पाए जाने पर निलंबित या प्रतिसंहत की जा सकती है, जहां वह 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 - 27/04/2019

संयुक्त मुख्य विस्फोटक नियंत्रक | Joint Chief Controller of Explosives  
South Circle, Chennai

**Amendments :**

- Change in Authorized Signatory/Occupier/Partners/Directors dated : 14/06/2011
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 05/09/2011
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 14/08/2012

नवीनीकरण के पृष्ठांकन के लिए स्थान  
Space for Endorsement of Renewal

नवीनीकरण की तारीख Date of Renewal	समाप्ति की तारीख Date of Expiry	अनुमोदन प्राधिकारी के हस्ताक्षर और स्टाम्प Signature of licensing authority and stamp
15/03/2019	31/03/2024	<p>Controller of Explosives, Vellore</p> <p>विस्फोटक नियंत्रक, वेल्लूर Controller of Explosives, Vellore</p>

**कानूनी चेतावनी :** विस्फोटकों को गलत ढंग से चलाने या उनका दुरुपयोग विधि के अधीन गंभीर दंडित अपराध होगा।  
**Statutory Warning :** Mishandling and misuse of explosives shall constitute serious criminal offence under the law.

இணைப்பு

தேர்தல் கமிஷன், தேர்தல் கமிஷன்,  
கனடா கமிஷன் கமிஷன், திண்டுக்கல் 1/7 - ன்  
48. தேர்தல். 76.34.5 திண்டுக்கல் கமிஷன் கமிஷன்  
தேர்தல் கமிஷன் கமிஷன் கமிஷன் கமிஷன்  
300 தேர்தல் கமிஷன் கமிஷன் கமிஷன், கமிஷன்,  
கமிஷன் கமிஷன் கமிஷன் கமிஷன் கமிஷன்  
தேர்தல் கமிஷன் கமிஷன் கமிஷன் கமிஷன்

R. J. J.  
14/08/2020  
தேர்தல் கமிஷன் கமிஷன் கமிஷன்  
49. கமிஷன் கமிஷன் கமிஷன்  
கமிஷன் கமிஷன் கமிஷன்

**TOPOGRAPHICAL VIEW OF PANAMARATHUPATTI ROUGH STONE  
QUARRY LEASE APPLIED AREA**

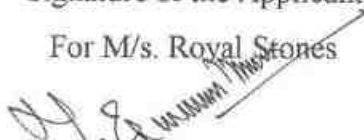


Name of the Applicant : **M/s. Royal Stones,**  
207A, Chinnammal Building,  
No. 102-A, Peramanur Main Road,  
Four Roads, Salem District,  
Tamil Nadu State – 636 007.

**Location:**

S.F.No. : 1/7 (Part-7)  
Extent : 1.00.0 Ha  
Village : Panamarathupatti  
Taluk : Salem  
District : Salem

Signature of the Applicant  
For M/s. Royal Stones

  
M. Bharanitharan (Partner)

  
(Village Administration Officer)  
**49 பனாமரத்துப்பட்டி**  
Attestation  
**சேலம் வட்டம்**

174



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

**STATE LEVEL ENVIRONMENT IMPACT  
ASSESSMENT AUTHORITY-TAMILNADU**

3<sup>rd</sup> 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.9500/SEAC/ToR-1308/2022 Dated: 07.12.2022**

**To**

Thiru. P. Sivakumar,  
S/o. S. Panneerselvam,  
No. 268/8, 2nd Cross Street,  
Kattur, Alagapuram,  
Salem District - 636 016.

**Sir / Madam,**

**Sub:** SEIAA, Tamil Nadu – Terms of Reference with Public Hearing (ToR) for the Proposed Rough Stone quarry lease over an extent of 1.00.0 Ha at S.F.No. 1/7 (Part-11) of Panamarathupatti Village, Salem Taluk, Salem District, Tamil Nadu by Thiru. P. Sivakumar - 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/401236/2022, dated 27.09.2022.
  2. Your application submitted for Terms of Reference dated: 12.10.2022.
  3. Minutes of the 331<sup>st</sup> SEAC meeting held on 24.11.2022.
  4. Minutes of the 576<sup>th</sup> SEIAA meeting held on 07.12.2022.

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

The proponent, Thiru. P. Sivakumar has submitted application for Terms of Reference (ToR) on 12.10.2022, in Form-I, Pre- Feasibility report for the Proposed Rough Stone quarry lease over an

  
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SEIAA-TN**

extent of 1.00.0 Ha at S.F.No. 1/7 (Part-11) of Panamarathupatti Village, Salem Taluk, Salem District, Tamil Nadu.

**Discussion by SEAC and the Remarks:-**

**Proposed Rough Stone Quarry and gravel quarry lease over an extent 1.00.0 Ha at S.F.No.1/7 (part-11), Panamarathupatti Village, Salem Taluk, Salem District, Tamil Nadu by Thiru. P Sivakumar - For Terms of Reference.**

The proposal was placed in 331<sup>st</sup> meeting of SEAC held on 24.11.2022. The details of the project are available in the website (parivesh.nic.in).

**The SEAC noted the following:**

1. The project proponent, Thiru. P Sivakumar has applied for Terms of Reference for the proposed Rough stone & gravel quarry lease over an extent 1.00.0 Ha at S.F.No.1/7 (part-11), Panamarathupatti Village, Salem Taluk, Salem District, Tamil Nadu.
2. The project/activity is covered under Category "B1" of Item 1(a) "Mining of Minerals Projects" of the Schedule to the EIA Notification, 2006.
3. As per the mining plan, the lease period is for 10 years. The mining plan is prepared for the lease period but the 'Production & Development Plan' has been prepared for 5 years not to exceed **189025 cu.m of rough stone** with an ultimate depth of 66m (46m AGL+ 20m 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 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, places of worship, industries, factories, sheds, etc.
2. The Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry indicating the mitigating measures to be adopted while working in the hilly terrain during the EIA appraisal, as the depth of the proposed working is extended beyond 30 m above ground level and also extends below ground level.
3. 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.

  
**MEMBER SECRETARY  
SEIAA-TN**



4. 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 20 m from the blast site.
5. 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.
6. 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.
  - h. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
7. 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).
8. The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc. and it shall be furnished during the EIA appraisal,
9. 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.
10. The proponent shall take 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 and it shall be furnished

  
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during the EIA appraisal.

11. 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.
12. 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.
13. 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.
14. 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.
15. 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.
16. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
17. 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.
18. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine

  
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- lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.
19. 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.
  20. 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.
  21. Impact on local transport infrastructure due to the Project should be indicated.
  22. 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.
  23. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
  24. 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.
  25. The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.
  26. The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.
  27. 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.
  28. 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.

  
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- 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.
29. 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
  30. 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.
  31. 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.
  32. 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.
  33. 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.
  34. 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.
  35. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
  36. 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.
  37. 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.
  38. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit

  
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stating to abide the EMP for the entire life of mine.

39. 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.

**Discussion by SEIAA and the Remarks:-**

The proposal was placed in the 576<sup>th</sup> Authority meeting held on 07.12.2022. SEAC has furnished its recommendations to the Authority for **granting Terms of Reference to the Project** subject to the conditions stated therein. After detailed discussion, SEIAA decided to grant **Terms of Reference to the Project** for the quantity as per the mine plan for a period of 5 years approved by the Department of Geology & Mining subject to the conditions as recommended by SEAC in addition to the following conditions.

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

  
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10. 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 & bio-diversity.
  - 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.
11. The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.
12. The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.
13. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.
14. 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.
15. Impact on surrounding agricultural fields around the proposed mining Area.
16. Erosion Control measures.
17. Impact on soil flora & vegetation around the project site.
18. 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.
19. 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.
20. 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.

  
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21. 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.
22. 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.
23. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.
24. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.
25. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
26. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.
27. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.
28. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.
29. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.
30. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.
31. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.
32. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.
33. The project proponent shall study and furnish the details on potential fragmentation impact of natural environment, by the activities.
34. 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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35. 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.
36. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.
37. 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.
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.
39. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.
40. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.
41. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.

#### **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.

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

  
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Impact, if any, of change of land use should be given.

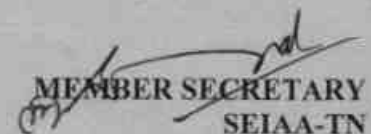
- 11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
- 12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement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

  
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Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.

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

  
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quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.

- 24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
- 25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
- 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
- 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
- 28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.
- 29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
- 30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
- 31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have


  
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- greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
- 32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
  - 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
  - 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
  - 35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
  - 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
  - 37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
  - 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
  - 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
  - 40) Details of litigation pending against the project, if any, with direction /order passed by any

  
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Court of Law against the Project should be given.

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

  
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main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

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

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

1. Project name and location (Village, District, State, Industrial Estate (if applicable)).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.
7. Details of village map, "A" register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be submitted along with EIA report.
9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.
10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./

  
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private land, status of its acquisition, nearby (in 2-3 km.) water body, population, within 10km other industries, forest, eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)

18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population
21. Emergency preparedness plan in case of natural or in plant emergencies
22. Issues raised during public hearing (if applicable) and response given
23. CER plan with proposed expenditure.
24. Occupational Health Measures
25. Post project monitoring plan
26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.
27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.
29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
30. Reserve funds should be earmarked for proper closure plan.
31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC.2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.

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

- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.

  
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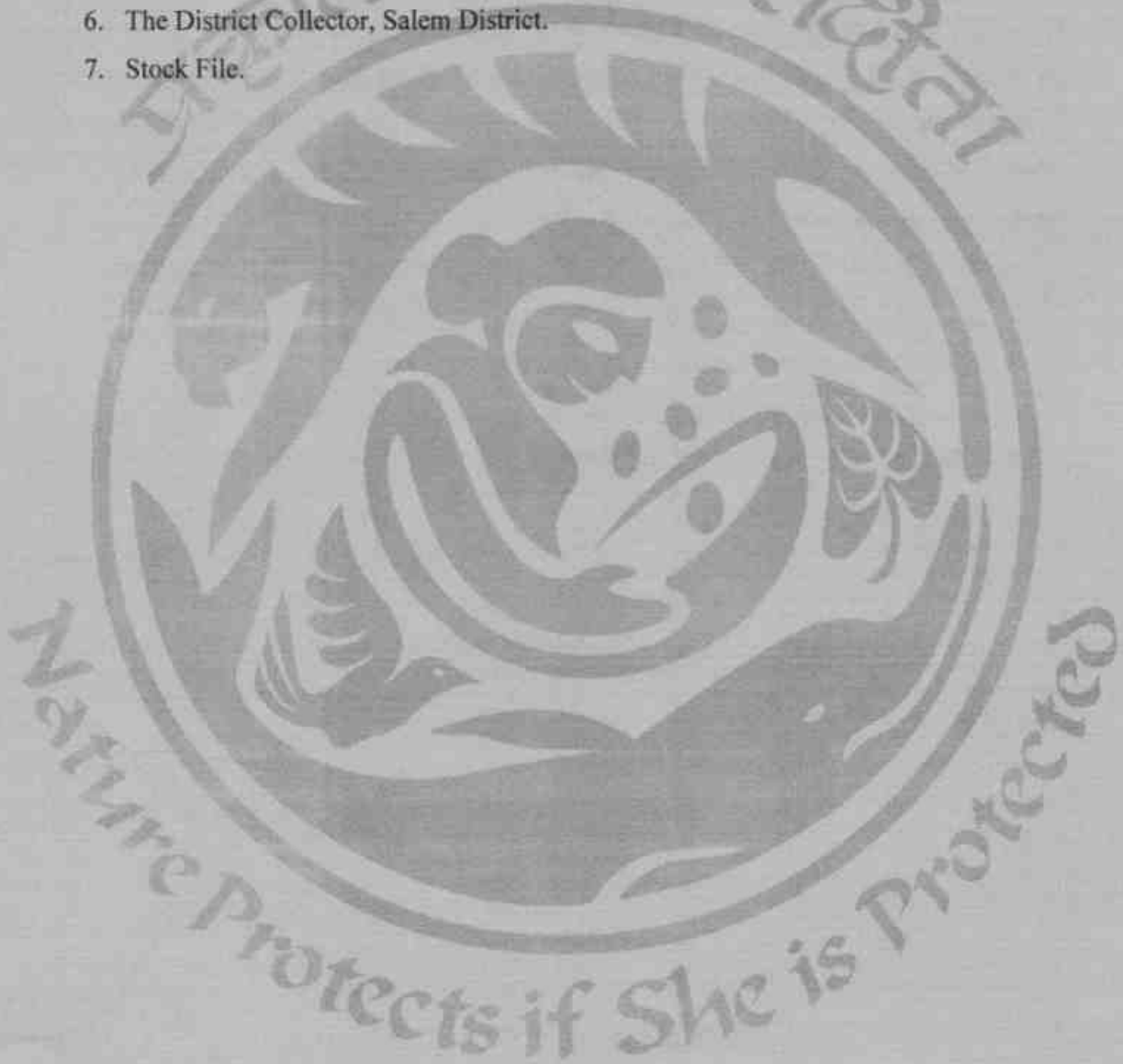
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
- d. While preparing the EIA report, the instructions 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 2<sup>nd</sup> December, 2009, 18<sup>th</sup> March 2010, 28<sup>th</sup> May 2010, 28<sup>th</sup> June 2010, 31<sup>st</sup> December 2010 & 30<sup>th</sup> September 2011 posted on the Ministry's website <http://www.moef.nic.in/> may be referred.
- After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above mentioned points, the proponent will take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.
  - The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance.
  - The TORs with public hearing prescribed shall be **valid for a period of three years** from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29<sup>th</sup> August, 2017.

  
MEMBER SECRETARY  
SEIAA-TN

**Copy to:**

1. The Additional Chief Secretary to Government, Environment & Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9.
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.

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, 1<sup>st</sup> & 2<sup>nd</sup> Floor, Cathedral Garden Road, Nungambakkam, Chennai - 34.
5. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC, Paryavaran Bhavan, CGO Complex, New Delhi - 110 003.
6. The District Collector, Salem District.
7. Stock File.





From

Thiru.A.Balamurugan.,M.Sc.,M.B.A.,  
Assistant Geologist/  
Assistant Director (I/c),  
Dept. of Geology and Mining,  
Collectorate,  
Salem -636 001.

To

The Chairman,  
Tamil Nadu State Environment  
Impact Assessment Authority,  
3<sup>rd</sup> Floor, Panakal Maligai,  
No. 1 Jeenes Road,  
Saidapet,  
Chennai-600 015.

Roc.180/2020/Mines-A dated 05-02-2021.

Sir.,

Sub: Mines and quarries – Minor minerals – Roughstone -  
Salem District and Taluk – Panamarathupatty Village -  
S.F.No.1/7 (Part-11) over an extent of 1.00.0 Hects. of  
Govt. Poramboke lands – Roughstone quarry/ Jelly  
permission requested by Thiru.P.Sivakumar, Salem –  
Existing/abandoned/ proposed quarries situated within  
500M radial distance- Requested by the applicant –  
Details furnished – Reg.

- Ref: 1. Salem District Extra Ordinary Gazette No.03 dated  
22.01.2020.  
2. Advertisement in Dinamani Tamil New Paper dated  
31.01.2020.  
3. This office even Memo letter No. dated. 22.06.2020.  
4. Thiru.P.Sivakumar S/o.S. Paneerselvam, Salem  
application dated 28.12.2020.  
5. This office even Memo letter No. dated. 20.01.2021.  
6. Thiru.P.Sivakumar S/o.S. Paneerselvam, Salem  
application dated 01.02.2021.

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As per rule 8(1)(a) of Tamil Nadu Minor Mineral Concession Rules  
1959, notification for Tender-Cum-Auction was published in the Salem  
District Gazette Extra Ordinary Issue No.03 dated 22-01-2020. The rough  
stone quarry (Sl.No.5 situated in S.F.No. 1/7 (Part-11) over an extent of  
1.00.0 hectares) in Government Poramboke land, Panamarathupatty  
Village, Salem Taluk and District is among them. The tender-cum-auction  
was conducted on 06-02-2020.

2. An amount of Rs.30,40,000/-(Rupees Thirty lakhs and Fourty  
thousand only) quoted by Thiru.P.Sivakumar is the highest lease amount  
for the said quarry.

3. In this connection, in the reference 3<sup>rd</sup> cited, Thiru.P.Sivakumar was directed to produce the mining plan for approval and to obtain environmental clearance from the competent authority for an extent of 1.00.0 hectares. of Govt. Poramboke land in S.F.No. 1/7 (Part-11) of Panamarathupatty Village, Salem Tauk and District for a period of ten years for Roughstone-jelly.

4. In this meantime the applicant, Thiru.P.Sivakumar has requested the Assistant Director of Geology and Mining, Salem to furnish the list of quarries located within 500 Mt radius from the subject land.

5. In this regard, it is informed that the following proposed quarries are situated within 500 Mt radial distance from the periphery of this quarry.

**i) Details of Existing quarries**

Sl. No	Name of the lessee	Village	S.F. No	Extent in Hects.	G.O. No.& Dated	Lease period	Status of the quarry
1.	Thiru. Arjunan S/o Kuppusamy	Panamarathupatty	1/7 (P-9)	4.90.0	Collector's Proceedings Roc.70/2018/ Mines-A/ dated 21.10.2018.	21.10. 2018 to 20.10.2028	EC obtained. Working
			Total	4.90.0			

**ii) Details of Abandoned quarries**

Sl. No	Name of the lessee	Village	S.F.No	Extent in Hects.	G.O. No.& Dated	Lease period	Status of the quarry
1.	Thiru.M.Gopi, S/o.K.Manickam, 9/145, Erumapalayam Main Road, Seelanaickenpatty Post, Salem-201	Panamarathu patty	1/7 (Part-1)	0.81.0	Collector's Proceedings Roc.211/2012 Mines-A/ dated 05.4.2012.	23.4.2012 To 22.4.2017	Non- Working
2.	Thiru.S.Karthikeyan S/o.Subramaniagounde r, 2/169, Santhiyur, Parapatti Post, Mallur Via, Salem	Panamarathu patty	1/7 (Part-3)	1.00.0	Collector's Proceedings Roc.212/2012 Mines-A/ dated 05.4.2012.	23.4.2012 To 22.4.2017	Non- Working
3	Thiru.K.Devaraj S/o.T.Kathavarayan, 1/41,.Arumuga pillaiyar koll street, Gugai, Salem	Panamarathu patty	1/7 (Part-4)	0.81.0	Collector's Proceedings Roc.113/2011 Mines-A/ dated 01.3.2011.	5.05.2011 to 4.05.2016	Non- Working
4	Thiru.J.Mallika W/o.R.Jayavel Vattakadu, Karuppur Via, Omalur Taluk.	Panamarathu patty	1/7 (Part-5)	1.00.0	Collector's Proceedings Roc.213/2012 Mines-A/ dated 05.4.2012.	23.4.2012 To 22.4.2017	Non- Working
			Total	3.18.0			

## iii) Details of lease period expired quarries

Sl. No	Name of the lessee	Village	S.F.No	Extent in Hects.	G.O. No.& Dated	Lease period	Status of the quarry

## iv) Details of Proposed quarries

Sl. No	Name of the lessee	Village	S.F.No	Extent in Hects.	G.O. No.& Dated	Lease period	Remarks
1.	M/s. Royal stones	Panamarathupatty	1/7 (Part-7)	1.00.0	-	-	Mining Plan approved, awaiting for EC
2	Thiru.P.Siva kumar	Panamarathupatty	1/7 (Part-11)	1.00.0	-	-	Mining Plan approved, awaiting for EC
			Total	2.00.0			

*[Signature]*  
5/2/2021  
Assistant Geologist/  
Assistant Director (I/c),  
Dept. of Geology and Mining,  
Salem.

*[Signature]*  
5/2/2021

From

Thiru.A.Balamurugan.,M.Sc.,M.B.A.,  
Assistant Geologist/  
Assistant Director (I/c),  
Dept. of Geology and Mining,  
Collectorate,  
Salem -636 001.

To

Thiru.P.Sivakumar,  
S/o.P.Paneerselvam,  
No.268/8, 2<sup>nd</sup> Cross street,  
Kattur, Alagapuram,  
Salem-636 016.

Roc.180/2020/Mines-A dated 20-01-2021.

Sir.,

Sub: Mines and quarries – Minor minerals – Roughstone -  
Salem District and Taluk – Panamarathupatty Village  
– S.F.No.1/7 (Part-11) over an extent of 1.00.0 Hects.  
of Govt. Poramboke lands – Roughstone quarry / Jelly  
permission requested by Thiru.P.Sivakumar, Salem –  
Mining plan submitted for obtaining Environment  
Clearance - Mining plan approved – Reg.

- Ref: 1. Salem District Extra Ordinary Gazette No.03 dated  
22.01.2020.  
2. Advertisement in Dinamani Tamil New Paper  
dated 31.01.2020.  
3. This office even Memo letter No. dated  
22.06.2020.  
4. Thiru.P.Sivakumar S/o.S. Paneerselvam, Salem  
application dated 28.12.2020.

-----

As per rule 8(1)(a) of Tamil Nadu Minor Mineral Concession Rules  
1959, notification for Tender-Cum-Auction was published in the Salem  
District Gazette Extra Ordinary Issue No.03 dated 22-01-2020. The rough  
stone quarry (Sl.No.5 situated in S.F.No. 1/7 (Part-11) over an extent of  
1.00.0 hectares) in Government Poramboke land, Panamarathupatty  
Village, Salem Tauk and District is among them. The tender-cum-auction  
was conducted on 06-02-2020.

An amount of Rs.30,40,000/-(Rupees Thirty lakhs and Fourty  
thousand only) quoted by Thiru.P.Sivakumar, Salem is the highest lease  
amount for the said quarry. The above lease amount quoted is over and  
above the reasonable lease amount fixed for the said quarry.

The reasonable lease amount fixed was Rs.24,50,000/- (Rupees twenty four lakhs fifty thousand only) by the District Collector, Salem. The lease amount Rs.30,00,000/-(Rupees thirty lakhs only) had been remitted into Government Account.

In this connection, in the reference 3<sup>rd</sup> cited, Thiru.S.Dhanapal, Salem was directed to produce the mining plan for approval and to obtain environmental clearance from competent authority for an extent of 1.00.0 Hects. of Govt. Poramboke land in S.F.No.1/7 (Part-11) of Panamarathupatty Village, Salem Tauk and District for a period of ten years for Roughstone-jelly.

In the reference 4<sup>th</sup> cited, Thiru.P.Sivakumar, Salem had submitted three copies of Mining plan, prepared by Thiru.P. Thangaraju, M.Sc., Ph.D., Reg.No.17, Advaita Ashram road, Alagapuram, Salem-636 004.

The Mining Plan submitted by Thiru.P.Sivakumar, Salem has been scrutinized as per the guidelines issued by the Commissioner of Geology and Mining, Chennai in his letter Rc.No. 3868/LC/2012 dated 19-11-2012 and based on the reports and records and accordingly as authorized by the Commissioner of Geology and Mining, Chennai in his letter dated 19.11.2012, I hereby approve the above said mining plan.

This approval is subject to the following conditions:-

(i) That the mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such Laws are made by the Central Government, State Government or any other authority.


(ii) This approval of the mining plan does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Development and Regulation) Act, 1957, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Indian explosives act, 1884 (Central Act IV of 1884) and the Rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.

(iii) That the mining plan is approved without prejudice to any other order or direction from any court of contempt jurisdiction.

(iv) Quarrying should be done as per the approved mining plan and that the mining is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.

Thiru.P.Sivakumar, Salem is directed to produce Environmental Clearance from the competent authority for the above applied area as per rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959.

Encl: 2 Copies of Approved Mining Plan.

  
Assistant Geologist /  
Assistant Director (I/c),  
Dept. of Geology and Mining,  
Salem.

  
20/1/21

Copy submitted to the Director of Geology and Mining, Guindy, Chennai-32.



# MINING PLAN ALONG WITH PROGRESSIVE QUARRY CLOSURE PLAN FOR PANAMARATHUPATTI ROUGH STONE QUARRY

(PREPARED UNDER RULES 41 & 42 AS PER THE AMENDED UNDER TAMIL NADU MINOR MINERAL  
CONCESSION RULES, 1959)

Government Land

Lease period = Ten years

Mining plan period = First Five years

IN

## LOCATION OF THE QUARRY LEASE APPLIED AREA

EXTENT	:	1.00.0Ha
S.F.No.	:	1/7 (PART-11)
VILLAGE	:	PANAMARATHUPATTI
TALUK	:	SALEM
DISTRICT	:	SALEM
STATE	:	TAMIL NADU

FOR

### APPLICANT

**THIRU.P.SIVAKUMAR,**

S/o.S.Panneerselvam,

No.268/8, 2<sup>nd</sup> Cross Street,

Kattur, Alagapuram,

Salem District-636 016.

### PREPARED BY

**Dr. P. THANGARAJU, M.Sc., Ph.D.,**

Qualified Person

No.17, Advaita Ashram Road,

Alagapuram, Salem-636 004.

Cell: 94422 78601 & 94433 56539.

E-Mail: mfogeoexploration@gmail.com



**P.Sivakumar,**  
S/o. S.Panneerselvam,  
No.268/8, 2<sup>nd</sup> Cross Street,  
Kattur, Alagapuram,  
Salem District – 636 016.

**CONSENT LETTER FROM THE APPLICANT**

The Mining Plan and Progressive Quarry Closure Plan in respect of Panamarathupatti Rough stone Quarry lease applied area over an extent of 1.00.0 Ha of Government land in S.F.No. 1/7 (Part-11) of Panamarathupatti Village, Salem Taluk, Salem District, Tamil Nadu State has been prepared by


**Dr.P.Thangaraju, M.Sc., Ph.D.,**  
Qualified Person

I request the District Collector, Salem to make further correspondence regarding the modification of the Mining Plan with the said Qualified Person at his following address.

**Dr.P.Thangaraju, M.Sc., Ph.D.,**  
No.17, Advaita Ashram Road,  
Alagapuram, Salem-636 004.  
Cell: 94422 78601 & 94433 56539.

I hereby undertake that all the modifications, if any made in the mining plan by the Qualified Person may be deemed to have been made with my knowledge and consent and shall be acceptable to me and binding on me in all respects.

Signature of the Applicant

  
P.Sivakumar

Place: Salem

Date: 23.06.2020



**P.Sivakumar,**  
S/o. S.Panneerselvam,  
No.268/8, 2<sup>nd</sup> Cross Street,  
Kattur, Alagapuram,  
Salem District – 636 016.



**DECLARATION OF THE APPLICANT**

The Mining Plan and Progressive Quarry Closure Plan in respect of Panamarathupatti Rough stone Quarry lease applied area over an extent of 1.00.0 Ha of Government land in S.F.No. 1/7 (Part-11) of Panamarathupatti Village, Salem Taluk, Salem District, Tamil Nadu State has been prepared in full consultation with me.

I have understood its contents and agree to implement the same in accordance with Laws, Rules and Act applicable to quarry.

Signature of the Applicant

A handwritten signature in black ink, appearing to read "P. Sivakumar".

P.Sivakumar

Place: Salem

Date: 23.06.2020



## CERTIFICATE

Certified that I am, **Dr. P. THANGARAJU**, M.Sc., Ph.D., having an office at Regd. Off. No. 17, Advaita Ashram Road, Alagapuram, Salem – 636 004, holding a Post Graduate Degree in Geology (M.Sc. Geology) from Madras University, Chennai and I worked in the field of Geology in a role of Geologist.

Rule 15(I)(a) and (b) of Minerals (Other than Atomic, Hydro Carbons Energy Minerals) Concession Rules 2016 stipulates the eligibility for preparing Mining plans as “(I)(a) a post graduate degree in Geology granted by a university established” and (I)(b) “Professional experience of five years of working in a supervisory capacity in the field of mining after obtaining the degree”. Since my qualification and experience are satisfied the Rule (I)(a) and (I)(b) of 15 of the said Rules, I am eligible to prepare Mining Plans for both Major and Minor Minerals.

According, I prepare this Mining Plan and Progressive Quarry Closure Plan in respect of Panamarathupatti Rough stone Quarry lease applied area over an extent of 1.00.0 Ha of Government land in S.F.No. 1/7 (Part-11) of Panamarathupatti Village, Salem Taluk, Salem District, Tamil Nadu for **Thiru.P.Sivakumar**, S/o.S.Panneerselvam, residing at No. 268/8, 2<sup>nd</sup> Cross Street, Kattur, Alagapuram, Salem District, Tamil Nadu State – 636 016. Since the Mining plan is prepared as per the provisions contained in Rule 15(I)(a) and (I)(b) of Minerals (Other than Atomic, Hydro Carbons Energy Minerals) Concession Rules, 2016.

Signature of the Qualified Person

  
Dr. P. Thangaraju, M.Sc., Ph.D.,

Place: Salem

Date: 04.08.2020



**Dr. P. THANGARAJU, M.Sc., Ph.D.,**

No.17, Advaita Ashram Road,

Alagapuram, Salem – 636 004.

Cell: 94422 78601 & 94433 56539.

**CERTIFICATE FROM THE QUALIFIED PERSON**

This is to certify that the Provisions of under Rules 41 & 42 as per the Amended under Tamil Nadu Minor Mineral Concession Rules, 1959 have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Panamarathupatti Rough stone Quarry lease applied area over an extent of 1.00.0 Ha of Government land in S.F.No. 1/7 (Part-11) of Panamarathupatti Village, Salem Taluk, Salem District, Tamil Nadu State has been prepared for

**Thiru.P.Sivakumar,**  
S/o. S.Panneerselvam,  
No.268/8, 2<sup>nd</sup> Cross Street,  
Kattur, Alagapuram,  
Salem District – 636 016.

Whenever specific permissions / exemptions / relaxations and approvals are required, the Applicant will approach the concerned authorities of the District Collectorate, Salem, Tamil Nadu for such permissions/ exemptions / relaxations and approvals.

It is also certified that information furnished in the above Mining Plan and Progressive Quarry Closure Plan are true and correct to the best of my knowledge.

Signature of the Qualified Person

  
Dr. P. Thangaraju, M.Sc., Ph.D.,

Place: Salem

Date: 04.08.2020



**Dr. P. THANGARAJU, M.Sc., Ph.D.,**

No.17, Advaittha Ashram Road,

Alagapuram, Salem-636 004.

Cell: 94422 78601 & 94433 56539.

**CERTIFICATE FROM THE QUALIFIED PERSON**

Certified that the Provisions of Mines Act, Rules and Regulations and Orders made there under have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Panamarathupatti Rough stone Quarry lease applied area over an extent of 1.00.0 Ha of Government land in S.F.No. 1/7 (Part-11) of Panamarathupatti Village, Salem Taluk, Salem District, Tamil Nadu State has been prepared for

**Thiru.P.Sivakumar,**

S/o. S.Panneerselvam,

No.268/8, 2<sup>nd</sup> Cross Street,

Kattur, Alagapuram,

Salem District – 636 016.

Whenever specific permissions/ exemptions/ relaxations and approvals are required, the Applicant will approach the concerned authorities of Director General of Mines Safety (DGMS), No. 5, 11<sup>th</sup> Street, Block – AA, Anna Nagar, Chennai-40, Tamil Nadu for such permissions/exemptions/relaxations and approvals.

It is also certified that information furnished in the Mining Plan and Progressive Quarry Closure Plan are true and correct to the best of my knowledge.

Signature of the Qualified Person

Dr. P. Thangaraju, M.Sc., Ph.D.,

Place: Salem

Date: 04.08.2020



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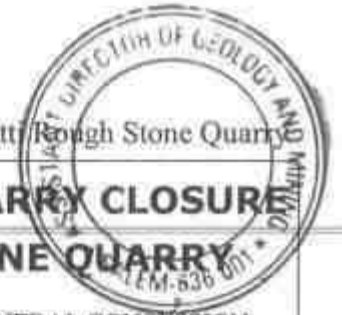


**LIST OF ANNEXURES**

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1.	Copy of Precise Area Communication letter	I
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## MINING PLAN ALONG WITH PROGRESSIVE QUARRY CLOSURE PLAN FOR PANAMARATHUPATTI ROUGH STONE QUARRY

(PREPARED UNDER RULES 41 & 42 AS AMENDED IN TAMIL NADU MINOR MINERAL CONCESSION  
RULES, 1959)

### 1.0 INTRODUCTION AND EXECUTIVE SUMMARY

The Mining Plan and Environmental Management plan is prepared for **Thiru.P.Sivakumar**, S/o.S.Panneerselvam, residing at No. 268/8, 2<sup>nd</sup> Cross Street, Kattur, Alagapuram, Salem District, Tamil Nadu State – 636 016.

The Rough stone quarry lease applied area is a Government land. The applicant has preferred the application under Rule, 8 (1) of Tamil Nadu Minor Mineral Concession Rules, 1959 and the area was awarded to the successful bidder **Thiru.P.Sivakumar** through Tender Cum Auction for over an extent of **1.00.0 Ha** of Government land in **S.F.No.1/7 (Part-11) of Panamarathupatti Village, Salem Taluk, Salem District** under Rule 8, (6) (b) of Tamil Nadu Minor Mineral Concession Rules, 1959 (Refer Annexure No. I and VI).

The application was processed by the District Collector, Salem District and passed a precise area communication letter vide **Rc.No.180/2020/Mines/A, Dated: 22.06.2020** via Department of Geology and Mining, Salem to submit the approved Mining Plan, obtain Environment Clearance from the SEIAA of Tamil Nadu and to obtain No Objection Certificate from the Tamil Nadu Pollution with the following conditions to provide (Refer Annexure No. I):

- (i) The applicant should leave a safety distance of 7.5m to the adjacent Patta lands.
- (ii) The applicant should leave a safety distance of 10m to the Government Poramboke lands, Cart track and Village road and 50m safety distance to the Highway, EB line, Odai and Permanent Structures.
- (iii) Also the applicant should follow the conditions stipulated in the District Gazette No. 03, Dated: 22.01.2020 while quarrying operation.

In order to ensure compliance of the order of the Honourable Supreme Court Dated: 27.02.2012 in I.A.No.12-13 of 2011 in Special Leave Petition SLP (C) No 19628-19629 of 2009, it has been now decided that all mining projects of minor minerals including their renewal irrespective of sizes of the lease would hence forth require prior Environment clearance mining project within the lease applied area up to less than 100Ha including projects or minor mineral with lease applied area less than 5ha would be treated as category B as defined in the EIA notification 2006 and will be considered by the state notified by MoEF as prescribed procedure under EIA notification 2006.



In the above circumstances the applicant through his consultant is hereby preparing the mining plan and progressive quarry closure plan for approval and subsequent submission of Form-I, Form-II and Pre-feasibility report to obtain Environment clearance from the SEIAA, Tamil Nadu, Rough stone quarry. This mining plan is prepared by considering the Rules 41 & 42 as Amended in Tamil Nadu Minor Mineral Concession Rules, 1959 and as per the EIA Notification 2006 and it's subsequent Amended and judgments till 24.01.2019.

**Short notes of Mining Plan:**

- a. Village Panchayat - Panamarathupatti
- b. Panchayat Union - Panamarathupatti
- c. The Geological Resources are  $4,52,495\text{m}^3$  of Rough stone and  $10,020\text{m}^3$  of topsoil in the entire area.
- d. The Total Mineable Reserves are  $3,20,595\text{m}^3$  of Rough stone and  $10,020\text{m}^3$  of topsoil in the entire area.
- e. The proposed quantity of reserves/ (level of production) to be mined are  $1,89,025\text{m}^3$  of Rough stone for the first five years.
- f. Total extent of the lease applied area = 1.00.0 Ha.
- g. Topography of the area = The area is a hillock.
- h. Ultimate Depth of mining for entire lease period (10 years) = 66m [1m Topsoil + 65m Rough Stone] (46m above ground level + 20m below ground level) [i.e from R.L.350.0m to R.L.284.0m. (Note: Ground Level = R.L.304.0m)] below from the existing ground profile.
- i. Proposed Depth of mining for the mining plan period (First 5 years) = 66m [1m Topsoil + 65m Rough Stone] (46m above ground level + 20m below ground level) [i.e from R.L.350.0m to R.L.284.0m. (Note: Ground Level = R.L.304.0m)] below from the existing ground profile.
- j. Lease Period = Ten years
- k. Mining plan period = First Five years
- l. It is a fresh lease applied area, no existing quarry pit within the area (Refer Plate No. II).
- m. Method of mining / level of mechanization.  
Opencast mechanized method, the quarry operation involves shallow jack hammer drilling, slurry blasting.
- n. Type of machineries proposed in the quarrying operation.  
Excavators attached with rock breaker (Rental Basis).  
Jackhammer, Compressor (Diesel drive) (4 jack hammer capacity).





- o. No trees will be uprooted due to this quarrying operation.
- p. The approach road from the main road to quarry road will be constructed and maintained in a good condition for the haulage of Rough stone.
- q. There is No Export of this Rough stone.
- r. Topo sketch covering 10Km and 1Km radius around the proposed area with markings of habitations, water bodies including stream, river, roads, major structure like bridges, wells, archeological importance and place of worship is marked and enclosed Plate Nos. IA and IB.
- s. The lease applied area is about 1.00.0 Ha bounded by four corners; the corners are designated as 1 – 4 Clock wise from the South side and Co-ordinates for all the corners are clearly marked in the Plate No. – II.
- t. The plans of proposed quarrying area showing the dimensions of the pit, their proposed depth and maximum area of proposed quarrying are enclosed in the Topography, Geological Plan and sections (Refer Plate No. III).
- u. General conditions will not be applicable for the proposed area. The area applied for lease is 10Km away from the,
- i) *Interstate Boundary,*
  - ii) *Protected area under wild life protection ACT, 1972,*
  - iii) *Critically polluted areas as identified by CPCB,*
  - iv) *Notified Eco sensitive areas.*
- v. There is no waste anticipated during this Rough Stone quarry operation, hence waste dump is not proposed in the lease applied area.
- w. Around 21 employees are deploying in the quarrying operation.
- x. Total Cost of the project is about **Rs.62,99,000/-**.



y. Infrastructures around the lease applied area given table below:

Table - 1

Particulars	Location	Approximate aerial distance and direction from lease applied area
Nearest Post Office	Panamarathupatti	2km - SE
Nearest School	Panamarathupatti	2km - SE
Nearest Dispensary	Salem	10km - North
Nearest Hospital	Salem	10km - North
Nearest Police Station	Panamarathupatti	2km - SE
Nearest Railway Station	Salem	10km - North
Nearest Town	Salem	10km - North
Nearest D.S.P. Office	Salem	10km - North
Nearest Airport	Trichy	108km - SE
Nearest Seaport	Kochi	275km - SW
District Head quarters	Salem	10km - North

**2.0 GENERAL INFORMATION**

**2.1 a) Name of the Applicant :** **P.Sivakumar,**  
S/o. S.Panneerselvam

**b) Address of the Applicant (With Phone No and Aadhaar Number):**

Address : No.268/8, 2nd Cross Street,  
Kattur, Alagapuram,  
District : Salem  
State : Tamil Nadu  
Pin Code : 636 016  
Mobile No : 95005 15446  
Aadhaar Number : 9190 8512 3471 (Refer annexure No. IX)  
Email ID : [karthickmvel@gmail.com](mailto:karthickmvel@gmail.com)

**c) Status of the Applicant (Individual/ Company/ Firm):**

The applicant is an Individual.

**2.2 a) Mineral which the Applicant intends to mine:**

The Applicant intends to quarry Rough stone only.

**b) Precise area communication letter details received from the competent authority of the Government:**

The precise area communication letter was received from the District Collector, Salem vide **Rc.No.180/2020/Mines/A, Dated: 22.06.2020** to submit approved mining plan and to obtain Environment Clearance from the SEIAA, Tamil Nadu.

**c) Period of permission/ lease to be granted:**

Ten years.

**d) Name and address of the Qualified Person who preparing the Mining Plan:**

Name : Dr. P. Thangaraju, M.Sc., Ph.D.,  
Qualified Person  
Address : Reg. No.17, Advaita Ashram Road,  
Alagapuram, Salem – 636 004.  
Telephone : 0427- 2431989 (Office)  
Cell No : +91 94422 78601 and 94433 56539  
Email : [infogeoexploration@gmail.com](mailto:infogeoexploration@gmail.com)



**3.0 LOCATION**

**a) Details of the area with location map**

The lease applied area is located about 10km Southern side of Salem Town and 2km Northwest side of Panamarathupatti Village:



**Location Map of the Lease Applied Area**

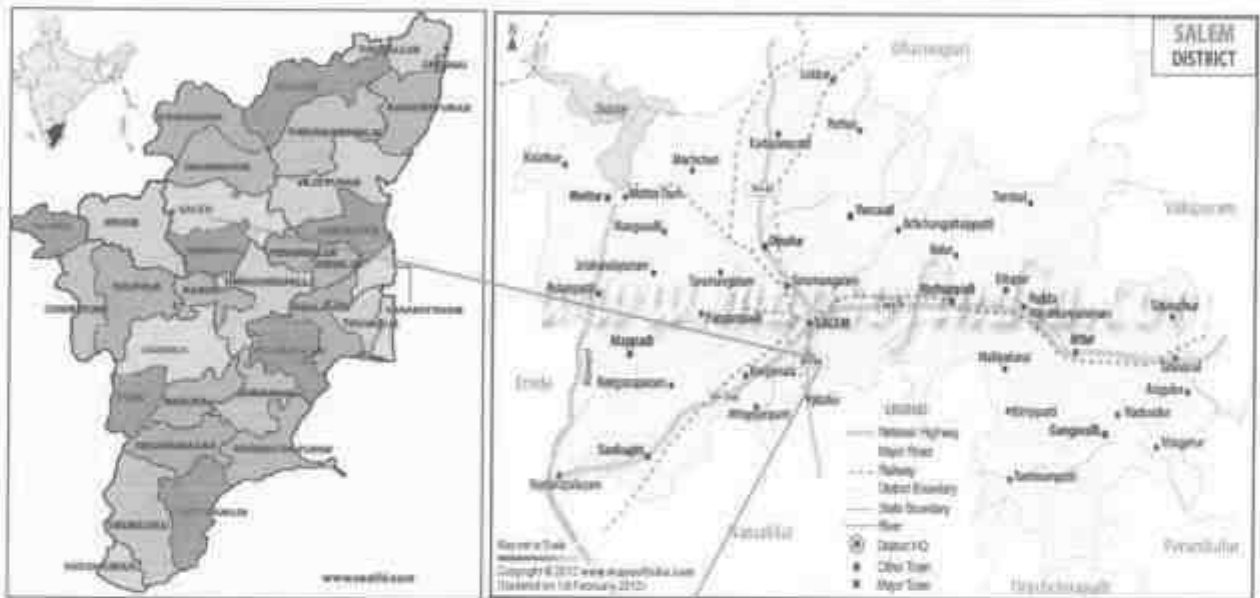




Table - 2

District	Taluk	Village	S.F.No.	Area in Ha.	Classification
Salem	Salem	Panamarathupatti	1/7 (Part-11)	1.00.0	Government Land (Ryotwari Annexure No. IV and V)
<b>Total Extent</b>				<b>1.00.0</b>	

- a) **Classification of the area (Ryotwari/ Poramboke / others):**  
It is a Government Poramboke land, which is not fit for vegetation/ Cultivation.
- b) **Ownership / Occupancy of the applied area (surface right):**  
It is a Government Poramboke land. The applicant has awarded tender cum auction from the Government.
- b) **Toposheet No. with latitude and longitude:**  
The lease applied area falls in the Toposheet No.58-I/02 Latitude between: 11° 34' 20.22"N to 11° 34' 24.83"N and Longitude between: 78° 09' 16.04"E to 78° 09' 21.73"E on WGS datum-1984. Refer the Plate Nos. I to II.
- c) **Existence of public road/ Railway line, if any nearby and approximate distance:**  
The approach road is situated on the Southeastern side which connects to the Gajjalnaickenpatti to Panamarathupatti Road located at 600m on the Northeastern side of the area.  
Multiple road access is available from the quarry to state highways and National Highway, no towns are enrooted hence the traffic density is not much more due to transportation of Rough stone.  
The approach road from the quarry is already in existence, the same will be utilized for haulage and maintained during the entire lease period, tree sapling will be planted on the either side of the road to prevent dust and noise propagation to the nearby areas.  
The Nearest Railway line is Salem - Namakkal which is located about 2km on the Southwestern side of the area.

### PART - A

#### 4.0 GEOLOGY AND MINERAL RESERVES

##### **4.1. Brief description of the Topography and general Geology of the area (with plans):**

The lease applied area is a hillock. The gradient is 1 in 1.7 towards South and altitude of the area is ranges between 305m to 350m above from Mean sea level. The area is covered by 1m thickness of Topsoil and followed by Massive Rough Stone Charnockite which is clearly visible right from the surface as the entire area is covered by Rough Stone.

The Water table is found at a depth of 60m in summer and at 56m in rainy seasons. Average annual rainfall is about 998mm.



### Topographical View of the lease applied area



Peninsular gneiss forms the oldest rock formations, in which the massive formation of Charnockite lies over with rich accumulation of recent quaternary formation. On regional scale the Charnockite body is N45°E – S45°W with dipping SE65°.

The general geological sequences of the rocks in this area are given below:

↑	AGE	FORMATION
	Recent	- Quaternary formation (Topsoil)
	-----Unconformity-----	
	Archaean	- Charnockite Peninsular Gneiss complex

#### **4.2. Details of exploration already carried out if any:**

State Geology and Mining Dept, Govt. of Tamil Nadu, has carried out the Regional prospecting and exploration in these areas during 1992 to 1993.

Geological Survey of India has carried out detailed mapping in Salem District. Besides, the Qualified Person and his team members made a detailed geological study of the proposed area. The Rough stone formation is clearly inferred from the nearby existing quarry pits.



#### 4.3. Estimation of Reserves:

##### a) Geological reserves with geological sections on a scale of 1:1000/ 1:2000.

As far as Rough stone (Charnockite) is concerned, the only practical method is the systematic geological mapping and delineation of Rough stone within the field and careful evaluation of body luster, physical properties, engineering properties, commercial aspects etc.,

Totally two sections have been drawn, one section drawn along the strike direction as (X-Y) length wise and another one cross section drawn perpendicular to strike as (A-B) width wise to cover the maximum area considered for calculation upto a depth of 66m (46m AGL + 20m BGL) below from the existing ground profile.

The Topographical, Geological plan and sections demarcated the commercial marketable Rough stone (Charnockite) deposit has been prepared in 1:1000 scale (Please refer the Geological plan and sections Plate No – III). As the sale of Rough stone are in terms of cubic meters (Volume) only and not in terms of tonnage.

##### Geological Resources (Plate No.III):

The Geological Resources of Rough Stone are calculated to a maximum depth of 66m [1m Topsoil + 65m Rough Stone] below from the existing ground profile. **The total Geological resources are calculated by cross section method.** The total available geological resources are given below.

Table – 3

Section	Bench	Length (m)	Width (m)	Depth (m)	Geological Resources of Rough stone (m <sup>3</sup> )	Topsoil (m <sup>3</sup> )
XY-AB	I	167	60	1		10020
	II	71	5	5	1775	
	III	64	15	5	4800	
	IV	81	25	5	10125	
	V	137	34	5	23290	
	VI	163	41	5	33415	
	VII	167	47	5	39245	
	VIII	167	52	5	43420	
	IX	167	56	5	46760	
	X	167	59	5	49265	
	XI	167	60	5	50100	
	XII	167	60	5	50100	
	XIII	167	60	5	50100	
	XIV	167	60	5	50100	
				<b>Total</b>	<b>452495</b>	<b>10020</b>

The Geological Resources of Topsoil : 10,020m<sup>3</sup>

The Geological Resources of Rough Stone : 4,52,495m<sup>3</sup>



**Mineable Reserves:**

The Mineable reserves are calculated after leaving the safety distance and bench loss to maximum depth of 66m [1m Topsoil + 65m Rough Stone] below from the existing ground profile.

Table - 4

MINABLE RESERVES						
Section	Bench	Length (m)	Width (m)	Depth (m)	Mineable Reserves of Rough stone (m <sup>3</sup> )	Topsoil (m <sup>3</sup> )
XY-AB	I	167	60	1		10020
	II	71	5	5	1775	
	III	64	15	5	4800	
	IV	81	25	5	10125	
	V	137	34	5	23290	
	VI	163	41	5	33415	
	VII	167	47	5	39245	
	VIII	167	52	5	43420	
	IX	167	56	5	46760	
	X	167	59	5	49265	
	XI	147	40	5	29400	
	XII	137	30	5	20550	
	XIII	127	20	5	12700	
	XIV	117	10	5	5850	
<b>Total</b>					<b>320595</b>	<b>10020</b>

Total Mineable Reserves of Rough Stone : 3,20,595m<sup>3</sup>

Total Mineable Reserves of Topsoil : 10,020m<sup>3</sup>

The Mineable reserves have been computed as 3,20,595m<sup>3</sup> of Rough stone at the rate of 100% recovery and 10,020m<sup>3</sup> of Topsoil to a maximum depth of 66m [1m Topsoil + 65m Rough Stone] for the period of Ten years.

**5.0 MINING****5.1. Method of mining (opencast/ underground):**

Open cast Mechanized Mining is being carried out with 5.0 meter vertical bench with a bench width is not less than the bench height.

However, as far as the quarrying of Rough stone is concerned, observance of the provisions of Regulation 106 (2) (b) as above is seldom possible due to various inherent petro genetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the above regulation from the Director of Mines Safety for which necessary provision is available with the Regulation 106 (2) (b) of MMR-1961, under Mine Act - 1952.





**5.2. Mode of working (mechanized, semi mechanized, manual):**

The Rough Stone is proposed to quarry at 5m bench height & width with conventional Opencast

**Mechanized Method.**

The quarry operation involves shallow jack hammer drilling, slurry explosives in blasting, excavation, Loading and transportation of Rough stone to the needy crusher.

The production of Rough stone in this quarry involves the following method which is typical for Rough Stone quarrying in contrast to other major mineral mining.

Splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and slurry explosives blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy crushers.

Occasionally hydraulic excavators are attached with rock breakers for fragmentation to avoid secondary blasting. The primary boulders thus splitted are removed from the pits by excavators and further made to smaller sizes by rock breakers attached in excavators. It is a conventional opencast mechanized method of mining.

**5.3. Proposed Bench Height and Width:**

The bench height is proposed 5.0 meter vertical bench the width of the bench is not less than the Height.

**5.4. Indicate the overburden/mineral production expected pit wise as detailed below (composite plan and section showing pit layout, dumps, disposal of waste if any etc.):**

The overburden is in the form of Topsoil. The top soil (10,020m<sup>3</sup>) will be safely removed and preserved in the safety barrier of the applied area and will be utilized for greenbelt development. The entire quarried out Rough stone will be consumed hence waste dump is not proposed. The composite Year wise Development and production plan and section indicating the Pit lay out, Green belt development are shown in Plate No – III.

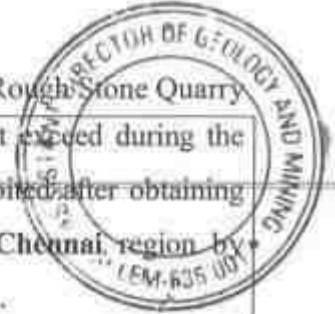
## YEAR WISE DEVELOPMENT AND PRODUCTION DETAILS FOR FIRST FIVE YEARS

Table - 5

YEARWISE RESERVES								
Section	Year	Bench	Length (m)	Width (m)	Depth (m)	Recoverable Reserve of Rough stone (m <sup>3</sup> )	Topsoil (m <sup>3</sup> )	
XY-AB	I	I	121	60	1		7260	
		II	71	5	5	1775		
		III	74	15	5	5550		
		IV	58	25	5	7250		
		V	86	34	5	14620		
		VI	40	41	5	8200		
						<b>Total</b>	<b>37395</b>	<b>7260</b>
	II	VI	67	41	5	13735		
		VII	106	47	5	24910		
						<b>Total</b>	<b>38645</b>	
	III	VIII	101	52	5	26260		
		IX	40	56	5	11200		
						<b>Total</b>	<b>37460</b>	
	IV	IX	56	56	5	15680		
		X	70	59	5	20650		
						<b>Total</b>	<b>36330</b>	
	V	X	21	59	5	6195		
		XI	76	40	5	15200		
		XII	66	30	5	9900		
		XIII	56	20	5	5600		
		XIV	46	10	5	2300		
					<b>Total</b>	<b>39195</b>		
					<b>Grand Total</b>	<b>189025</b>	<b>7260</b>	

The recoverable reserves have been computed as 1,89,025m<sup>3</sup> of Rough stone and 7,260m<sup>3</sup> of topsoil to a maximum depth of 66m [1m Topsoil + 65m Rough Stone] (46m above ground level + 20m below ground level) [i.e from R.L.350.0m to R.L.284.0m. (Note: Ground Level = R.L.304.0m)] below from the existing ground profile for the first five years of the lease period. The remaining mineable volume of Rough stone (1,31,570m<sup>3</sup>) will be quarried out during the next five years lease period, it will be discuss an ensuing mining plan.

The applicant ensures the total quantity proposed in the benches will not exceed during the quarrying operation. Besides the rough stone locked up in benches will be exploited after obtaining necessary permission from the office of **Director General of Mine Safety, Chennai** region by submitting relevant documents, appropriate safety plans and its Mitigation measures.



One Tipper load	=	6m <sup>3</sup> (Approx.)
Total Number of Working days	=	300 Days per year
Total quantity to be removed in this five years plan period	=	1,89,025m <sup>3</sup>
Hence total Tipper loads per day	=	1,89,025m <sup>3</sup> /6m <sup>3</sup>
	=	31,504 Lorry loads
	=	31,504 /5years
	=	6,301/300 Days
	=	<b>21 Lorry loads per day</b>

Working hours = 8.30 am to 5.30 pm (with 12.30-1.30 pm lunch break)

#### 5.5. Machineries to be used:

##### a) For Mining:

The following machineries are utilized on rental basis for the development and production work at this quarry.

Table – 6

#### I. DRILLING MACHINE

S.No.	Type	Nos.	Dia Hole mm	Size Capacity	Motive power
1	Jack hammer	5	30-35	1.2m to 2.0m	Compressed air
2	Compressor	2	-	400 psi	Diesel Drive

#### II. EXCAVATION & LOADING EQUIPMENT:

S.No.	Type	Nos.	Capacity	Motive Power
1	Excavator with Bucket and Rock Breaker	1	300	Diesel Drive

#### III. HAULAGE WITHIN THE MINE & TRANSPORT EQUIPMENT:

S.No.	Type	Nos.	Capacity	Motive Power
1	Tippers	2	20 tonnes	Diesel Drive

**5.6. Disposal of Overburden/Waste:**

The overburden is in the form of Topsoil. The top soil (7,260m<sup>3</sup>) will be safely removed and preserved in the safety barrier of the applied area and will be utilized for greenbelt development. No waste anticipated during this mining plan period. Hence, disposal of waste does not arise. The excavated rough stone will be directly loaded into tippers to the needy customers.

**5.7. Brief notes on conceptual mining plan for the entire lease period base on the geological, mining and environmental considerations:**

A conceptual mining plan is prepared with an objective of long term systematic development of benches, layouts, selection of permanent structures, Maximum depth of quarrying and ultimate pit dimensions, selection of sites for construction of infrastructure, etc.,

The ultimate pit size is designed based on certain practical parameters such as economical depth of mining, safety zones, permissible area, etc.,

As the applicant has applied quarry lease for Ten years, the ultimate pit limit (dimension) at the end of the first five years of the lease period is given below (Refer Plate No. V)

Table - 7

Proposed Pit Dimension	Length (Max) (m)	Width (Max) (m)	Depth (Max) (m)
	121	60	66m [46m AGL + 20m BGL]
Ultimate Pit Dimension	167	60	66m [46m AGL + 20m BGL]

All the base line information studies like Air quality monitoring, Noise and vibration monitoring, Water analysis studies will be carried out every year as per the MoEF&CC Norms. It is propose to engage any local institution to monitor the EIA and EMP during the course of quarrying operation after the grant of quarry lease.

Except topsoil, there is no wastage anticipated during the entire life of quarry. The quarried out topsoil will be preserved within the applied area and utilized for construction of bund and backfilled in the part of the quarry pit also spread out the quarried out top bench to facilitate the greenbelt development. The quarry area will be fenced with barbed wire fencing also safety bund constructed around the area to prevent inadvertent entry of public and cattle (Refer Plate No. IV).



## 6.0 **BLASTING**

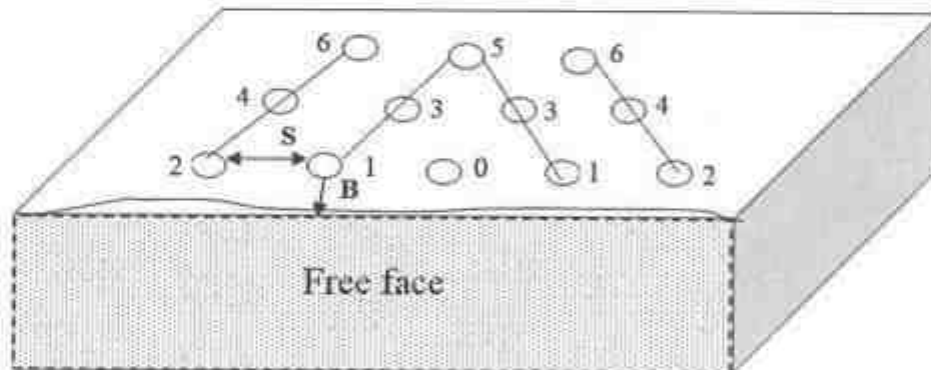
### 6.1 **Blasting pattern:**

The quarrying operation is proposed to be carried out by Mechanized Opencast Method in conjunction with conventional method of mining using jack hammer drilling and slurry blasting for shattering effect and loosen the Rough stone.

Drilling and blasting parameters are as follows:

Depth of Each hole	:	1.5m
Diameter of hole	:	30-32mm
Spacing between holes	:	1.2m
Burden for hole	:	1.0m
Pattern of hole	:	Zigzag – Multi-rows
Inclination of holes	:	80° from horizontal
Use of delay detonators	:	25millisecond relays
Detonating fuse	:	“Detonating” Cord

### **BLASTING PATTERN DRAWING**



### **Staggered “V” Pattern of Blasting Design**

Spacing	=	1.2m
Burden	=	1.0m
Depth of the hole	=	1.5m
No of holes proposed per day	=	109 Holes

### 6.2 **Type of explosives to be used:**

Small Dia. 25mm Slurry explosives are proposed to be used for shattering and heaving effect for removal and winning of Rough stone. No deep hole drilling or primary blasting is proposed.



### 6.3 Measures proposed to minimize ground vibration due to blasting:

The quarry is situated more than 300m away from the nearby villages. Controlled blasting measures is being adopt for minimizing ground vibration and fly rock.

Shallow depths jackhammer drilling & blasting is proposed to be carried out with minimum use of explosive mainly to give hearing effect in rough stone for easy excavation and to control fly rock.

#### Delay detonators:

Delay blasting (millisecond delays) permits to divide the shot in to smaller charges, which are detonated in a predetermined millisecond sequence at specific time intervals.

The major advantages of delay blasting are:

- Reduction of ground vibration.
- Reduction in air blast.
- Reduction in over break.
- Improved fragmentation.
- Better control of fly-rock.

#### Blasting program for the production per day:

No of Holes	= 109 Holes
Yield	= 328 Tons
Powder factor	= 6 Tons/Kg of explosives
Total explosive required	= 55 Kg-Slurry explosives
Charge/ hole	= 0.5 Kg
Blasting at day time only	= 12.30p.m. – 1.00p.m (whenever required)

### 6.4 Storage and safety measures to be taken while blasting:

The applicant will engage authorized explosive agency to carry out the small amount of blasting and it will be supervised by competent and statutory foreman/Permit Mines Manager. The explosives agencies should be have the valid Blaster certificate. He will blast holes in the quarry site. After the completion of Blasting the explosives Agencies will take it out back the remaining quantity of Explosives. The magazine is available at the quarry site to temporarily store the explosives.



## 7.0 MINE DRAINAGE

### 7.1 Depth of water table (based on nearby wells and water bodies):

The water Table in the area is 60m in summer season and 56m in Rainy season which is observed from the nearby bore wells and the data obtained from existing private boreholes. The lease area is fully covered by Massive Charnockite formation. Hence the Ground Water problem will not arise. If water seepage may occur due to the fracture, the same will be used for Greenbelt.

Table – 8

Type	Distance & Direction	Location
Bore Well	450m Northeast side	11°34'38.77"N 78° 09'23.73"E

### 7.1. Arrangements and places where the mine water is finally proposed to be discharged:

The quarry operations are confined well above the water table during the entire lease period. If water is encountered due to rain water seepage, the same will be pumped out by 5HP water pumps to facilitate the Green belt development areas in the either side of the approach road. Besides, the water will also be used for dust suppression on haul roads during Haulage of machineries.

## 8.0 OTHER PERMANENT STRUCTURES (also shown in the map)

### 8.1 Habitations/ Villages natham:

There is no approved habitation/village located within 300m radius of the lease applied area.

### 8.2 Power Lines (HT/LT):

There is no EB (LT/HT) line or Housing area situated within 50m radius of the area.

### 8.3 Water bodies (river, ponds, lake, odai, canal, etc.):

There is no water body like River, Pond, Lake, Canal, Reservoir located within 50m radius of the area.

### 8.4 Archaeological / historical monuments:

There is no Archaeological/historical monument within 300m radius of the area.

### 8.5 Road (NH, SH others):

The Nearest National Highway (NH-7) Salem – Karur is situated about 1.0km on the Northwestern side of the area.

The State Highway (SH-86A) Ariyanur – Tiruchengode Road is situated about 9.0km on the Western side of the area.

### 8.6 Places of worships:

There is no place of worships within the radius of 300m from the lease applied area.

### 8.7 Reserved forest / forest / social forest / wild life sanctuary etc.,:

There is no reserved forest / Social forest / Wild life sanctuary, Eco-Sensitive zone, etc., within 500m radius of the lease applied area.



**SALIENT FEATURES**

Table - 9

S. No	Salient Features	Prescribed safety distance	If any present within prescribed distance, its actual distance and direction from the site															
1.	Railways, Highways, Reservoirs or Canal	50m	None of the above situated within 50m radius.															
2.	Village Road	10m	No Village road is located within 10m radius of the area.															
3.	Habitation / Village	300m	There is no approved habitation located within 300m radius of the lease applied area.															
4.	Adjacent Patta Land / Govt. Land	7.5m/10m	<table border="1"> <thead> <tr> <th>Direction</th> <th>Classification</th> <th>Safety Distance</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>Govt. land</td> <td>10m</td> </tr> <tr> <td>East</td> <td>Govt. land</td> <td>10m</td> </tr> <tr> <td>South</td> <td>Govt. land</td> <td>10m</td> </tr> <tr> <td>West</td> <td>Govt. land</td> <td>10m</td> </tr> </tbody> </table> <p>(Refer Plate No. II).</p>	Direction	Classification	Safety Distance	North	Govt. land	10m	East	Govt. land	10m	South	Govt. land	10m	West	Govt. land	10m
Direction	Classification	Safety Distance																
North	Govt. land	10m																
East	Govt. land	10m																
South	Govt. land	10m																
West	Govt. land	10m																
5.	Housing area, EB line (HT & LT Line)	50m	There is no EB (LT/HT) line or Housing area located within 50m radius of the area.															
6.	Boundaries of the permitted area	7.5m/10m	<p>The boundaries of the permitted areas as follows:</p> <p>North - S.F.No. 1/7 (P)</p> <p>East - S.F.No. 1/7 (P)</p> <p>South - S.F.No. 1/7 (P)</p> <p>West - S.F.No. 1/7 (P)</p> <p>(Refer Plate No. II).</p>															
7.	Reserve forest	60m	There is no reserved forest located within the radius of 60m from the lease applied area. (Refer Plate No. IA and IB).															
8.	Protected area / ECO sensitive area/Wild Life Sanctuary	10Km	There is no ECO sensitive Zone/ Wild Life Sanctuary/ Critically Polluted Area/ HACA/ CRZ located within 10km radius of the area. (Refer Plate No. IA).															





## 9.0 EMPLOYMENT POTENTIAL & WELFARE MEASURES

### 9.1 Employment potential (skilled, semi skilled, un skilled):

The following manpower are proposed in the mining plan to carry out the day-to-day quarrying activities, the same employment is maintaining aimed at the proposed production target and also to comply with the statutory provisions of the Metalliferous mines regulations, 1961.

#### a. Skilled labour:

Mine Foreman	:	1
Blaster/mate	:	1
Excavator – Operator & Driver	:	3
Jack hammer operator	:	10

#### b. Semi-skilled:

Security	:	1
----------	---	---

#### c. Unskilled:

Labour & Helper	:	2
Co-operator and Cleaner	:	3
<b>Total</b>	:	<b>21</b>

The above manpower is adequate to meet out the production schedule and the machinery strength envisaged in the mining plan and to comply with the statutory provisions of the Mines Safety Regulations. It is been ensured that the labour will not be employed less than 18 years, **No child labour** will engaged or entertained for any kind of quarrying operations. All the labours engaged for quarrying operations will be insured during the quarry lease period.

### 9.2 Welfare Measures:

#### a) Drinking Water:

Packaged drinking water is available from the nearby water vendors in Panamarathupatti which is located about 2km on the Southeast side of the lease applied area.

#### b) Sanitary Facilities:

Hygienic modern Sanitary Facilities will be constructed within the applicant's own patta land as semi permanent structure and it will be maintained periodically.



**c) First aid facility:**

First aid kits are kept in Mines office room, in case of such eventuality is the victim will be given first aid immediately at the site by the competent and statutory foreman/permit manager/manager will be in charge of first aid and injured person will be taken to the hospital by the applicant's vehicle. Hospital is available in Salem located at a distance of 10km on the Northern side.

**d) Labour Health:**

Before commencement of quarry also Periodical medical checkup related to occupational health safety will be conducted to all the workers by Applicant own cost.

**e) Precautionary safety measures to the laborers:**



- Helmets,
- Mine Goggles,
- Ear plugs,
- Ear muffs,
- Dust mask,
- Reflector jackets,
- Safety Shoes

All personnel protective devices will be provided as per the specification approved by Director of mines safety. Periodically medical check-up will be conducted for all workers for any mine health related problems. Proper training and vocational education will be given by qualified and experienced safety officer to all the employees about the safety and systematic Rough stone quarrying operations. The drillers and workers will be sent for vocational training periodically, to carry out the quarrying operations scientifically and to safe guard the men & machinery and to create awareness about conventional opencast quarrying operations.

**PART - B****10. ENVIRONMENT MANAGEMENT PLAN****10.1 Land use pattern:**

The lease applied area is a hillock. The area is a dry barren land also covered by rocky outcrops devoid of Agriculture and Habitations. The land is not used for any specific purpose.

Table - 10

Description	Present area (Ha)	Area at the end of this quarrying period (Ha)
Area Under Quarrying	Nil	0.72.6
Infrastructure	Nil	Nil
Roads	Nil	Nil
Green Belt	Nil	Nil
Unutilized Area	1.00.0	0.27.4
<b>Grand Total</b>	<b>1.00.0</b>	<b>1.00.0</b>

**10.2 Water Regime:**

It is a simple opencast quarry operation. The quality of water will not be affected due to this quarrying operation. The lease applied area is located in the slope of the hill and the natural flow of water towards South hence, mitigation measures will be carried out like Garland drain and safety bund will be constructed on the either side of quarry pit to avoid rain water entering into the pit.

The waste water discharged to water bodies will be met the standard prescribed under the Environment (Protection) Act - 1986 by The Ministry of Environment, Forest and Climate change.



## 10.3 Flora and Fauna:

Table - 11

S.No	Name of the plant (Scientific)	Family Name	Common Name	Habit	Picture
1.	<i>Azadirachta indica</i>	Meliaceae	Vembu, Neem	Tree	
2.	<i>Prosopis juliflora</i>	Fabaceae	Seemai Karuvelam	Tree	
3.	<i>Borassus flabellifer</i>	Arecaceae	Palm	Tree	
4.	<i>Cocos nucifera</i>	Arecaceae	Coconut, Thennai	Tree	
5.	<i>Opuntia ficus</i>	Cactaceae	Cactus, Kattralai	shrub	

List of Fauna

S.No.	Scientific Name	Common Name	Picture
1.	<i>Capra aegagrus hircus</i>	Goat	
2.	<i>Funambulus palmarum</i>	Squirrel	
3.	<i>Bos taurus</i>	Cow	
4.	<i>Danaus plexippus</i>	Striped tiger	
5.	<i>Corvus leuillanti</i>	Crow	

**10.4 Climatic Conditions:**

The area receives rainfall of about 998mm per annum and the rainy season is mainly from Oct - Jan during Northeast, monsoon. The summer is hot with maximum temperature of 42°C and winter encounters a minimum temperature of 21°C.

**10.5 Human settlement:**

There are few villages located within 5km radius of the area; the approximate distance, direction and population are given below:

Table – 12

S.No	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population
1.	Gajjalnaickenpatti	2km – NW	5,100
2.	Parappatti	3km – NW	4,100
3.	Santhiyur	2km – SW	1,900
4.	Panamarathupatti	2km – SE	19,580

Basic human welfare Amenities such as Health Centre, Schools, Communication Facilities, and Commercial Centres, etc., are available at Salem located at 10km on the Northern side of the area.

**10.6 Plan for air, dust suppression:**

The air quality will be affected by the Suspended Particulate Matter (SPM) generated by the slurry blasting, jack hammer drilling, Loading and unloading during the Rough stone 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 on the non quarrying area.
- Avoiding spillages during the transportation.

Air quality will be monitored periodically as per Norms and Mitigate measures carried out to prevent dust and Air propagation in to air. The estimated budget for dust suppression would be around Rs.52,000/year.

**10.7 Plan for Noise level control:**

The noise level increased due to the Excavation, Drilling, Blasting and Transportation.

**Engineering Noise control:**

Noise will be created due to the usage of Machineries and Vehicles. The Noise will be controlled in the following manner.

- Selection of new low – noise equipments for the Rough stone quarry operation.
- Modifications of older equipments.
- Implementation of effective preventive maintenance which reduces noise more than 50%.
- The drivers will be strictly instructed to move the vehicle during the transportation not exceed 40km per hour.
- Sentries with flags & whistle will posted in village road junction and populated area to control and regulate traffic.

Shallow holes of 32mm diameter and maximum depth of 1.5m will be drilled and conventional low power explosives such as Slurry Explosives, ordinary safety fuse will be used for rough stone. Hence, ground vibration and noise pollution i.e., minimal and restricted within the quarry working area.

Noise level monitoring and other Mitigation measures will be carried out to reduce Noise and Vibration. The estimated budget for Noise level monitoring would be around **Rs.2,000/Year**.

**10.8 Environment impact assessment statement describing impact of mining on the next first five years:**

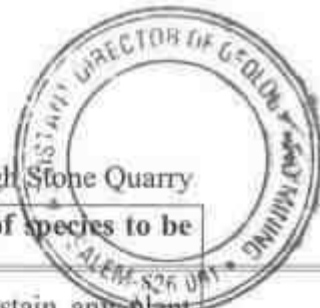
In the mining plan proposed for the production of Rough stone does not involve deep hole drilling and blasting. Such limited mining activity is not likely to cause any impact adversely on the environment. As far as pollution of air, water and noise concerned, the Environment impact studies will be conducted as per EIA notification issued by MoEF& CC. It is B2 Category mine. The estimated budget would be around **Rs.3,80,000/-**

**10.9 Proposal for waste management:**

There is no wastage anticipated during this quarry operation. The entire quarried out materials will be utilized (100%). Hence, Waste Management does not arise.

**10.10 Proposal for reclamation of land affected during mining activities and at the end of mining (refilling / fencing etc.):**

It is a Government land and at the end of this mining plan period about 66m depth only quarried out in the total depth of 66m below from the existing ground profile and it has been envisaged as workable depth for safe & economic mining. There is no wastage anticipated during entire lease period. Hence, Backfilling is not possible in the quarried out pit. When the quarry reaches its ultimate pit limit or at the end of life of quarry, the quarried out pit allowed to collect the seepage rain water and the water storage will be kept as reservoir for charging nearby wells and to enhance static level of the ground water. The quarry area will be fenced with barbed wire fencing to prevent inadvertent entry of public and cattle (Refer Plate No. IV). The barbed wire fencing cost would be around **Rs.1,32,000/-**.



**10.11 Programme of Greenbelt development (indicate extend, number, name of species to be afforested):**

The area is containing very hard rocky topography hence, there will not sustain any plant growth. Therefore no Green belt proposed within the area. Anyhow, the applicant is proposed to develop the Green belt in approach road and nearby periphery of the village road after consulting the local panchayat authority and Agricultural experts. After completion of quarry operation suitable soil type will be Nearly proposed to planting 200 Nos. of Neem, Pongamia pinnata, Casuarina, etc., tree saplings and expected growth is around 160 Nos. of trees at a survival rate of 80%. The estimated budget for plantation and maintenance of Green belt development would be around **Rs.20,000/-** for the period of five years.

The Greenbelt Development will be formed in around the quarried out top benches and panchayat road of the lease applied area. The cost would be around **Rs.30,000/-**.

**10.12 Proposed financial estimate / budget for (EMP) environment management:**

Budget Provision for the Mining plan period:

Table – 13

S. No	Monitory and Analysis Description	Rate per location	No. of location	Total Charges/ six months	Total Charges/ year
1	Ambient air quality monitoring	6500	4	26000	52000
2	Noise level monitoring	250	4	1000	2000
3	Ground vibration monitoring	1000	2	2000	4000
4	Water sampling and analysis	9000	1	9000	18000
<b>Total EMP Cost/ year</b>					<b>76,000</b>

The EMP cost would be around **Rs.3,80,000/-** for the period of five years.





<b>A. Project cost / investment</b>		
i) Land cost	It is a Government land, the tender cost is	Rs.30,40,000/-
ii) Machinery to be used	The following machineries are proposed to meet out the productions. Excavator attached with rock breaker, Tipper, Tractor mounted compressor with Jack Hammer and loose tools (Rental Basis)	= Rs.20,00,000/-
iii) Refilling/ Fencing	Fencing will be constructed around the quarry pit to prevent the inadvertent entry of public and cattle cost would be around	= Rs.1,32,000/-
iv) Labourers shed	Labour sheds will be constructed as semi permanent structure. The cost would be around	= Rs.85,000/-
v) Sanitary facility	Adequate latrine and urinal accommodation shall be provided at conveniently accessible places the cost would be around	= Rs.60,000/-
vi) Others items	First aid room & accessories	= Rs.50,000/-
vii) Drinking water facility for the labourers	Packaged drinking water will be provided for all the Labours. Drinking water will be readily available at conveniently accessible points during the whole of the working shift the cost would be around	= Rs.1,00,000/-
viii) Sanitary arrangement	The latrine and urinal will keep clean and sanitary condition. The maintenance cost would be around	= Rs.60,000/-
ix) Safety kit	All the Safety kit such as Helmet, Earmuffs, Goggles, Reflector Jackets, Safety shoes etc., will be provided to the workers by the applicant own cost which would be around	= Rs.50,000/-
x) Water sprinkling	Water will be sprinkled in the haul roads by water sprinklers the cost would be around	= Rs.90,000/-
xi) Garland drain	Construction of Garland drain with check dam to prevent surface run-off rain water in to the quarry pit, the construction cost is around	= Rs. 78,000/-
xii) Greenbelt etc.	Greenbelt program will be carried out in the boundary barriers the cost would be around	= Rs.20,000/-
	Greenbelt program will be carried out in the quarried out benches and Panchayat roads	= Rs.30,000/-
	<b>Total Project Cost</b>	<b>= Rs.57,95,000/-</b>





<b>B. EMP Cost :- (Per year)</b>	
Air Quality monitoring	Rs. 52,800/-
Water Quality Sampling	Rs. 18,000/-
Noise Monitoring	Rs. 2,000/-
Ground vibration test	Rs. 4,000/-
<b>Total Cost</b>	<b>Rs. 76,000/-</b>
Total EMP Cost for the five years period is <b>Rs.3,80,000/-</b>	
Description	Amount (Rs.)
<b>A. Operational Cost</b>	<b>57,95,000</b>
<b>B. EMP Cost</b>	<b>3,80,000</b>
<b>Total Project Cost (A+ B)</b>	<b>61,75,000</b>
1. The applicant Indents to involve corporate environment responsibilities (CER) activity like Water Purifier, Cot and Bed facilities to the Dispensary and Water Purifier and Table facilities to the Government school at 2.0% from the total project cost. The Cost would be around <b>Rs.1,24,000/-</b> .	<b>1,24,000</b>
<b>Total Cost</b>	<b>62,99,000</b>
<b>The Total cost would be around sixty two lakhs and ninety nine thousands only.</b>	

**11.0 PROGRESSIVE QUARRY CLOSURE PLAN****11.1 Introduction:**

The Progressive Quarry Closure Plan for Rough stone quarry lease applied over an extent of 1.00.0 Ha of Government land in S.F.No. 1/7 (Part-11) of Panamarathupatti Village, Salem Taluk, Salem District, Tamil Nadu State has been prepared for **Thiru.P.Sivakumar**, S/o.S.Panneerselvam, residing at No. 268/8, 2nd Cross Street, Kattur, Alagapuram, Salem District, Tamil Nadu State – 636 016.

**11.2 Present Land use pattern:**Table – 14

Description	Present area (Ha)
Area Under Quarrying	Nil
Infrastructure	Nil
Roads	Nil
Green Belt	Nil
Unutilized Area	1.00.0
<b>Grand Total</b>	<b>1.00.0</b>

**11.3 Method of Mining:**

Open cast Mechanized Mining is being carried out with 5.0 meter vertical bench with a bench width is not less than the bench height for Rough stone.

However, as far as the quarrying of Rough stone is concerned, observance of the provisions of Regulation 106 (2) (b) as above is seldom possible due to various inherent petro genetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the above regulation from the Director of Mines Safety for which necessary provision is available with the Regulation 106 (2) (b) of MMR-1961, under Mine Act – 1952.

**11.4 Mineral Processing Operations:**

The quarried out Rough stone will be transported by the 20tons capacity Tippers to the needy crushers. Splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and slurry blasting, hydraulic excavators is used for loading the Rough Stone from pithead to the needy crushers.

**11.5 Reasons for closure:**

As the mineral is not going to be exhausted during the proposed plan period no immediate closure is planned and sufficient reserves are available to carry on the entire lease period. The reason for closure will be discussed in the ensuing mining plan or final mine closure plan.

**11.6 Statutory obligations:**

The applicant ensures to comply all the conditions were imposed in the precise area communication letter before grant of quarry lease and during the course of quarry operations.

**11.7 Progressive quarry closure plan preparation:**

Name and address of the Qualified Person who prepared the progressive closure plan and name and address of the executing agency who is involved in the Preparation of progressive quarry closure plan.

Name : **Dr. P. Thangaraju, M.Sc., Ph.D.,**  
Qualified Person  
Address : No.17, Advaita Ashram Road,  
Alagapuram, Salem - 636 004.  
Tele phone : 0427- 2431989 (Office)  
Cell No : +91 94433 56539 & 9442278601

Applicant will himself implement the closure plan; no outside agency will be involved.

**11.8 Review of Implementation of Mining Plan Including Progressive Closure Plan upto the Final Closure Plan:**

Mining Plan and Progressive quarry closure plan are being submitted for the first time. It will be reviewed after five years and review of implementation will be given with next mining plan.

**11.9 Closure Plan:****(i) Mined Out Land:**

It is a Government land hence and at the end of this mining plan period about 66m depth below from the existing ground profile. There is no waste anticipated during entire lease period. Hence, Backfilling is not possible, when the quarry reaches its ultimate pit limit or at the end of life of quarry, the quarried out pit allowed to collect the seepage rain water and the water storage will be kept as reservoir for charging nearby wells and to enhance the static level of the ground water (Refer Plate No. IV). Land use at various stages is given in the table below.

Table – 15

Description	Present area (Ha)	Area at the end of this quarrying period (Ha)
Area Under Quarrying	Nil	0.72.6
Infrastructure	Nil	Nil
Roads	Nil	Nil
Green Belt	Nil	Nil
Unutilized Area	1.00.0	0.27.4
<b>Grand Total</b>	<b>1.00.0</b>	<b>1.00.0</b>

**(ii) Water quality management:**

Following control measures will be adopted for controlling water pollution:-

- Construction of garland drains to divert surface run-off from virgin area away from mining area.
- Construction of check dams / gully plugs at strategic places to arrest silt wash off from broken up area.
- Collection of surface run-off from broken up area in mine pits for settling and only properly settled excess water from mine pit will be discharged to nearby users. The storm water/ mine water will be used for dust suppression, greenbelt development, etc.
- Periodic analysis of mine pit water and ground water quality in nearby villages.
- Domestic sewage from site office & urinals/latrines provided in QL is discharged in septic tank followed by soak pits.

**(iii) Air Quality Management:**

The proposed mining method is not likely to produce much of dust and fugitive emissions to cause damage to ambient air quality of the area. Workers will be provided with personnel protective equipment like face-mask, earplug/ muffs.

For air pollution management at the progressive quarry closure plan, greenbelt will be developed to prevent and control air pollution.

**(iv) Top Soil and Waste Management:**

The overburden is in the form of Topsoil. The top soil (7,260m<sup>3</sup>) will be safely removed and preserved in the safety barrier of the applied area and will be utilized for greenbelt development. No waste anticipated during this mining plan period. Hence, waste management does not arise.

**(v) Disposal of mining machinery:**

All Machineries will be engaged on rental basis. Hence, decommissioning or disposal of mining machinery does not arise.

**(vi) Safety & Security:**

Safety measures will be implemented to prevent access in the excavation area an unauthorized persons as per Mine Act 1952, MMR 1961.

- Safety measures will be implemented as per Mine Act 1952, MMR 1961, and Mines Rules 1955.
- Provisions of MMR 1961 shall be strictly followed and all roads shall be wider than the height of the bench or equal to the height of the bench and have a gradient of not more than 1 in 16.



- The bench height will be 5.0m.
- Width of working bench will be kept about 5.0m for ease of operations and provide sufficient room for the movement of equipments.
- Protective equipment like dust masks, ear-plugs/ muffs and other equipments shall be provided for use by the work persons.
- Notices giving warning to prevent inadvertent entry of persons shall be displayed at all conspicuous places and in particular near mine entries.
- Danger signs shall be displayed near the excavations and proper signal by siren alarm will be provide before blasting time for precautionary action of accident.
- Security guards will be posted.
- In the event of temporary closer, approaches will be fenced off and notice displayed.

**(vii) Disaster Management and Risk Assessment:**

This should deal with action plan for high risk accidents like landslides, subsidence, flood, fire, seismic activities, tailing dam failures etc. and emergency plan proposed for quick evacuation, ameliorative measures to be taken etc. The capability of applicant to meet such eventualities and the assistance to be required from the local authorities should be described.

- The mechanized mining activities in the area may involve any high risk accident due to side falls/collapse, flying stones due to blasting etc.
- The complete mining operation will be carried out under the Management and control of experienced and qualified Mines Manager having Certificate of Competency to manage the mines granted by DGMS.
- All the provisions of Mines Act 1952, MMR 1961 and Mines Rules 1955, TNMMCR 1959 and other laws applicable to mine will be strictly complied with.
- During heavy rainfall the mining activities will be suspended.
- All persons in supervisory capacity will be provided with proper communication facilities.
- Competent persons will be provided FIRST AID kits which they will always carry.

**(viii) Care and Maintenance during Temporary Discontinuance:**

In case of any temporary discontinuance due to court order or due to statutory requirement or any other unforeseen circumstance following measures shall be taken for care, maintenance and monitoring of conditions.

- Notice of temporary discontinuance of work in mine shall be given to the DGMS as per the MMR 1961.
- All the mining machinery shall be shifted to a safe place.



- Entrance to the mine or part of the mine, to be discontinued shall be fenced off. Fencing shall be as per the circular 11/1959 from DGMS.
- Security Guards shall be posted for the safety and to prevent any unauthorized entry to the area.
- Carry out regular maintenance of the facilities/area detailed below in such a way as would have been done as if the mines were operation:
  - Quarry roads and approach roads,
  - Fencing on approach roads,
  - Checking and maintenance of machines and equipment,
  - Drinking water arrangements,
- Competent persons shall inspect the area regularly.
- Air, water and other environmental monitoring shall be carried out as per CPCB and IBM Guideline.
- Care and upkeep of plantation shall be carried out on regular basis.
- Status of the working and status monitoring for re-opening of the mines shall be discussed daily.

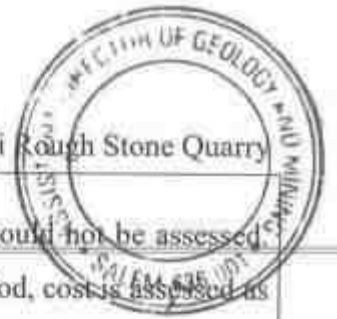
In case of discontinuance due to any natural calamities/abnormal conditions, mining operation will be restarted as early as possible after completing rescue work, restoring safety and security, repairs of roads etc.

**(ix) Economic Repercussion of Closure of Quarry and manpower Retrenchments:**

The quarrying lease is granted for a maximum period of ten years only. As per the production Programme envisaged, there will be no effect on the manpower as the majority of persons belong to nearby villages and will have an option either to be available for employment for the next contract/lease or do the agriculture in their fields.

**(x) Time Scheduling For Abandonment:**

The lease applied area has enormous potential for continuance of operations even after the expiry of the lease period. The details of time schedule of all abandonment will be given at the time of final closure plan after consulting the consent authorities of the State Government.

**(xi) Abandonment Cost:**

As at present mining is not going to be closed so abandonment cost could not be assessed.

However based on the progressive quarry closure activities during the plan period, cost is assessed as given below:

**TABLE - 16**

ACTIVITY	YEAR					RATE	AMOUNT (INR)
	I	II	III	IV	V		
Plantation (In Nos.)	40	40	40	40	40	@100 Rs Per sapling Including Maintenance	Rs.20,000/-
Plantation & Maintenance Cost	4000	4000	4000	4000	4000		
Wire Fencing (In Mtrs) 440 Mtrs	1,32,000					@300 Rs Per Meter	Rs.1,32,000/-
Garland Drain with check (In Mtrs) 260 Mtrs	78,000					@300 Rs Per Meter	Rs.78,000/-
Cost for Plantation in worked out benches & Panchayat Roads	-	-	-	-	30000	@100 Rs Per sapling Including Maintenance	Rs.30,000/-
<b>TOTAL</b>							<b>Rs.2,60,000/-</b>



**12.0 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT**

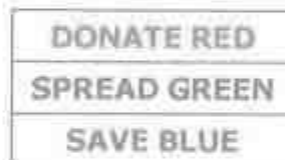
This Mining plan for Rough stone (Charnockite) is under Rules 41 & 42 as per the Amended under Tamil Nadu Minor Mineral Concession Rules, 1959. The provisions of the Mines Act, Regulations and orders made there under shall be complied within the quarrying operation, so that the safety of the mine, machinery and person will be well protected. Permission, relaxation or exemption wherever required for the safe and scientific quarrying of the deposit will be obtained from the Department of Mines Safety. Any violation pointed out by the inspecting authorities shall be rectified as per the guidelines of the Concerned Department.

Prepared by

*Dr. P. Thangaraju*  
Dr. P. Thangaraju, M.Sc., Ph.D.,  
Qualified Person

Place: Salem

Date: 04.08.2020



This Mining Plan is Approved  
Subject to the Conditions / Stipulation &  
Indicated in the Mining Plan Approval  
Letter No: 180/2020/Mines-Adt  
Office of the A.D. Geology & Mining Salem

This Mining Plan is approved based on the  
Incorporation of the particulars specified  
in the letter of the commissioner of Geology  
and Mining, Chennai No. 3043/UC/2012  
Dated 15-11-2012 and subjected to further  
fulfillment of the provisions laid down  
under Tamil Nadu Minor Mineral Concession Rules 1959

*Dr. P. Thangaraju*  
20/11/20  
ASSISTANT DIRECTOR (I/C)  
Dept. of Geology & Mining,  
SALEM.

*JW*  
20/11/21





கனிப்பரணை

**பொருள்:** கனிமங்களும் குவாரிகளும் - சிறுகனிமம் - சாதாரண கற்கள் - சேலம் மாவட்டம் - சேலம் வட்டம் - பனாமாத்தூட்டி கிராமம் - புல எண்.1/7 (பாகம்-11) விஸ்தீரணம் 100.0 ஹெக்டேர் பரப்பளவில் அரசு நிலத்தில் அமைந்துள்ள சாதாரண கற்குவாரிக்கு டெண்டருடன் இணைந்த பொது ஏல முறையில் குத்தகை வழங்க டெண்டர்/பொது ஏலம் நடத்தப்பட்டது - பொது ஏலத்தில் அதிக தொகை கோரிய திரு.பி.சிவக்குமார் என்பவருக்கு சாதாரண கற்குவாரி குத்தகை வழங்குதல் தொடர்பாக கரங்கத்திட்டம், பாநில கற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின் தலையின்மைச் சான்று மற்றும் தகிற்றாடு மாசு கட்டுப்பாட்டு வாரிய இசைவு ஆகியவற்றை பெற்று வழங்க கோருதல் - தொடர்பாக.

- பார்வை:**
1. சேலம் மாவட்ட அரசிதழ் சிறப்பு வெளியீடு எண்.03, நாள் 22.01.2020.
  2. 31.01.2020 அன்று திளாமணி நாளிதழில் வெளியிடப்பட்ட பத்திரிக்கை செய்தி.
  3. திரு.பி.சிவக்குமார் த/பெ.எஸ்.பன்னீர்செல்வம், எண். 268/8, 2-வது கிராஸ் தெரு, காட்டுர், அழகாபுரம், சேலம்-636016 என்பவரது பொது ஏல விண்ணப்பம் நாள் 06.02.2020.
  4. திரு.எம்.கார்த்திக் த/பெ.முத்துவேல் எண்.373/96எம், சண்முகம் தெரு, அழகாபுரம், சேலம்-636 016 என்பவரது பொது ஏல விண்ணப்பம் நாள். 06.02.2020.

சேலம் மாவட்டம், சேலம் வட்டம், பனாமாத்தூட்டி கிராமம், புல எண்.1/7 (பாகம்-11) விஸ்தீரணம் 100.0 ஹெக்டேர் பரப்பளவில் அமைந்துள்ள சாதாரண கற்குவாரிக்கு பத்து ஆண்டுகளுக்கு குவாரி குத்தகை வழங்குவது தொடர்பாக, 06.02.2020 அன்று நடைபெற்ற டெண்டருடன் இணைந்த பொது ஏலத்தில் திரு.பி.சிவக்குமார் த/பெ.எஸ்.பன்னீர்செல்வம், எண். 268/8, 2-வது கிராஸ் தெரு, காட்டுர், அழகாபுரம், சேலம்-636016 என்பவர் அரசு நிர்ணயம் செய்த குறைந்த பட்ச குத்தகை தொகையை விட அதிக தொகையான ரூ.30,40,000/- (ரூபாய் முப்பது இலட்சத்து நூற்பதாயிரம் மட்டும்) பொது ஏலத்தில் கோரியதால் அவருக்கு தகிற்றாடு சிறுகனிம சலுகை விதிகள், 1959-ன் விதி 8(6)(b)-ன்படி அவருக்கு கீழ்க்கண்ட நிபந்தனைகளுடன் குவாரி குத்தகை உரிமம் வழங்க உத்தேசிக்கப்பட்டுள்ளது.

- (i) குவாரி குத்தகை உரிமம் வழங்க உத்தேசிக்கப்பட்டுள்ள குவாரிக்கு அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளிவிட்டு குவாரிப்பணி செய்ய வேண்டும்.
- (ii) அருகிலுள்ள அரசு புறம்போக்கு புலங்கள், வண்டிப்பாதை மற்றும் கிராம சாலையகளுக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளியும், நெடுஞ்சாலை, பிள்கம்பி பாதை, ஓடை மற்றும் நிலையான அமைப்புகளுக்கு 50 மீட்டர் பாதுகாப்பு இடைவெளியும் விட்டு குவாரிப் பணி செய்ய வேண்டும்.

1) மேலும் மாவட்ட அரசிதழ் எண்.03, நாள் 22.01.2020-ல் குறிப்பிட்டுள்ள நியந்தனைகளை தவறாமல் கண்டித்து குவாரிப் பணி செய்ய வேண்டும்.

2) எனவே, சேலம் மாவட்டம் மற்றும் வட்டம், பனாரத்தூட்டி கிராமம், புல எண்.17 (பாகம்-11) விஸ்தீரணம் 100.0 ஹெக்டேர் பரப்பளவில் புல வளர்ப்பதற்கு குறிப்பிட்டுள்ள பகுதியில் குவாரி குத்தகை ஒப்பந்த ஆவணம் நிறைவேற்றும் நாளிலிருந்து 10 ஆண்டுகளுக்கு எதிரான கற்கள் வெட்டியெடுக்க குவாரி குத்தகை வழங்குதல் தொடர்பாக தமிழ்நாடு சிறுகணிம சலுகை விதிகள் 1959-ன் விதி 41 மற்றும் 42 ஆகியவற்றில் கண்டுள்ள காலவரையறைக்குள் காரங்கத்திட்டம், பாநில சுற்றுச்சூழல் பாதிப்பு மதுப்பீட்டு ஆவணயத்தின் இரைய மற்றும் தமிழ்நாடு மாகாட்டுப்பாட்டு வாரிய இலாகா ஆகியவற்றை சம்பந்திக்க வேண்டும் என திரு.பி.சிவக்குமார் என்பவருக்கு தெரிவிக்கப்படுகிறது.

3) உரிய காலத்தில் செற்கண்ட ஆவணங்களை சம்பந்திக்க தவறாமல் விதிகளின்படி உரிய நடவடிக்கை எடுக்கப்படும் எனவும் தெரிவிக்கப்படுகிறது.

4) மேற்கூறிய ஆவணங்களை சம்பந்தித்த பின்பு குவாரி குத்தகை வழங்கப்பட்டு குவாரி குத்தகை ஒப்பந்த ஆவணம் நிறைவேற்றிய பின்பே மேற்கண்ட புலத்தில் குவாரிப் பணிகளை தொடங்க வேண்டும். தவறாமல் தமிழ்நாடு சிறுகணிமச் சலுகை விதிகள் 1959-ன் விதி 36 (அ)-ன் ஈ உரிய நடவடிக்கை எடுக்கப்படும் எனவும் தெரிவிக்கப்படுகிறது.

இரையை: புல வளர்ப்ப. ம்.

(மும்-ச.அ.ராமன்)  
மாவட்ட ஆட்சித்தலைவர்,  
சேலம்.

//என்எம் நகலில் தயாரிக்கப்படுகிறது//

மாவட்ட ஆட்சித்தலைவருக்காக,  
சேலம்.

பெறுதல்:-

திரு.பி.சிவக்குமார்,  
த.பெ.எஸ்.பள்ளிசெல்வம்,  
எண். 268/8, 2-வது கிராம தெரு,  
காட்டுர், அழகாரம்,  
சேலம்-636016.

நகல்: வட்டாட்சியர், சேலம் - குவாரி குத்தகை வழங்க உள்ள புகாரினை புல வளர்ப்பதின் உள்ளவாறு குறுவட்ட ஆளவர் மூலம் அளவிட்டு செய்து என்எல் கற்கள் ஏற்படுத்தி ஒரு வார காலத்திற்குள் தளிக்கை அளிக்க இதன்மூலம் கேட்டுக்கொள்ளப்படுகிறது.

காலம் : 3.5 மீ

அளவு : 3.5 மீ

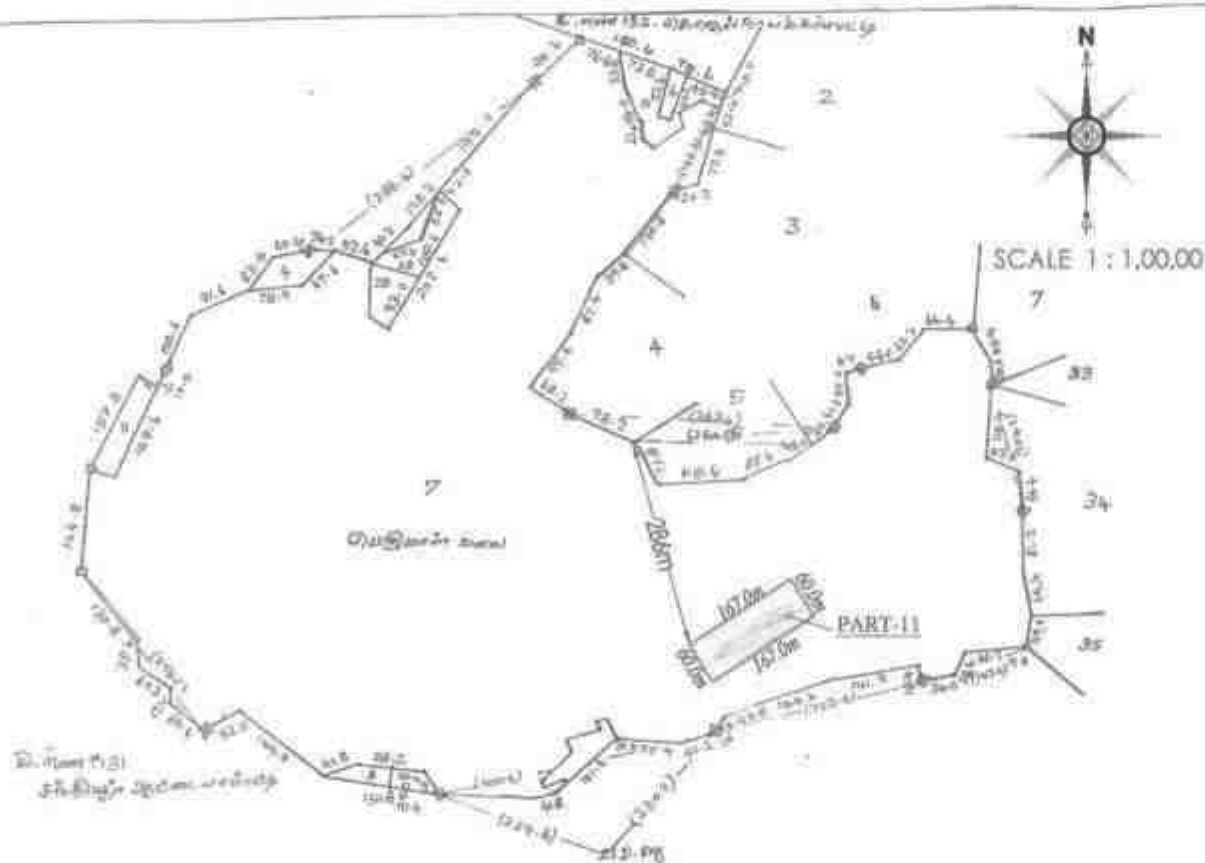
பகுதி - I

பகுதி : 134

பகுதி : 1100 மீ

பகுதி : 77 மீ, 96.5 மீ

13



LEASE APPLIED AREA

LEASE APPLIED AREA 1,00,000

48	284.4	24	92.4	98.0	13
0	284.4			3.4	
47	151.4			I	
	107.0	22.5	46	157.8	
	N			157.0	
	204.2			II	
	O			G	
	R			296.2	
P	193.6			165.8	10.4
	145.4			143.2	
	O	19	17.0	79.4	4.4
	M			61.0	
	225.4	17	6.4	F	
	193.0	17.0	63	315.8	
	185.4	54.3	46	285.4	42.4
	177.4	48.4	43	151.0	
	184.2	48.4	42	116.2	8.4
	181.6	110.4	41	81.2	31.2
46	150.4			E	
	142.0	47.2	39	204.4	
	34.0	100.6	38	129.6	37.0
			37	88.2	59.0
	21.6	28.2	36	D	
	L			33x.5	
	K				
	266.4				
	245.0	24.2	33		
	199.0	24.2	34	38.0	
	134.4	78.8	35	C	
	120.0	61.4	32	305.8	
	59.4	64.4	31	298.0	11.6
	29.8	21.0	30	247.6	20.2
	147.0	106.2	29		
	11.8	126.4	28		
	J				



ANNEXURE

134 1100 1100 1100 1100



LEASE APPLIED AREA 



Sl. No.	Cultivator's Name	Cultivated Area (Acres)	Cultivation Type	No. of Cows	No. of Buffaloes	No. of Pigs	No. of Hens	No. of Ducks	No. of Geese	No. of Fish	No. of Poultry	No. of Other	Total	Remarks
1														
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Total For Survey Number 10/15/2015

40  
Page 1 of 81  
Salem District







## சேலம் மாவட்ட அரசிதழ்

சிறப்பு வெளியீடு

ஆணையின்படி வெளியிடப்பட்டது.

சேலம், ஜனவரி 22, 2020

[விகாரி, தை 8 - திருவள்ளூர் ஆண்டு 2051]

[எண் 3

### மாவட்ட ஆட்சியர் அறிவிக்கை

[ந.க.எண். 430/2018/கனிமம்/அ) நாள்: 20.01.2020]

சாதாரண கற்குவாரி ஒப்பந்தப்புள்ளி (டெண்டர்) மற்றும் பொது ஏலம் குறித்த அறிவிப்பு

டெண்டர் விண்ணப்பங்கள் பெற கடைசி நாள் : 05.02.2020

பொது ஏலம் நடத்துதல் மற்றும் டெண்டர்

விண்ணப்பங்களை பிரித்து பரிசீலிக்கும் நாள் : 06.02.2020

1. சேலம் மாவட்டத்தில் அரசு புறம்போக்கு நிலங்களில் அமைந்துள்ள சாதாரண கற்குவாரிகளிலிருந்து சாதாரண பொது உபயோக சிறுகனிமங்களான சாதாரணகற்களை வெட்டியெடுத்தும் செல்வதற்கு தனிநபர் மற்றும் தனியார் நிறுவனங்களுக்கு குவாரி குத்தகை உரிமம் வழங்க முடி முத்திரையிடப்பட்ட ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்கள் வரவேற்கும் டெண்டர் மற்றும் பொது ஏல அறிவிப்பு.

2. 1959 ஆம் ஆண்டு தமிழ்நாடு சிறுகனிமச் சலுகை விதிகளின் விதி 8-ன்படி சேலம் மாவட்டத்தில் இத்துடன் இணைக்கப்பட்ட அட்டவணையில் குறிப்பிடப்பட்டுள்ள அரசு புறம்போக்கு நிலங்களில் அமைந்துள்ள சாதாரண கற்குவாரிகளிலிருந்து சாதாரணகற்களை குவாரி செய்து எடுத்துச் செல்ல டெண்டருடன் இணைந்த ஏல முறையில் குவாரி குத்தகை உரிமம் வழங்க முடி முத்திரையிடப்பட்ட டெண்டர் விண்ணப்பங்கள் 3 பிரதிகளில் சேலம் மாவட்ட ஆட்சியரால் வரவேற்கப்படுகின்றன.

3. இந்த அறிவிக்கையின்படி விண்ணப்பிக்கப்படும் ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பம் 1959 ஆம் வருடத்திய தமிழ்நாடு சிறுகனிமச் சலுகை விதிகளின் பின்இணைப்பு VI-ல் குறிப்பிடப்பட்டுள்ள படிவத்தில் இருக்க வேண்டும். யாதிரி விண்ணப்பப்படிவம் இந்த மாவட்ட அரசிதழ் சிறப்பு வெளியீட்டின் இணைப்பில் பிரசுரிக்கப்பட்டுள்ளது. இணைப்பில் பிரசுரிக்கப்பட்டுள்ள படிவம் VI-ன்படி பூர்த்தி செய்து அனுப்பப்படாத விண்ணப்பங்கள் ஏற்றுக் கொள்ளப்பட மாட்டாது.

4. ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்களுடன் இணைத்து அனுப்பப்பட வேண்டிய இணைப்புகளின் விவரங்கள் மற்றும் குத்தகை நிபந்தனைகள் பற்றிய விவரங்கள் குறிப்பிடப்பட்டுள்ள அரசிதழ் சேலம் மாவட்ட ஆட்சியர் அலுவலகம், சேலம் மாவட்டம், புவியியல் மற்றும் சுரங்கத்துறை, துணை இயக்குநர் அலுவலகம், சேலம் மாவட்டத்திலுள்ள வருவாய் கோட்டாட்சியர், வட்டாட்சியர்கள் மற்றும் ஊராட்சி ஒன்றிய ஆணையர்கள் அலுவலகங்களின் தகவல் பலகையில் விளம்பரம் செய்யப்பட்டுள்ளது.



5. அட்டவணையில் குறிப்பிட்டுள்ள குவாரிகளின் குத்தகை காலம் குத்தகை ஒப்பந்த பத்திரம் நிறைவேற்றப்பட்ட நாளிலிருந்து 5 ஆண்டுகள் / 10 ஆண்டுகள் ஆகும்.

6. ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பதாரர் தனது விண்ணப்பத்தில் குவாரியின் மொத்த குத்தகை காலத்திற்குரிய அட்டவணையில் செலுத்தத்தக்க குத்தகை தொகையை உரிய இடத்தில் எண்ணிலும் எழுத்திலும் தெளிவாக குறிப்பிட வேண்டும்.

7. மாவட்ட ஆட்சியர், வருவாய் கோட்டாட்சியர், வருவாய் வட்டாட்சியர்கள், ஊராட்சி ஒன்றிய ஆணையர், துணை இயக்குநர் (புவியியல் மற்றும் சுரங்கத்துறை) அலுவலக தகவல் பலகைகளில் அறிவிப்பு செய்யப்பட்டுள்ள அரசிதழில் கண்டுள்ள நிபந்தனைகளின்படி பூர்த்தி செய்யப்பட்ட ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்களை அனைத்து இணைப்புகளுடன் கவரில் வைத்து மூடி முத்திரை இட்டு மாவட்ட ஆட்சித்தலைவர், சேலம் என்று விவாசகிட்டு நேரிலோ அல்லது ஒப்புகை பெறத்தக்க பதிவச்சல் மூலமாகவோ மாவட்ட ஆட்சியர் அலுவலக வளாக இரண்டாம் தளத்தில் அறை எண்.206B-ல் உள்ள புவியியல் மற்றும் சுரங்கத்துறை, துணை இயக்குநர் அலுவலகத்தில் 2020-ம் ஆண்டு பிப்ரவரி திங்கள் 05-ஆம் நாள் மாலை 05.00 மணிக்குள் கிடைக்கும்படி அனுப்பப்பட வேண்டும். கவரின் மீது விண்ணப்பிக்கும் குவாரியின் விவரம் மற்றும் அட்டவணையில் குறிப்பிட்டுள்ள குவாரியின் வரிசை எண் போன்றவற்றை தவறாமல் குறிப்பிட வேண்டும்.

8. மேலே குறிப்பிட்ட காலக்கெடுவிற்குள் வரப்பெற்ற விண்ணப்பங்கள் மட்டும் மாவட்ட ஆட்சியரால் அல்லது அவரது அங்கீகாரம் பெற்ற அலுவலரால் சேலம் மாவட்ட ஆட்சியர் அலுவலக வளாகத்தில் சேலம், சங்ககிரி, மேட்டு மற்றும் ஆத்தூர் வருவாய் கோட்டத்தில் அமைந்துள்ள கல் குவாரிகளுக்கு 2020-ம் ஆண்டு பிப்ரவரி திங்கள் 06-ஆம் நாள் அன்று முற்பகல் 11.00 மணிக்கு ஆஜராகியிருக்கும் சம்பந்தப்பட்ட குவாரிக்கு விண்ணப்பித்துள்ள விண்ணப்பதாரர்கள் மற்றும் பொது ஏலத்தில் கலந்து கொள்பவர்கள் முன்னிலையில் அட்டவணைகளில் உள்ள குவாரிகளின் வரிசை கிரமமாக முதலில் பொது ஏலமும் பின்னர் ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்கள் திறப்பதும் மேற்கொள்ளப்படும்.

9. மேலே குறிப்பிட்ட நாளில் ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்கள் திறப்பதற்கு முன்னர் ஒவ்வொரு குவாரிக்கும் தனித்தனியே பொது ஏலம் விடப்படும். ஏல நடவடிக்கை முடிவு பெற்ற பின்பு சம்பந்தப்பட்ட குவாரிக்கு வரப்பெற்ற டெண்டர் விண்ணப்பங்கள் பிரித்து பரிசீலிக்கப்படும். டெண்டர் விண்ணப்பம் மூலம் கோரப்பட்டுள்ள உயர்ந்தபட்ச டெண்டர் தொகை அல்லது ஏலம் மூலம் கோரப்பட்ட உயர்ந்தபட்ச குத்தகை தொகை இதில் எது அதிகமோ அத்தொகையே சம்பந்தப்பட்ட குவாரிக்கான உயர்ந்தபட்ச குத்தகை தொகையாக எடுத்துக்கொள்ளப்பட்டு குவாரி குத்தகை உரிமம் வழங்குதல் சம்பந்தமாக நடவடிக்கைகள் மேற்கொள்ளப்படும்.

10. மேற்கண்டபடி வரப்பெறும் டெண்டர் / ஏல விண்ணப்பங்கள், 1959-ஆம் வருடத்திய தபிழ்நாடு சிறுகளியச் சலுகை விதிகள், சுரங்கங்கள் மற்றும் கனிமங்கள் (மேம்படுத்ததல் மற்றும் முறைப்படுத்ததல்) சட்டம், 1957 மற்றும் இந்த ஏல அறிவிப்பில் குறிப்பிட்டுள்ள முக்கிய நிபந்தனைகளின்படி பரிசீலிக்கப்பட்டு அவற்றின்மீது மாவட்ட ஆட்சியரால் தக்க ஆணைகள் பிறப்பிக்கப்படும்.

11. இந்த மாவட்ட அரசிதழ் அறிவிக்கை பிரசுரிக்கப்பட்ட பின்னரோ, குத்தகை உறுதி ஆணை பிறப்பிப்பதற்கு முன்னரோ, நிபந்தனைகளை மாற்றவோ அல்லது ரத்து செய்யவோ மற்றும் பட்டியலில் கண்டுள்ள எல்லா குவாரிகளின் குத்தகை உரிமம் கோரும் ஒப்பந்தப்புள்ளி மனுக்களை எக்காரணமும் கூறாமல் ரத்து செய்யவோ அல்லது மேற்படி மனுக்களை மூடி முத்திரையிடப்பட்ட உறைகளை திறக்கும் நாள் நேரம் மற்றும் ஏலம் நடக்கும் நாள் மற்றும் நேரம் ஆகியவைகளை தள்ளிவைக்கவோ நிறுத்திவைக்கவோ மாவட்ட ஆட்சியருக்கு முழு அதிகாரம் உண்டு. ஏதாவது காரணத்தினால் ஒத்திவைக்க நேர்ந்தால் அதற்கு மனுதாரர்கள் யாருக்கும் நஷ்ட எடு கேட்க உரிமை இல்லை.

12. விண்ணப்பதாரர் ஒவ்வொரு குவாரிக்கும் தனித்தனியே ஒரு ஒப்பந்தப்புள்ளி விண்ணப்பத்தை உரிய இணைப்புகளோடு அனுப்ப வேண்டும். ஒரே விண்ணப்பத்தில் ஒரு குவாரிக்கு மேல் பல குவாரிகளை குறிப்பிட்டு அனுப்பும் விண்ணப்பம் நிராகரிக்கப்படும்.

13. ஒப்பந்தப்புள்ளி விண்ணப்பம் அனுப்புவதற்கு முன்/ ஏலத்தில் கலந்து கொள்வதற்கு முன் இம்மாவட்ட அரசிதழ் அறிவிக்கையுடன் இணைக்கப்பட்டுள்ள பட்டியலில் கண்ட சம்பந்தப்பட்ட குவாரியை / குவாரிகளை விண்ணப்பதாரர் தனது சொந்த செலவிலேயே நேரில் பார்வையிட்டு பாதை வசதி, கனிமத்தின் தரம் மற்றும் கனிமத்தின் இருப்பு ஆகியவற்றை ஆராய்ந்து பின்னர் குத்தகை உரிமம் கோரி விண்ணப்பிக்க வேண்டும் மற்றும் ஏலத்தில் கலந்து கொள்ளவேண்டும். ஆணை வழங்கப்பட்ட பின் குவாரி அமைந்துள்ள புல எண், பரப்பு, குவாரிகளின் நான்கு எல்லைகள், பாதை வசதி, கனிமத்தின் தரம், கனிமத்தின் இருப்புக்குறித்து எவ்வித தரவாரும் செய்ய குத்தகைதாரருக்கு உரிமை கிடையாது.





14. 1959ஆம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகளில் கண்டுள்ள அனைத்து சாராயசங்களையும் பற்றி அரசிதழில் உள்ள அனைத்து நிபந்தனைகளையும் நன்கு தெரிந்து கொண்டபின் ஒப்பந்தப்புள்ளி விண்ணப்பங்களை உரிய இணைப்புகளோடு அனுப்பவேண்டும். விண்ணப்பம் அனுப்பிய பிறகு விதிகள் மற்றும் குத்தகை நிபந்தனைகள் பற்றி சரியாக தெரிபாது என மனுதாரர் வாதிட்டால் அது ஏற்றுக்கொள்ளப்பட மாட்டாது.

15. ஒப்பந்தப்புள்ளி (டெண்டர்) மற்றும் ஏல நிபந்தனைகள் :

1) ஒவ்வொரு குவாரிக்கும் இந்த அரசிதழின் பிறசேர்க்கையில் பிரசுரிக்கப்பட்டுள்ள இணைப்பு VI-ல் காணும் மாதிரி விண்ணப்ப படிவத்தின்படி தனித்தனி விண்ணப்பங்களில் விண்ணப்பிக்க வேண்டும்.

2) நட்பில் ஒரு நபருக்கு இரண்டு குவாரிகளுக்கு மட்டும் தான் குத்தகை உரிமம் வழங்கப்படும்.

3) இந்த அரசிதழின் அட்டவணையில் குறிப்பிட்டுள்ள குவாரிகளின் குத்தகை காலம் குத்தகை ஒப்பந்த பத்திரம் நிறைவேற்றப்பட்ட நாளிலிருந்து 5 ஆண்டுகள் / 10 ஆண்டுகள் ஆகும். குத்தகை ஒப்பந்தப்பத்திரத்தில் குறிப்பிடப்படும் இறுதி நாளில் குத்தகை காலம் முடிவடையும், குத்தகை காலம் எக்காரணத்தையொன்றும் நீட்டிக்கப்பட மாட்டாது.

4) ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பத்துடன் கீழ்க்கண்டவற்றை இணைத்து அனுப்ப வேண்டும்.

(அ) திரும்ப வழங்க இயலாத விண்ணப்பக் கட்டணமாக ரூ.1,500/-க்கான கேட்பு வரைவோலையை (Demand draft) ஏதேனும் ஒரு தேசிய மயமாக்கப்பட்ட வங்கியில் மாவட்ட ஆட்சியர், சேலம் மாவட்டம் அவர்களின் பதவியின் பெயரில் பெற்று இணைக்க வேண்டும்.

(ஆ) பிணை வைப்புத்தொகை (Earnest Money Deposit) ரூ.25,000/- (ரூபாய் இருபத்தைத்தாயிரம் மட்டும்)-க்கான கேட்பு வரைவோலை ஏதேனும் ஒரு தேசியமயமாக்கப்பட்ட வங்கியில் மாவட்ட ஆட்சியர், சேலம் மாவட்டம் அவர்களின் பதவியின் பெயரில் பெற்று இணைக்க வேண்டும். குத்தகை உரிமம் வழங்கப்படுபவர் செலுத்த வேண்டிய டெண்டர்/ஏலத் தொகையில் இந்த தொகை பின்னர் சரி செய்து கொள்ளப்படும்.

(இ) ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பத்தில் குறித்துள்ள மொத்த குத்தகை தொகையில் 10 சதவீதத் தொகைக்கான கேட்பு வரைவோலை (Demand draft) மாவட்ட ஆட்சியர், சேலம் மாவட்டம் அவர்களின் பதவியின் பெயரில் ஏதேனும் ஒரு தேசியமயமாக்கப்பட்ட வங்கியில் பெற்று இணைக்க வேண்டும்.

5) ஏலத்தில் நேரடியாக கலந்து கொள்பவர்கள் திருப்பித்தரப்படாத விண்ணப்பக்கட்டணம் ரூ.1,500/- மற்றும் பிணை வைப்புத்தொகை ரூ.25,000/- ஆகியவற்றிற்கான கேட்பு வரைவோலைகள் (Demand draft) மாவட்ட ஆட்சியர், சேலம் மாவட்டம் அவர்களின் பதவியின் பெயரில் ஏதேனும் ஒரு தேசியமயமாக்கப்பட்ட வங்கியில் பெற்று ஏலத்தில் நேரடியாக கலந்து கொள்வதற்கு முன்னர் ஏலம் நடத்தும் அலுவலரிடம் சமர்ப்பிக்க வேண்டும். மேலும் ஏலம் மூலம் கோரப்பட்ட உயர்ந்தபட்ச தொகை டெண்டர் மூலம் கோரப்பட்ட உயர்ந்த பட்ச தொகையைவிட அதிகமாக இருந்தால் ஏலத்தொகையில் 10 சதவீதத்தொகையை உடனே ஏலம் நடத்தும் அலுவலரிடம் தேசிய மயமாக்கப்பட்ட ஏதேனும் ஒரு வங்கியில் பெறப்பட்ட கேட்பு வரைவோலையாகவோ அல்லது ரொக்க தொகையாகவோ செலுத்தி தக்க இரசீதுகள் பெற்றுக்கொள்ள வேண்டும்.

6) மாவட்ட வாரியாக கனிம வாரியாக விண்ணப்பதாரர் / ஏலதாரர் நேரடியாகவோ அல்லது பங்குதாரராகவோ தொடர்புள்ள குவாரிகள் பற்றிய கீழ்க்கண்ட விவரங்களை ஆணை உறுதி வாக்குமூலம் (அபிடவிட்) மூலம் தெரிவிக்க வேண்டும்.

i. அனுபவத்திலிருக்கும் குவாரி குத்தகை அனுமதி பற்றிய விவரம்

ii. ஏற்கனவே விண்ணப்பித்து இதுவரை அனுமதி வழங்கப்படாத குவாரி குத்தகை அனுமதி பற்றிய விவரம்.

iii. தற்போது உடன்திகழ்வாக விண்ணப்பிக்கும் குவாரி குத்தகை அனுமதி விவரம்.

iv. விண்ணப்பதாரருக்கு கனிம குத்தகையுள்ள மாவட்ட ஆட்சியரால் வழங்கப்பட்ட செல்லத்தக்க கார்ட்வரி நிறுவன இல்லா சான்றிதழ் அல்லது கார்ட்வரி நிறுவன இல்லை என்பதற்கான ஆணையுறுதி வாக்குமூலம் இணைக்கப்படவேண்டும்.

v. வருமான வரி செலுத்திய சான்றிதழ் அல்லது வருமானவரி பாக்கியில்லை என்பதற்கான ஆணையுறுதி வாக்குமூலம் இணைக்கப்படவேண்டும்.



7) ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்கள் பேற்கூறிய இணைப்புகளுடன் நேரிலோ அல்லது ஒப்புகை பெறத்தக்க பதிவஞ்சல் மூலமாகவோ மாவட்ட ஆட்சியர் அலுவலக கட்டடத்தில், இரண்டாம் தாத்தில் அறை எண் 206B-ல் இடங்கி வரும் சேலம் மாவட்டம், புவியியல் மற்றும் கரங்கத்துறை, துணை இயக்குநர் அலுவலகத்தில் 2020-ஆம் ஆண்டு பிப்ரவரி திங்கள் 06-ஆம் நாள் மாலை 05.00 மணிக்குள் கிடைக்கும்படி செய்ய வேண்டும். நேரில் விண்ணப்பங்கள் அளித்தால் அதைப்பெற்றுக்கொண்டிருக்கின்ற ஒப்பந்தல் கடிதம் அன்றைய தினமே வழங்கப்படும் தபால் மூலம் பெறப்படும் விண்ணப்பத்திற்கு ஒப்பந்தல் கடிதம் மூன்று தினங்களுக்குள் தாலில் அனுப்பிவைக்கப்படும். டெண்டர் விண்ணப்பங்கள் மூடி முத்திரையிடப்பட்ட கவர்களில் மட்டுமே அனுப்பிவைக்கப்பட வேண்டும். கவரின் மேல்புறத்தில் விண்ணப்பதாரரின் பெயர் மற்றும் விவரம் தெளிவாக குறிப்பிடப்பட வேண்டும். கவரின் இடது மூலையில் கனிமத்தின் பெயர், குவாரி அமைந்துள்ள கிராமம், புல எண், பாப்பு, அரசிதழின் இணைப்பில் பிரகரிக்கப்பட்டுள்ள குவாரிகளின் பட்டியலில் உள்ள வரிசை எண் ஆகியவற்றை தவறாமல் குறிப்பிடவேண்டும்.

8) மாவட்ட ஆட்சியரால்/அல்லது அவரால் அங்கீகாரம் வழங்கப்பட்ட அலுவலரிடம் உள்ள வருகை பதிவேட்டில் விண்ணப்பதாரர்கள் / ஏலதாரர்கள் கையொப்பமிட்டபின்னரே ஏல அறைக்குள் அனுமதிக்கப்படுவார்கள்.

9) குறிப்பிட்ட காலகெடுவிற்குள் வரப்பெற்ற விண்ணப்பங்கள் மாவட்ட ஆட்சியர் அல்லது அவரால் அங்கீகாரம் வழங்கப்பட்டுள்ள அலுவலரால் மாவட்ட ஆட்சியர் அலுவலகத்தில் 2020-ம் ஆண்டு பிப்ரவரி திங்கள் 06-ஆம் நாள்ன்று முற்பகல் 11.00 மணிக்கு வருகை தந்திருக்கும் தொடர்புள்ள குவாரிக்கு விண்ணப்பித்துள்ள விண்ணப்பதாரர்கள் மற்றும் ஏலம் கோர வந்திருக்கும் நபர்களின் முன்னிலையில் ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்கள் திறக்கப்படுவதற்கு முன்னர் ஏலம் நடத்தப்படும். ஏலத்தில் கலந்து கொள்ள விரும்புவோர் பிணை வைப்புத்தொகை ரூ.25,000/-க்கான கேட்பு வரைவோலை மற்றும் விண்ணப்பக்கட்டணம் ரூ.1,500/-க்கான கேட்பு வரைவோலை, கரங்க நிலுவையில்லாச் சான்று அல்லது உறுதிமொழி ஆவணம், ஏலதாரர் நேரிடையாகவோ பங்குதாரராகவோ உள்ள குவாரிகள் தொடர்பான உறுதிமொழி ஆவணம், வருமானவரி நிலுவையில்லாசான்றிதழ் அல்லது உறுதிமொழி ஆவணம் முதலிய ஆவணங்களை ரூ.20/- மதிப்புள்ள நீதி சாரா முத்திரைத்தாளில் சான்று உறுதி அலுவலரிடம் (Notary Public) கையொப்பம் பெற்று விண்ணப்பத்துடன் ஏலம் நடைபெறுவதற்கு முன் ஆஜர்படுத்தவேண்டும். ஏலம் மற்றும் ஒப்பந்தப்புள்ளி (டெண்டர்) கலந்துகொள்பவர் செலுத்தும் விண்ணப்பக் கட்டணத்தொகை ரூ.1,500/- திருப்பித்தரப்படமாட்டாது. ஏலத்தில் நேரிடையாக பங்குபெறுபவர்கள் அளிக்கும் விண்ணப்பத்தில் குத்தகை தொகையை குறிப்பிட தேவையில்லை. ஏற்கனவே டெண்டர் விண்ணப்பம் கொடுத்தவர்கள் ஏலத்தில் கலந்துகொள்ள முடியாவிடில் அவருக்குப்பதிலாக அவரால் நியமிக்கப்பட்ட வேறு ஒரு நபர் மட்டுமே நோட்டரிபப்ளிக் முன்பு விண்ணப்பதாரர் மற்றும் நியமிக்கப்பட்ட நபர் கையெழுத்துக்கள் சான்றுபெறப்பட்ட உறுதிமொழி ஆவணம் (அபிடவிட்) தாக்கல் செய்வதின் பேரில் ஏலத்தில் கலந்து கொள்ள அனுமதிக்கப்படுவார்கள்.

10) ஒப்பந்தப்புள்ளி விண்ணப்படிவத்தில் மறு செய்யும் நபர்கள் தங்கள் மறு செய்யும் குவாரிக்கு குத்தகை தொகையாக செலுத்த விரும்பும் தொகையை விண்ணப்பத்தில் குறிப்பிடாமல் இருந்தாலோ அல்லது விண்ணப்ப கட்டணம், பிணைவைப்புத் தொகை, அதிகப்பட்சமாக குறிப்பிடும் குத்தகை தொகையின் 10% தொகை ஆகியவற்றிற்கான வங்கி வரைவோலைகளை விண்ணப்பத்துடன் இணைக்காமல் இருந்தாலோ விண்ணப்பத்தாளில் விண்ணப்பதாரர் தன் கையொப்பம் செய்யாமல் இருந்தாலோ 1959-ம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகளில் கூறப்பட்ட கரங்கவரி பாக்கியின்மை சான்றிதழ், வருமானவரி பாக்கியின்மை சான்றிதழ் அல்லது இலகைகளுக்காக வழங்கப்படும் ஆணை உறுதி ஆவணம் மற்றும் ஏற்கனவே மறுதாரர் நேரிடையாகவோ, பங்குதாரராகவோ உள்ள குவாரிகள் தொடர்பான உறுதிமொழி ஆவணம் ஆகியவற்றை இணைக்கப்படாமல் இருந்தாலோ மேற்படி ஒப்பந்தப்புள்ளி விண்ணப்பம் மாவட்ட ஆட்சியரால் அல்லது அவரால் அங்கீகரிக்கப்பட்ட அலுவலரால் நிராகரிக்கப்படும். மேற்குறிப்பிட்டவாறு விண்ணப்பம் நிராகரிக்கப்பட்ட ஒப்பந்தப்புள்ளி விண்ணப்பதாரர்களுக்கு ஒப்பந்த புள்ளிகள் திறக்கும் சமயத்தில் விண்ணப்பதாரர் ஆஜரில் இருந்தால் மட்டும் மாவட்ட ஆட்சியர் அல்லது அவரது அங்கீகாரம் பெற்ற அலுவலரால் விண்ணப்பதாரரிடம் தக்க ஒப்பந்தல் பெற்று வங்கிவரைவோலை திருப்பி வழங்கப்படும். ஒப்பந்தப்புள்ளி திறக்கும் சமயத்தில் ஆஜரில் இல்லாத நபருக்கு பதிவஞ்சல் மூலம் வங்கி வரைவோலைகள் தனியே அனுப்பி வைக்கப்படும்.

11) ஒவ்வொரு குவாரிக்கும் பொது ஏலம் நடத்தி முடித்தபின்னர் சம்பந்தப்பட்ட குவாரிக்கான டெண்டர் விண்ணப்பங்கள் வருகை தந்திருக்கும் சம்பந்தப்பட்ட டெண்டர் விண்ணப்பதாரர்கள் மற்றும் ஏலதாரர்கள் அல்லது அவர்களது அதிகாரம் பெற்ற நபர்கள் முன்னிலையில் சம்பந்தப்பட்ட அதிகாரிகளால் திறக்கப்படும். ஒப்பந்தப்புள்ளி (டெண்டர்) திறக்கும் நேரத்தில் விண்ணப்பதாரர் அல்லது ஏலதாரர் அல்லது அங்கீகாரம் பெற்ற நபர் ஆஜரில் இல்லாததற்கு மாவட்ட நிர்வாகம் பொறுப்பு அல்ல. மேலும் ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பம் திறப்பதோ ஏலம் நடத்துவதோ நிறுத்தி வைக்கப்படமாட்டாது.



12) மாவட்ட ஆட்சியர் அல்லது அவரது அங்கீகாரம் பெற்ற அலுவலர் மேற்கண்ட குவாரிக்கு வரப்பெற்ற மொத்த செல்லத்தக்க விண்ணப்பங்கள், விண்ணப்பதாரர்களின் பெயர்கள், ஒவ்வொரு விண்ணப்பதாரராலும் குறிப்பிடப்பட்ட அதிகபட்ச டெண்டர் தொகை ஆகியவற்றையும், அதிகபட்ச தொகைக்கு ஏலம் கேட்ட நபரின் பெயர் மற்றும் அதிகபட்ச அலுவலர் ஆகியவற்றையும் ஏலம் முடிவடைந்தவுடன் அறிவிப்பார். ஏலத்தொகை, ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பத்தில் குறிப்பிடப்பட்டுள்ள குத்தகை (டெண்டர்) தொகையை விட குறைவாக இருந்து ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்கள் மூலமாக கோரப்படும் குத்தகை தொகைகள் ஒன்றுக்கும் மேற்பட்ட விண்ணப்பதாரர்களால் ஒரே மாதிரியாக குறிப்பிடப்பட்டிருந்தால் மாவட்ட ஆட்சியர் அல்லது அவரால் அங்கீகாரம் அளிக்கப்பெற்று அலுவலர் சம்பந்தப்பட்ட விண்ணப்பதாரர்களை மட்டும் அழைத்து சம்பந்தப்பட்ட குவாரிக்கு மட்டும் மறுகேட்பு மூலம் உயர் குத்தகை தொகை பெற நடவடிக்கை எடுக்கப்படும். அதிகபட்ச குத்தகைத்தொகை கோரும் நபர் அதிகபட்ச ஏலத்தொகை கோரிய நபராக அறிவிக்கப்படுவார். ஒவ்வொரு குவாரிக்கும் பெறப்பட்ட ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்களில் குறிப்பிடப்பட்டுள்ள அதிகபட்ச குத்தகைத்தொகை அல்லது பொது ஏலத்தின் மூலம் கேட்கப்படும் அதிகபட்ச குத்தகைத் தொகை இவற்றில் எது அதிகமோ அந்த தொகை மேற்கண்ட குவாரிக்கு கோரப்பட்ட அதிகபட்ச குத்தகை தொகை என அறிவிக்கப்பட்டு அதிகபட்ச குத்தகைத் தொகை குறிப்பிட வராக அறிவிக்கப்படுவார். அதிகபட்சத்தொகைக்கு டெண்டர்/ஏலம் மூலம் கேட்ட நபர் என மாவட்ட ஆட்சியர் அல்லது அவரால் அங்கீகாரம் பெற்ற நபர் மூலம் உறுதிசெய்யப்பட்டவுடன், டெண்டர்/ஏலம்கேட்ட நபர் அவரால் அதிகபட்சமாக கோரப்பட்ட தொகையில் பத்து சதவிகித தொகையினை கேட்பு வரையோரையாகவோ / பணமாகவோ உடனடியாக செலுத்தி வேண்டும். அவ்வாறு செலுத்தத் தவறும் பட்சத்தில் அவரது ஏலம் / டெண்டர் ரத்து செய்யப்பட்டு அவருக்கு அடுத்தபடியாக அதிகபட்சத்தொகை கேட்ட நபருக்கு வாய்ப்பளிக்கப்படும். அவரும் பத்து சதவிகிதத்தொகையினை செலுத்த தவறும் பட்சத்தில் இதே நடைமுறையை தொடர்ந்து நடத்துவது அல்லது மறு ஏலம் விட ஆணையிடுவது போன்றவை மாவட்ட ஆட்சியரின் இறுதி முடிவு மற்றும் அதிகார வரம்பிற்கு உட்பட்டதாகும். அதிகபட்ச ஏலம் / டெண்டர் கேட்ட நபரை தவிர மற்றவர்களுக்கு அவர் தாம் செலுத்திய பிணைவைப்பத்தொகை திரும்ப தரப்படும். ஏலம் / டெண்டர் உறுதி செய்யப்பட்ட நபர் மீதமுள்ள 90 சதவீத தொகையினை ஏழு தினங்களுக்குள் செலுத்திவிட வேண்டும். தவறும் பட்சத்தில் ஏலம் / டெண்டர் ரத்துச் செய்யப்பட்டு அவர்செலுத்திய அனைத்து தொகைகளும் பறிமுதல் செய்து அரசு கணக்கில் சேர்க்கப்படும்.

### 13) (அ) சிறப்பு நிபந்தனைகள்:

(i) இந்த டெண்டர் மற்றும் ஏலமுறையில் கலந்து கொள்ளும் விண்ணப்பதாரர்கள் அனைவரும் இந்திய அரசின் வருமான வரித்துறையினரால் வழங்கப்படும் நிரந்தர கணக்கு எண் (PAN - CARD) அட்டையை பெற்றிருக்கவேண்டும்.

(ii) இந்த நிரந்தர கணக்கு எண்ணை சமர்ப்பித்து டெண்டர் மற்றும் ஏலம் கோரும் தொகைக்கு 200 சதவீத வருமான வரியை சேலம் மாவட்ட புவியியல் மற்றும் கரங்கத்தறை, துணை இயக்குநர் அவர்களுக்கு வருமான வரித்துறையினரால் அளிக்கப்பட்டுள்ள TAN.No.CHEA10399E-ன் கீழ் உரிய வருமானவரித்துறை செலுத்துச்சீட்டின் மூலம் செலுத்தவேண்டும்.

(iii) மேலும் குத்தகை உரிமம் பெற்ற பின்னர் கனிமங்களை எடுத்துச் செல்ல போக்குவரத்து அனுமதி சீட்டுபெற ஒவ்வொருமுறையும் செலுத்துகின்ற சீனியரேஜ் தொகையின் மீது 200 சதவீத வருமான வரி தொகை செலுத்தவேண்டும்.

(iv) மேலும் குத்தகை உரிமம் பெற்ற பின்னர் கனிமங்களை எடுத்துச் செல்ல போக்குவரத்து அனுமதி சீட்டுபெற ஒவ்வொருமுறையும் செலுத்துகின்ற சீனியரேஜ் தொகையின் மீது 10 சதவீத தொகை சேலம் மாவட்ட கனிம அறக்கட்டளையின் வங்கி கணக்கில் செலுத்தவேண்டும்.

14) ஒரு குவாரிக்கு ஒரு டெண்டர் விண்ணப்பம் மட்டும் வரப்பெற்று ஏலம் கேட்க யாரும் முன்வரவில்லை எனில் அந்த ஒரு விண்ணப்பதாரர் குறிப்பிட்ட தொகை நியாயமானது என்றும் கனிம அபிவிருத்திக்கு உகந்தது என்றும் மாவட்ட ஆட்சியரால் கருதப்பட்டால் அவருக்கு மாவட்ட ஆட்சியரால் குத்தகை உரிமம் வழங்கப்படும். அந்த ஒரு விண்ணப்பதாரரால் குறிப்பிடப்பட்ட தொகை நியாயமானது அல்ல என்றும் அவருக்கு உரிமம் வழங்குவது கனிம அபிவிருத்திக்கு உகந்ததல்ல என்றும் மாவட்ட ஆட்சியர் கருதினால், அவருடைய விண்ணப்பம் மாவட்ட ஆட்சியரால் நிராகரிக்கப்படும். ஒரு குவாரிக்கு ஒன்றுக்கு மேற்பட்ட விண்ணப்பங்கள் வரப்பெறின் அதிகபட்ச ஏலத்தொகை / டெண்டர் தொகை நியாயமானது எனக் கருதப்படும் பட்சத்தில் குவாரி குத்தகை வழங்க நடவடிக்கை எடுக்கப்படும். ஒரு குவாரிக்கு பெறப்பட்ட அதிகபட்ச ஏலத் தொகை / டெண்டர் தொகை நியாயமானது அல்ல மற்றும் கனிம அபிவிருத்திக்கு உகந்ததல்ல என மாவட்ட ஆட்சியர் கருதும் பட்சத்தில் அதனை ஏற்காமல் நிராகரித்து ஏலத்தொகை / டெண்டர் தொகையில் 10 % தொகையை பெற மறுத்து மறு ஏலம் மற்றும் டெண்டருக்கு கொண்டு வர நடவடிக்கை மேற்கொள்ளப்படும்.





15) 1959-ம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகளின் விதி எண். 41 மற்றும் 42-ன் படி ஆணைத்து சிறுகனிம குவாரிகளுக்கு குவாரி குத்தகை உரிமம் வழங்கும் முன்பு அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம் மற்றும் மாநில / சேலம் மாவட்ட ஆளவியலாள கற்றுக்குழல் தாக்க மதிப்பீட்டு ஆணையம் / இந்திய அரசு கற்றுக்குழல் மற்றும் வளத்துறையின் தடையின்மை சான்று மற்றும் தமிழ்நாடு மாக கட்டுப்பாட்டு வாரியத்தின் இசைவு ஆகியவற்றினை பெற்று சமர்ப்பித்த பின்பு மட்டுமே குவாரி குத்தகை உரிமம் வழங்க முடியும்.

16) அதிகப்படுத்தொகை கேட்ட நபருக்கு குவாரி குத்தகை உரிமம் உறுதிசெய்யப்படுமாயின் அவருக்கு குவாரி குத்தகை உரிமம் வழங்கப்படவுள்ள குவாரியின் புல எண், பரப்பளவு ஆகிய விவரங்கள் அடங்கிய அறிவிக்கை வழங்கப்பட்டு அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம் மற்றும் மாநில / சேலம் மாவட்ட கற்றுக்குழல் தாக்க மதிப்பீட்டு ஆணையம் / மத்திய அரசின் கற்றுக்குழல் மற்றும் வளத்துறையின் தடையின்மை சான்று மற்றும் தமிழ்நாடு மாககட்டுப்பாட்டு வாரிய இசைவு ஆணை ஆகியவற்றை உரிய காலத்திற்குள் சமர்ப்பிக்கவாறு தெரிவிக்கப்படும்.

- i. மேற்கண்ட அறிவிக்கை பெற்றுக்கொண்ட மனுதாரர் சுரங்கத்திட்டத்தை அங்கீகாரம் பெற்ற தகுதி வாய்ந்த நபர் (QP) மூலம் அரசு தெரிவித்துள்ள விதிகள் மற்றும் வழிகாட்டுதலின் படி தயாரித்து அறிவிக்கை பெறப்பட்ட நாளிலிருந்து மூன்று மாத காலத்திற்குள் சேலம், புலியியல் மற்றும் சுரங்கத்துறை, துணை இயக்குநரிடம் அங்கீகாரம் பெற சமர்ப்பிக்க வேண்டும்.
- ii. மேற்கண்ட மனுதாரர் சேலம், புலியியல் மற்றும் சுரங்கத்துறை, துணை இயக்குநரால் அங்கீகாரம் வழங்கப்பட்ட சுரங்கத்திட்டத்தை மாநில / சேலம் மாவட்ட கற்றுக்குழல் தாக்க மதிப்பீட்டு ஆணையம் / மத்திய அரசின் கற்றுக்குழல் மற்றும் வளத்துறையின் முன்பு சமர்ப்பித்து தடையின்மை சான்று கோரி விண்ணப்பித்து தடையின்மை சான்று மற்றும் தமிழ்நாடு மாககட்டுப்பாட்டு வாரிய இசைவு ஆகியவற்றை பெற்று சமர்ப்பிக்க வேண்டும்.
- iii. அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம் முதல் ஐந்து ஆண்டு காலத்திற்கு மட்டுமே செல்லத்தக்கதாகும்.
- iv. மேற்கண்ட ஆவணங்களை சமர்ப்பித்தபின்பு மனுதாரருக்கு குவாரி குத்தகை வழங்கி மாவட்ட ஆட்சியரால் ஆணையிடப்படும் அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம் மற்றும் மாநில / சேலம் மாவட்ட கற்றுக்குழல் தாக்க மதிப்பீட்டு ஆணையத்தின் தடையின்மை சான்று ஆகியவற்றை குறிப்பிட்ட காலக்கெடுவிற்குள் சமர்ப்பிக்க தயாரிப்பால் மாவட்ட ஆட்சியர் அவர்களால் மனுதாரருக்கு மாவட்ட ஆட்சியர் முன்பு விசாரணைக்கு ஆணை வாய்ப்பளித்து விசாரணை நடத்தப்பட்டு ஏற்கனவே வழங்கப்பட்ட உத்தரவு ரத்து செய்யப்படும்.

17) குறிப்பாக, பின்வரும் கல் குவாரி அட்டவணை வரிசை எண். 19-ல் காணும் கல்லாங்குத்து பகுதி Hill Area Conservation Authority (HACA)-ள்கீழ் உள்ள பகுதியாகும். இப்பகுதியை ஏலத்தில் எடுப்பவர் மேற்படி நிபந்தனைகள் பூர்த்தி செய்து, HACA தடையின்மை சான்று பெற்று பின்னரே குவாரிப்பணி செய்ய ஒப்புத்தப்பத்திரம் நிறைவேற்றப்படும். மேலும், இப்பகுதியானது மாண்புமிகு சென்னை உயர்நீதிமன்றத்தில் தொடரப்பட்ட வழக்கு எண் W.P.No.35508/2019-ன் இறுதி ஆணைக்கு உட்பட்டது.

18) மேற்கூறிய உத்தரவு மாவட்ட ஆட்சியரிடமிருந்து கிடைக்கப்பெற்றவுடன் விண்ணப்பதாரர் மாவட்ட ஆட்சியரின் ஆணையில் குறிப்பிடப்பட்ட காலக்கெடுவிற்குள் கீழ்க்கண்ட ஆவணங்களை குத்தகை ஒப்புத்த ஆவணம் நிறைவேற்றுவது தொடர்பாக மாவட்ட ஆட்சியருக்கு சமர்ப்பிக்க வேண்டும்.

(அ) விண்ணப்பதாரரின் கையொப்பமிட்ட வரைவு குத்தகை ஒப்புத்தப்பத்திரம் மற்றும் வரைபடம்.

(ஆ) அசல் குத்தகை ஒப்புத்தப்பத்திரம் தயார் செய்வதற்கு தேவையான நீதி சாரா முத்திரைத்தாள்

(இ) காப்புத்தொகைக்காக ஏலம் / டெண்டர் தொகையில் இருபது சதவீதம் அல்லது ரூ.10,000/-ம் இதில் எது அதிகமோ அதை உரிய அரசு கணக்கு தலைப்பில் வங்கியில் செலுத்தியதற்கான அசல் செலுத்துச்சீட்டு (சலான்).

(ஈ) மாவட்ட ஆட்சியர் ஆணையில் குறிப்பிட்டுள்ள மொத்த குத்தகை பரப்பிற்கான பரப்புவாரி செலுத்தியதற்கான அசல் சலான்.



19) அவ்வாறு குறிப்பிட்ட காலத்திற்குள் மேற்கண்ட ஆவணங்களை மாவட்ட ஆட்சியரிடம் சமர்ப்பித்து அவரினால் மாவட்ட ஆட்சியரால் வழங்கப்பட்ட குத்தகை உரிமம் ரத்து செய்யப்பட்டு அவர் செலுத்திய அனைத்து தொகைகளுக்கும் அரசுக்கு அடாவடி செய்து அரசு கணக்கில் சேர்க்கப்படும்.

20) மேற்கண்ட ஆவணங்களை ஒப்படைத்து குவாரி குத்தகை ஒப்பந்த ஆவணம் நிறைவேற்றிய பின்பே குவாரிப்பணியை தொடங்கவேண்டும். குவாரி குத்தகை ஆவணம் நிறைவேற்றும்பின் குவாரிப்பணி செய்வது கண்டறியப்பட்டால் அது அனுமதியின்றி களிடம் வெட்டியெடுத்ததாக கருதப்பட்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகள், 1959-ன் விதி எண். 36-A-ன் டிபு உரிய நடவடிக்கை எடுக்கப்படுவதுடன் குற்றவியல் நடவடிக்கையும் எடுக்கப்படும்.

21) குவாரி குத்தகைக்காக கோரப்பட்ட மொத்த குத்தகை காலத்திற்குமான ஒரே தடவையில் மொத்தமாக செலுத்துப்படும் குத்தகைத்தொகை நீங்கலாக குத்தகைதாரர் மேற்படி குவாரியில் இருந்து எடுத்துச்செல்ல உத்தேசிக்கும் சிறுகனிமத்திற்கு 1959-ம் வருத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகளின் அட்டவணை II-ல் குறிப்பிடப்பட்டுள்ள விகிதாச்சாரப்படி சீனியரேஜ் கட்டணத்தை செலுத்தி மொத்த இசைவாணைச்சீட்டு மற்றும் அனுப்புகைச் சீட்டு பெற்றுள்ள சிறுகனிமத்தினை எடுத்துச் செல்லவேண்டும். மேலும் அரசால் அவ்வப்போது திருத்தி நிர்ணயிக்கப்படும் சீனியரேஜ் தொகையை செலுத்தி அனுமதிச்சீட்டுப்பெற வேண்டும். மேலும் கனிமங்களை எடுத்துச் செல்ல போக்குவரத்து அனுமதி சீட்டுப்பெற ஒவ்வொரு முறையும் செலுத்துகின்ற சீனியரேஜ் தொகையின் மீது 10 சதவீத தொகை சேலம் மாவட்ட கனிம அறக்கட்டளையின் வங்கி கணக்கில் செலுத்தவேண்டும்.

22) குத்தகைதாரர் ஒவ்வொரு மாதமும் குவாரிப்பணி செய்த தொழிலாளர்கள், குவாரி செய்த கனிமத்தின் அளவிற்குரிய கணக்குகளை பிரதி மாதம் ஐந்தாம் நாளுக்குள் துணை இயக்குனர், புவியியல் மற்றும் சுரங்கத்துறை, சேலம் அவர்களுக்கு தனித்தனிக் கு ஆஜர் செய்ய வேண்டும்.

23) குவாரிகளுக்கு அருகில் உள்ள போக்குவரத்து சாலைகள், கிராம சாலைகள் குடியிருப்பு பகுதிகள், வீடுகள், வண்டிப்பாதைகள், மினர் மற்றும் தொலைபேசி கம்பிகள், மின்மாற்றிகள், ரயில்பாதைகள், பொதுப்பணித்துறை வாய்க்கால், மதசம்பந்தமான வழிபாட்டுத்தலங்கள் மற்றும் இதர நிலையான அளையுடன் இவற்றிலிருந்து 1959-ம் ஆண்டைய தமிழ்நாடு சிறுகனிம சலுகை விதிகளின்படி பாதுகாப்பு இடைவெளி விட்டு மீதுமுள்ள இடத்திற்குள் தான் குவாரிப்பணி செய்யவேண்டும். பொதுமக்கள் உபயோகிக்கும் இடங்கள், குடியிருப்புகள், மட்டா நிலங்கள் அல்லது பொதுச்சொத்துக்கள் ஆகியவற்றிற்கு சேதம் ஏதும் ஏற்படாமல் குவாரிப்பணி செய்யவேண்டும். குவாரி பணியால் சேதம் ஏதும் ஏற்பட்டால் அதற்கு குத்தகைதாரரே முழு பொறுப்பிற்று அதில் ஏற்படும் நட்டத்தை ஈடு செய்து தரவேண்டும்.

24) குத்தகைதாரரை மேற்குறிப்பிட்ட நிபந்தனைகள் அவ்வாறும் 1959-ம் ஆண்டைய தமிழ்நாடு சிறுகனிம சலுகை விதிகள், கனிமங்கள் மற்றும் சுரங்கங்கள் (மேம்படுத்துதல் மற்றும் முறைப்படுத்துதல்) சட்டம் 1957 மற்றும் இந்த அரசிதழில் குறிப்பிடப்பட்டுள்ள சிறப்பு நிபந்தனைகள் மற்றும் அரசால் அவ்வப்போது கொண்டுவரப்படும் ஆணைகளும் விதிகளும் கட்டுப்படுத்தும்.

25) இவ்விதிகளின்கீழ் வழங்கப்படும் குவாரிகளின் குத்தகை காலம் எக்காரணத்தைக் கொண்டும் குத்தகை வழங்கப்பட்ட காலத்திற்கு மேல் நீட்டிக்கப்படவோ அல்லது குத்தகை காலம் பதுப்பிக்கப்படவோ மாட்டாது. குத்தகை காலம் முடிந்தபின் குத்தகைதாரர்கள் குத்தகைக்கு விடப்பட்ட பகுதிகளில் எவ்விதமான உரிமையும் கொண்டாடக்கூடாது.

26) 14 வயதுக்குட்பட்ட குழந்தை தொழிலாளர்களை குவாரிப்பணியில் ஈடுபடுத்தக்கூடாது.

27) இந்த அரசிதழில் குவாரி குத்தகை உரிமத்திற்காக அறிவிக்கப்பட்டிருக்கும் பட்டியலில் உள்ள குத்தகைக்கு விடப்படும் குவாரிகளை டெண்டர் / ஏலம் நடைபெறுவதற்கு முன்பாக நிறுத்தி வைக்கவோ, நீக்கவோ, புதியதாக சேர்க்கவோ, குவாரி பரப்பளவை மாற்றவோ, மாவட்ட ஆட்சியருக்கு அதிகாரம் உண்டு.

28) நிர்வாக குழல் காரணமாக டெண்டர் மற்றும் ஏலத்தை ரத்து செய்ய மாவட்ட ஆட்சியருக்கு அதிகாரம் உண்டு.

29) செய்தித்தான் மூலமாகவோ, மாவட்ட அரசிதழ் மூலமாகவோ, அறிவிப்பு செய்யப்படாத குவாரிகளுக்கு ஏதாவது ஒப்பந்தப்புள்ளி விண்ணப்பங்கள் கிடைக்கப்பெற்றால் அவையாவும் முதிர்ச்சி அடையாத விண்ணப்பமாக கருதப்பட்டு மாவட்ட ஆட்சியரால் உடனடியாக நிராகரிக்கப்படும். குறித்த காலக்கெடுவிற்குள் வந்து சேராத விண்ணப்பங்கள் காலவரையறை கடந்த விண்ணப்பமாக கருதப்பட்டு அவையாவும் மாவட்ட ஆட்சியரால் நிராகரிக்கப்படும். நிராகரிக்கப்பட்ட விண்ணப்பங்களின் வங்கி வரையோலைகள் மட்டும் விண்ணப்பதாரருக்கு திரும்ப அனுப்பி வைக்கப்படும்.



30) 1959-ம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகள் பின்இணைப்பு 1-ல் கண்ட ஒப்பந்தப்பத்திரத்தில் தேவையான அளவிற்கு நிபந்தனைகளை பதியதாக சேர்க்கலோ, நீக்கலோ மாற்றி அமைக்கலோ மாவட்ட ஆட்சியருக்கு அதிகாரம் உண்டு. குத்தகை ஒப்பந்தப் பத்திரம் ஏற்படுத்திய பின்பு பல எண் மற்றும் குவாரி செய்ய ஒதுக்கப்பட்ட பரப்பு குறித்து எவ்வித தாள்மீட்டும் குத்தகைதாரருக்கு உரிமை கிடையாது.

31) குத்தகை ஒப்பந்தப்பத்திரத்தை புலவளர்படத்துடன் சொத்து மாற்றுக்கட்சட்டம் 1882-ன் பிரிவு 107-ன் கீழ் குத்தகைதாரர் தனது சொந்த செலவில் பதிவுசெய்து, பதிவுசெய்த ஒப்பந்தப்பத்திரத்தினை சேலம், புவியியல் மற்றும் சுரங்கத்துறை, துணை இயக்குநர் அலுவலகத்தில் உடன் ஒப்படைக்க வேண்டும்.

32) தமிழ்நாடு சிறுகனிம சலுகை விதிகள், 1959-ன் விதி எண். 36(1) மற்றும் (1A)(e)-ல் வரையறுக்கப்பட்டுள்ளவாறு அருகிலுள்ள குடியிருப்புகளுக்கு பாதுகாப்பு இடைவெளியாக 300 மீட்டரும், கிராம சாலையகளுக்கு 10 மீட்டரும், இதர சாலைகள், கட்டடங்கள், வழிபாட்டு தலங்கள், மின்கம்பி பாதைகள், தொலைபேசி பாதைகள், புகைவண்டிப்பாதைகள், மின்மாற்றிகள், ஆறு, ஏரி, குளம், குட்டை மற்றும் இதர பொது சொத்துக்கள் ஆகியவற்றிற்கு பாதுகாப்பு இடைவெளியாக 50 மீட்டரும் விட்டு மீதமுள்ள இடத்திற்குள் தான் குவாரிப்பணி செய்யப்பட வேண்டும். புராதன சின்னங்களுக்கு தொல்லியல் துறையால் வரையறுக்கப்பட்டுள்ள பாதுகாப்பு இடைவெளி விட்டும் குவாரிப்பணி செய்யவேண்டும். பொதுமக்கள் உபயோகிக்கும் இடங்களான குடியிருப்புகள், பட்டா நிலங்கள் மற்றும் இதர பொதுசொத்துக்கள் ஆகியவற்றிற்கு சேதம் ஏதும் நேரிட்டால் அதற்கு குத்தகைதாரரே முழுபொறுப்பேற்று அதில் ஏற்படும் நட்டத்தை ஈடுசெய்து தரவேண்டும்.

33) நிர்வாக காரணம் மற்றும் பொதுநலனை கருத்தில் கொண்டு குத்தகைக்கு விடப்பட்ட பரப்பினை பின்னர் குறைத்து நிர்ணயிக்கவும், குவாரி குத்தகையை ரத்து செய்யவும் மாவட்ட ஆட்சியருக்கு அதிகாரம் உண்டு.

34) குத்தகைதாரர் 1959-ம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகளின்படியும், மாவட்ட அரசிதழில் கண்டுள்ள நிபந்தனைகளின்படியும், ஒப்பந்தப்பத்திர நிபந்தனைகளின்படியும் நடந்துகொள்ள கட்டமைப்பட்டவராவார். குத்தகைகாலத்தில் சட்டதிட்டங்கள், குவாரி குத்தகை நிபந்தனைகள் மற்றும் ஒப்பந்த விதிகளுக்கு முரண்பட்டு குத்தகைதாரர் நடந்துகொண்டால் குத்தகை ரத்துச்செய்யப்படுவதுடன் காப்புத்தொகை மற்றும் அவர் செலுத்திய அனைத்து தொகைகளும் அரசுக்கு பறிமுதல் செய்யப்படும். அக்குவாரிக்கு மீண்டும் குவாரி குத்தகை வழங்க நடவடிக்கை மேற்கொள்ளப்படும்.

35) குவாரி குத்தகை வழங்கப்பட்ட இடத்தில் சாதாரண கற்களை குவாரி செய்வதில் ஏற்படக்கூடிய நஷ்டங்களுக்கு அரசால் எவ்வித நஷ்ட ஈடும் வழங்கப்பட மாட்டாது.

36) வழங்கப்பட்ட குத்தகை உரிமத்திற்கு பொதுமக்கள் மற்றும் அரசு துறை மூலம் கடுமையான ஆட்சேபம் இருப்பின் பொதுநன்மையை கருதி மாவட்ட ஆட்சியர் குத்தகையை ரத்துச்செய்ய நேரிட்டால் அகுளால் ஏற்படும் இழப்பிற்கு ஈடுகேர குத்தகைதாரருக்கு உரிமை இல்லை.

37) குத்தகைதாரர் குவாரியை வேறு யாருக்கும் மாற்றலோ உள் குத்தகைக்கு விடலோ கூடாது. அப்படி ஏதாவது செய்திருப்பது தெரியவந்தால் மேற்படி குத்தகை ரத்துச்செய்யப்படுவதுடன் குத்தகைதாரர் செலுத்திய தொகையும் அரசுக்கு ஆதாயம் செய்யப்படும்.

38) குத்தகைதாரர் அரசு குறிப்பிட்ட படிவத்தில் அனுப்புகைச் சீட்டுக்களை அச்சிட்டு புவியியல் மற்றும் சுரங்கத்துறை, துணை இயக்குநர் அலுவலகத்தில் சமர்ப்பிக்க வேண்டும். குத்தகைதாரர் சிறுகனிமம் எடுத்து செல்லும் வாகனத்துடன் அனுப்புகைச் சீட்டு கொடுத்து அனுப்ப வேண்டும். இந்த நடைச்சீட்டினை இரு பிரதிகள் அச்சிட்டு வரிசை எண்ணிட்டு தாங்கள் உத்தேசமாக எடுக்க இருக்கும் லோடுகளுக்கு லோடு ஒன்றுக்கு ஒரு சீட்டு விலும் கணக்கிட்டு அதற்குரிய சீனியரேஜ் தொகையில் 2% தொகை வருமான வரி, 10% தொகை மாவட்ட கனிம அறக்கட்டளைக்கு செலுத்திய பின்னர், சேலம், புவியியல் மற்றும் சுரங்கத்துறை, துணை இயக்குநரிடம் அனுப்புகைச்சீட்டு மற்றும் பொத்த இசைவாணைச் சீட்டு ஆகியவற்றில் உரிய முத்திரையும் கையொப்பமும் பெற்றுள்ளே பயன்படுத்த வேண்டும்.

39) ஒப்புதல் பெறப்படாத அனுப்புகைச் சீட்டுடன் கனிமம் கொண்டு செல்லும் வாகனங்கள் அதிலுள்ள சிறுகனிமத்தை முறையற்ற வகையில் எடுத்துச்செல்வதாக கருதப்பட்டு உரிய சட்டத்தின்படி உரிய அலுவலர்களால் கைப்பற்றப்பட்டு அபராதம் விதிக்கப்படும்.



40) புவியியல் மற்றும் சுரங்கத்துறை அலுவலர்கள் அல்லது வருவாய்த்துறை அலுவலர்கள் முதலாளிகள் தனித்தனிக் செய்யப்போது உரிய கணவ்குகள் மற்றும் அனுப்புகைச் சீட்டு முதலாளிகளைக் குவாரி குத்தகை உரிமம் பெற்றுக் குத்தகைதாரர் காண்பிக்க வேண்டும்.

41) அரசு அலுவலர்கள் தனித்தனிக் செய்யும் போது சிறுகனிமங்கள் கொண்டு செல்லும் வாகனங்களை தனித்தனிக் கு உட்படுத்த வாகன ஓட்டுநர்களை குத்தகைதாரர்கள் அறிவுறுத்த வேண்டும்.

42) அனுப்புகைச்சீட்டில் உள்ள கலங்கள் பூர்த்தி செய்யப்படாமலே அல்லது தவறாக எழுதப்பட்டு வாகனங்களுக்கு கொடுக்கப்பட்டிருந்தாலே சிறுகனிமம் கொண்டு செல்லும் வாகன உரிமையாளருக்கு அபராதம் விதித்து வசூல் செய்யப்படும் மற்றும் குவாரி குத்தகையை ரத்து செய்ய நடவடிக்கை மேற்கொள்ளப்படும்.

43) குத்தகைதாரர் ஒவ்வொரு நாளும் குவாரியில் எவ்வளவு சிறுகனிமங்கள் வெட்டி எடுக்கப்பட்டது என்பதையும் எந்த அளவு கனிமங்கள் வாரி, வண்டி மூலம் வெளியே அனுப்பப்பட்டது என்ற விவரத்தையும் காட்டும் பதிவேடு பராமரிக்க வேண்டும். குவாரி குத்தகை சம்பந்தமான இதர பதிவேடுகளை பராமரிக்க வேண்டும்.

44) அரசு மற்றும் மாவட்ட ஆட்சியரால் குவாரி குத்தகை உரிமம் சம்பந்தமாக ஏற்படுத்தப்பட்டுள்ள மற்றும் அவ்வப்போது ஏற்படுத்தப்படும் சட்ட திட்டங்களுக்கும், நிபந்தனைகளுக்கும் குத்தகைதாரர் கட்டுப்பட்டு நடக்க வேண்டும். குத்தகை காலத்திலே அல்லது அதற்குப்பின்னரே விதிமுறை மீறி குத்தகையை பயன்படுத்தியதினால் ஏற்படும் சகல நடவடிக்கைகளுக்கும் குத்தகைதாரர்கள் பொறுப்பேற்க வேண்டும். இதற்காக விதிக்கப்படும் அபராதத்தையும் செலுத்தவேண்டும்.

45) குத்தகை நிபந்தனை மீறப்பட்டால் குத்தகையை ரத்துச் செய்யவோ, செய்யப்பட்ட தவறுகளுக்கு குத்தகைதாரருக்கு தண்டனை விதிக்கவோ, கிரிமினல் வழக்குதொடரவோ மாவட்ட ஆட்சியருக்கு முழு அதிகாரம் உண்டு. குத்தகை ரத்துச் செய்யப்பட்டால் காப்புத்தொகை உள்பட அனைத்து தொகைகளும் அரசுக்கு ஆதாயம் செய்யப்படும். மாவட்ட ஆட்சியர் எக்காரணத்தின்காவது குவாரி குத்தகையை ரத்துச்செய்யும் பட்சத்தில் அதனால் ஏற்படும் எவ்வித நடவடிக்கைகளுக்கும் அரசு பொறுப்பில்லை. குத்தகை எடுத்தவர் எந்த காரணத்தை முன்னிட்டும் தனக்கு இழப்பு ஏற்பட்டால் நஷ்டசுடு கேட்கக்கூடாது.

46) குத்தகை எடுத்தவர் குத்தகையை அனுபவிக்காமல் விட்டாலும், செலுத்தப்பட்ட குத்தகை தொகை எக்காரணத்தை முன்னிட்டும் திரும்ப வழங்கப்படமாட்டாது.

47) குவாரிகளின் எல்லைகள் பற்றி பிரச்சினைகள் ஏற்பட்டால் மாவட்ட ஆட்சியரின் தீர்ப்பே இறுதியானது.

48) கற்குவாரி குத்தகை உரிமம் வழங்கப்பட்ட பின்னர் அக்கற்குவாரியின் ஏதாவது ஒரு பகுதியில் வரலாற்று முக்கியத்துவம் வாய்ந்த புராதனகால கல்வெட்டுக்கள், சிற்ப வடிவமைப்புகள் போன்றவைகள் காணப்பட்டால் அது குறித்து அரசுக்கு தகவல் தரவேண்டும். மேலும், அப்பகுதியில் கற்கள் உடைவது நிறுத்தப்பட்டு அப்புராதன சின்னங்கள் பாதுகாக்கப்பட வேண்டும்.

49) டெண்டரில் கோரப்படும் புல எண்களின் பேரில் எவையேனும் நீதிமன்றத்தின் ஆணை / தடையாணை முதலாளியை நீதிமன்றத்தில் பெறப்பட்டதாக தெரியவந்தால் அவைகள் மீது குத்தகை உரிமம் வழங்குவதில் மாவட்ட ஆட்சியரின் முடிவே இறுதியானது.

50) குத்தகைதாரர் குத்தகை வழங்கப்பட்ட குவாரி முகப்பில் குவாரியின் புல எண், பரப்பு, குத்தகைதாரர் பெயர், குத்தகை வழங்கப்பட்ட மாவட்ட ஆட்சியர் செயல்முறை எண், குத்தகை தொகை, குத்தகை காலம் போன்ற விவரங்கள் குறிக்கப்பட்ட தகவல் பலகையை தனது சொந்த செலவில் வைத்து குத்தகை காலம் முழுவதும் பராமரிக்க வேண்டும்.

51) குத்தகைதாரர் குவாரியின் எல்லைகளை தெளிவாக தெரியும்படி வண்ணமிட்ட எல்லைக்கற்கள் ஊன்றி அடையாளமிட்ட பின்பே குவாரிப்பணி செய்ய வேண்டும். எல்லைக்கற்களை குத்தகை காலம் முழுவதும் தனது சொந்த செலவில் நன்கு பராமரிக்க வேண்டும்.

52) குத்தகைக்கு வழங்கப்பட்ட கற்குவாரிகளில் சாதாரண கற்கள், கட்டுக்கல், சக்ரை கற்கள், ஹெலிகற்கள் ஆகியவைகளை மட்டுமே குவாரி செய்ய வேண்டும். அபயம் நாட்டிற்கு ஏற்றுபதி செய்வதற்கும், மேருகு ஏற்றுமதற்கும் பயன்படும் ஷெலமைக்கப்பட்ட கற்களை உற்பத்தி செய்யக்கூடாது.

138/1 (சே)-சி.வெ. 3-2.





53) குவாரியில் வெடி வைத்து கற்களை உடைக்க அங்கீகாரம் பெற்ற வெடிபொருள் விற்பனையாளரிடம் (Licenced Explosive Dealer) வெடிபொருட்களை கொள்முதல் செய்து சான்று பெற்ற வெடி வெடிப்பவரைக் (Licenced Shot Firer) கொண்டு அனைத்து பாதுகாப்பு நிபந்தனைகளையும் கடைபிடித்து வெடிகளை வெடிக்க வைக்க வேண்டும்.

54) குவாரியில் சாதாரண ஏர் கம்பர்சர்களை கொண்டு துளையிட்டு வெடிவைக்க வேண்டும். ஆழ்துளை கிணறு உபகரணங்களை (Rig Bore) கொண்டு துளையிட்டு வெடி வைக்கக்கூடாது. அருகிலுள்ள விவசாய நிலங்கள், பொதுச்சொத்துக்கள் மற்றும் பொதுமக்கள் ஆகியோருக்கு எவ்வித பாதிப்பும் ஏற்படாமல் வெடி வைக்க வேண்டும்.

55) அரசு, ஆணையர், புவியியல் மற்றும் கரங்கத்துறை மற்றும் மாவட்ட ஆட்சியரால் இது தொடர்பாக ஏற்படுத்தப்பட்டுள்ள மற்றும் அவ்வப்போது ஏற்படுத்தப்படும் சட்டதிட்டங்களுக்கும் நிபந்தனைகளுக்கும் குத்தகைதாரர் கட்டுப்பட்டு நடக்க வேண்டும்.

56) 1961-ம் வருடத்திய மெட்டாலிபெரல் மைன்ஸ் ரெகுலேஷன்ஸ், 1936 ஆம் வருடத்திய சம்பளம் வழங்குதல் சட்டம், 1984 ஆம் வருடத்திய இந்திய வெடிபொருட்கள் சட்டம், 1964 ஆம் வருடத்திய குறைந்தபட்ச ஊதியச்சட்டம் ஆகியவற்றிற்கு உட்பட்டு குத்தகைதாரர் கணியங்கள் வெட்டி எடுத்து வெளியேற்ற வேண்டும்.

### அட்டவணை -1

#### கல்குவாரிகள் அட்டவணை

#### சேலம் கோட்டம்

சேலம் வட்டத்தில் அமைந்துள்ள சாதாரண கற்குவாரி பட்டியல்

வ. எண்	கிராமத்தின் பெயர்	புல எண்ணும் உட்பிரிவு	மொத்த பரப்பு (ஹெக்ட.)	குத்தகை விடும் பரப்பு (ஹெக்ட.)	நிலத்தின் வகைப்பாடு	குத்தகை விடப்படும் கால அளவு
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	பனமரத்துப்பட்டி	1/7 (பாகம்-6)	76.81.0	1.00.0	கரடு	5 ஆண்டுகள்
2	பனமரத்துப்பட்டி	1/7 (பாகம்-7)	76.81.0	1.00.0	கரடு	10 ஆண்டுகள்
3	பனமரத்துப்பட்டி	1/7 (பாகம்-8)	76.81.0	4.90.0	கரடு	10 ஆண்டுகள்
4	பனமரத்துப்பட்டி	1/7 (பாகம்-10)	76.34.5	1.00.0	கரடு	10 ஆண்டுகள்
5	பனமரத்துப்பட்டி	1/7 (பாகம்-11)	76.34.5	1.00.0	கரடு	10 ஆண்டுகள்
6	எருமாபாளையம்	417 (பாகம்)	48.81.5	1.00.0	கரடு	10 ஆண்டுகள்

வாழப்பாடி வட்டத்தில் அமைந்துள்ள சாதாரண கற்குவாரி பட்டியல்

7	பெரியகவுண்டாபுரம்	158/1 (பாகம்-2) (பிட்-1)	15.81.5	1.00.0	பாறை	5 ஆண்டுகள்
8	பெரியகவுண்டாபுரம்	158/1 (பாகம்-2) (பிட்-2)	15.81.5	2.00.0	பாறை	5 ஆண்டுகள்
9	மாசிநாயக்கன் பட்டி	212/3 (பாகம்)	6.43.5	1.00.0	குன்று	5 ஆண்டுகள்
10	மாசிநாயக்கன் பட்டி	241/14 (பாகம்)	7.03.5	1.00.0	குன்று	10 ஆண்டுகள்
11	பாலப்பட்டி	106 (பாகம்-1)	26.55.5	1.00.0	கரடு	10 ஆண்டுகள்
12	பாலப்பட்டி	106 (பாகம்-2)	26.55.5	1.50.0	கரடு	10 ஆண்டுகள்





11

(1)	(2)	(3)	(4)	(5)	(6)	(7)
13	பாவப்படி	106 (பாகம்-3)	26.55.5	150.0	காடு	10 ஆண்டுகள்
14 ✓	பாவப்படி	106 (பாகம்-4)	26.55.5	150.0	காடு	10 ஆண்டுகள்
15	மிள்ளாம்பள்ளி	58/3 (பாகம்-3)	28.64.0	4.90.0	பாறை	10 ஆண்டுகள்
16	மிள்ளாம்பள்ளி	58/3 (பாகம்-4)	28.64.0	4.90.0	பாறை	10 ஆண்டுகள்
17	ஏரிப்பூதூர்	35/3 (பாகம்-3)	63.66.0	2.00.0	காடு	10 ஆண்டுகள்
18	தேக்கல்பட்டி X	36/1 (பாகம்)	8.25.5	1.00.0	கல்லாங்குத்து	10 ஆண்டுகள்

**சங்ககிரி கோட்டம்**

சங்ககிரி வட்டத்தில் அமைந்துள்ள சாதாரண கற்குவாரி பட்டியல்

19 ✓	தேவண்ணை வெண்டனூர்	352/5 (பாகம்)	4.56.0	1.00.0	கல்லாங்குத்து	10 ஆண்டுகள்
20 ✓	தேவூர்	114 (பாகம்)	35.39.0	2.00.0	கல்லாங்குத்து	10 ஆண்டுகள்

எடப்பாடி வட்டத்தில் அமைந்துள்ள சாதாரண கற்குவாரி பட்டியல்

21 ✓	வேப்பனேரி	11 (பாகம்)	6.03.0	1.00.0	குன்று	5 ஆண்டுகள்
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**மேட்டுர் கோட்டம்**

மேட்டுர் வட்டத்தில் அமைந்துள்ள சாதாரண கற்குவாரி பட்டியல்

22 ✓	மூலக்காடு	137 (பாகம்)	4.53.0	1.50.0	பாறை	10 ஆண்டுகள்
23 ✓	புகழ்ப்பட்டி	21 (பாகம்)	3.03.5	2.50.0	குன்று	10 ஆண்டுகள்

ஓமலூர் வட்டத்தில் அமைந்துள்ள சாதாரண கற்குவாரி பட்டியல்

24	சங்கீதப்பட்டி	6/2 (பாகம்-1)	9.60.0	1.00.0	குன்று	5 ஆண்டுகள்
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காடையாம்பட்டி வட்டத்தில் அமைந்துள்ள சாதாரண கற்குவாரி பட்டியல்

25	குண்டுக்கல்	328/3	1.43.0	1.43.0	தரிக	10 ஆண்டுகள்
26	காடையாம்பட்டி வடக்கு	80 (பாகம்)	82.80.5	2.00.0	காடு	10 ஆண்டுகள்

**ஆத்தூர் கோட்டம்**

ஆத்தூர் வட்டத்தில் அமைந்துள்ள சாதாரண கற்குவாரி பட்டியல்

27	நரசிங்கபுரம்	344/3 (பாகம்-2)	71.11.5	1.00.0	கல்லாங்குத்து	5 ஆண்டுகள்
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கெங்கலல்லி வட்டத்தில் அமைந்துள்ள சாதாரண கற்குவாரி பட்டியல்

28	முடக்குப்பட்டி	100/1 (பாகம்)	71.04.5	1.00.0	காடு	10 ஆண்டுகள்
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சேலம்,  
20-01-2020.

சி. அ. ராமன்,  
மாவட்ட ஆட்சியர்,  
சேலம் மாவட்டம்

தமிழ்நாடு சமுதாயபாடுகள் மற்றும் அச்சுத்துறை இயக்குநரால் சேலம் அரசினர் தொலை அச்சுத்துறை அச்சிடப்பட்டு மாவட்ட ஆட்சியரால் வெளியிடப்பட்டது.



டெண்டர் விண்ணப்பம் / குவாரி குத்தகை உரிமம் வழங்குவதற்கான விண்ணப்பம்  
(மூன்று பிரதிகளில் சமர்ப்பிக்கப்பட வேண்டும்)

விடுதல்

பெறுநர்

மாவட்ட ஆட்சித்தலைவர்,  
சேலம்.

தய்யா,

சேலம் மாவட்ட அரசிதழ் (சிறப்பு வெளியீடு) எண். நான் .01.2020 திளசரியில் வெளியிட்ட நான். .01.2020-ல் படி இத்துடன் தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி எண்.8-ன் கீழ் எனது / எங்களது விண்ணப்பத்தினை சமர்ப்பிக்கின்றேன் / சமர்ப்பிக்கின்றோம்.

தமிழ்நாடு சிறு கனிம சலுகை விதிகள் 1959 விதி 8-ன் கீழ் குவாரி குத்தகை உரிமம் வழங்கும் படி நான் கேட்டுக்கொள்கிறேன் / நாங்கள் கேட்டுக்கொள்கிறோம்

தேவையான விவரங்கள் கீழே கொடுக்கப்பட்டுள்ளது

1. விண்ணப்பதாரர் பெயர் மற்றும் முழு முகவரி

2. விண்ணப்பதாரர்

- அ) 1) தனிநபர்  
2) தனிப்பட்ட நிறுவனம்  
3) நிறுவனம் அல்லது கழகம்

ஆ) தனிநபரானால் விண்ணப்பதாரர்  
எந்த நாட்டைச் சார்ந்தவர்

இ) தனிப்பட்ட நிறுவனமானால்/கழகமானால்  
மேற்கண்ட நிறுவனத்தின் / கழகத்தின்  
இயக்குநர்களின் தாய் நாட்டை பற்றிய  
விவரம் (எழுத்துப் பூர்வ ஆதாரங்கள்  
இணைக்கப்பட வேண்டும்)



3. பிணை வைப்புத்தொகை செலுத்திய விவரம் கேட்பு வரைவோலையின் எண் மற்றும் நாள் (வங்கி வரைவோலை இணைக்கப்பட வேண்டும்)
4. விண்ணப்பதாரரால் கீழ்க்கண்ட இனங்களுக்கு ஆணை உறுதி ஆவணம் (அபிட்சரிட்) இணைக்கப்பட்டுள்ளதா?
- அ) நடப்பு ஆண்டு வரை வருமானவரி விவரப்படி அத்துறைக்கு கொடுக்கப்பட்டு உள்ளதா
- ஆ) துறையினரால் கணக்கிடப்பட்ட வருமானவரி சட்டத்தின்படி வருமான வரி செலுத்தப்பட்டுள்ளதா
- இ) 1961-ஆம் வருடத்திய வருமான வரி சட்டத்தின்படி வருமான வரி செலுத்தப்பட்டுள்ளதா
5. விண்ணப்பதாரர் குவாரி செய்ய விரும்பும் சிறுகனிமத்தின் பெயர் மற்றும் விவரம்
6. குவாரி குத்தகை உரியம் கோரும் காவம்
7. விண்ணப்பிக்கும் இடத்தின் மொத்த பரப்பளவு
8. டெண்டர் விண்ணப்பம் அல்லது விண்ணப்பம் செய்யப்படும் இடத்தின் விவரம்
- மாட்டம்
- வட்டம்
- கிராமம்
- புல எண்
- பரப்பளவு (ஹெக்டேரில்)
9. குத்தகை உரியம் பெறுவதற்கு விண்ணப்பதாரரால் செலுத்தப்படவுள்ள அதிக பட்ச ஒரு தடவை குவாரி குத்தகை தொகை (எண்ணாலும் எழுத்தாலும் எழுத்தப்பட வேண்டும்)
10. ஏற்கனவே தமிழ்நாட்டில் குவாரி குத்தகை உரியம் பெற்ற இடத்தின் விவரம்



11. (அ) குவாரிகளுக்கு உரிய நிலுவை செலுத்ததல் தொடர்பாக கரங்க நிலுவை இல்லா சான்று இணைக்கப்பட்டுள்ளதா?
- (ஆ) விண்ணப்பிக்கும் நாளில் குத்தகை உரிமம் ஏதும் விண்ணப்பதாரருக்கு இல்லை எனில் அதற்கு உண்டான ஆணை உறுதி ஆவணம் இணைக்கப்பட்டுள்ளதா?
12. விண்ணப்பதாரரால் அளிக்கப்படும் வேறு ஏதேனும் கூடுதல் விவரங்கள்

என்னால்/ எங்களால் மேலே கொடுக்கப்பட்ட விவரங்கள் அனைத்தும் உண்மை. நான்/நாங்கள் அரசு /மாவட்ட ஆட்சித்தலைவர், மாவட்ட வன அலுவலர் ஆகியவர்களால் கேட்கப்படும் இதர விவரங்கள் மற்றும் பிணை வைப்பு தொகையினை அளிக்க சம்மதிக்கின்றேன் / சம்மதிக்கிறோம். தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959-ன் கீழ் குத்தகை உரிமம் வழங்க உள்ள விதிகள் மற்றும் குவாரி செய்ய கொடுக்கப்பட்ட இதர நிபந்தனைகள் அனைத்தையும் தெரிந்து கொண்டேன் / கொண்டோம் என உறுதி அளிக்கின்றேன் / அளிக்கின்றோம். மேலும் எந்த சூழ்நிலையிலும் மேற்கண்ட குத்தகை உரிம இடத்திலிருந்து ஏற்றுமதிக்கு ஏற்ற அல்லது அறுத்து மெருகேற்றுவதற்கு (Polish) உகந்த பரிமாணமுள்ள கற்கள் (Dimension stone) மற்றும் பலகை கற்கள் (Slabs) வெட்டியெடுக்க மாட்டேன் / மாட்டோம் என உறுதி அளிக்கின்றேன் / அளிக்கின்றோம்.

நான் :

தங்கள் உண்மையுள்ள,

இடம் :

விண்ணப்பதாரரின் கையொப்பம்.




 Government of India  
 சர்க்கார் குடியரசு  
 Download Date: 22/10/2020


 #Sivalumar Pannaarvelam  
 Sivalumar Pannaarvelam  
 பிறப்பு நாள்/DOB: 16/01/1977  
 பால/ GENDER: MALE

9190 8512 3471  
 VID : 9170 0410 7504 3294

எனது ஆதாரம், எனது அடைபாடும்


 Group Identification Authority of India  
 Group Identification Authority of India

Address:  
 S/O Pannaarvelam S. 25/3, 2ND CROSS  
 STREET, LAKSHMANAN NAGAR, KATTUR  
 ALAGAPURAM, Salem, Salem,  
 Tamil Nadu - 636016



9190 8512 3471  
 VID : 9170 0410 7504 3294

1807 | help@aiimil.gov.in | www.aiimil.gov.in

2121010



# சென்னை பல்கலைக் கழகம்

## University of Madras

### அறிவியல் புலம்

### FACULTY OF SCIENCE

சென்னைப் பல்கலைக் கழகப் பரீட்சை 1994

ஆண்டு..... ஏப்ரல்..... மாதம் நடந்த..... கனிமவியல்..... தேர்வு.....  
 பெ. தங்கராசு..... என்பவர்..... முதல்..... வகுப்பில்.....  
 தேர்ச்சி பெற்றார் என்று தக்க கோவாளர்கள் சான்றிதழ்படி அறிவியல் நிறைவு  
 என்னும் பட்டத்தை அவருக்குப் பல்கலைக் கழக இலச்சினையுடன் வழங்குகிறது.

The Senate of the UNIVERSITY OF MADRAS hereby  
 makes known that..... P. Thangaraju.....  
 has been admitted to the Degree of Master of Science, he/she  
 having been certified by duly appointed Examiners to be qualified  
 to receive the same in..... Geology..... and was placed in the  
 ..... First..... Class, at the Examination held in April 1994.



Given under the seal of the University

சேப்பாக்கம், Chepauk

சென்னை, Madras

75-01-1994

208 A

பதிவாளர்

P.T. Jambhale

துணை இலாகா

GOVERNMENT OF INDIA  
 MINISTRY OF LABOUR AND REHABILITATION  
 OFFICE OF THE DIRECTOR GENERAL OF MINES SAFETY



Certificate of Practical experience granted by the Manager to a candidate for a Manager's / Surveyor's / Foremen's / Over man's / Sirdar's / Mate's / Short firer's/ Blaster's Certificate of competency (Restricted) examination under the Metalliferous Mines Regulations 1961.

I T.VENKATARAJAGOPALAN being the Mines Agent of M/S.LIMENAPH CHEMICALS, RAJAPALAYAM OF LIMESTONE PRODUCTS (Thenmali Limestone Mine) do hereby certify that Thiru. P.THANGARAJU, son of S.PERIASAMY (whose signature is appended) worked as a Geologist in the above mine from 02.05.1994 to 30.12.1999, During his term of work aforesaid, he has obtained practical experience as detailed overleaf. The duties connected with his work have involved continuous attendance at the mine and have been efficiently performed by him.

I believe him to be of good character and a fit and proper candidate to be examined for Certificate of Competency.

or ~~THEMMAI LIME STONE MINES~~  
 10/6/96  
 Agent (Mines)  
 (Signature with date and official Seal)  
 [T.VENKATARAJAGOPALAN]

Mines Agent:

P.O. : ARUKANGULAM

District : TIRUNELVELI

State : TAMIL NADU

  
 (Signature of Candidate)

(State name of Mineral) : LIMESTONE

S.No	Particulars of practical Experience (a)	Place of Experience (b)	Period of practical experience(c)		Total Experience (c)		
			From	To	Yr.	Month	Day
01.	As a Trainee in Drilling Operation.	Semi Mechanised Opencast working	02.05.1994	15.07.1995	01	02	14
02.	As a Trainee in Blasting Operation.		16.07.1995	10.12.1996	01	04	25
03.	Exploration		11.12.1996	31.01.1998	01	01	20
04.	Surveying		01.02.1998	25.06.1998	00	04	25
05.	Sampling Quality control and		26.06.1998	20.07.1999	01	00	24
06.	Supervision in HEMM Operation.		21.07.1999	30.12.1999	00	05	10
<b>GRAND TOTAL</b>					<b>05</b>	<b>07</b>	<b>28</b>
<b>(Five Years Seven Months Twenty Eight Days Only)</b>							

AVERAGE MONTHLY OUTPUT (D) / AVERAGE DAILY EMPLOYMENT (e) DURING THE ABOVE PERIOD IS GIVEN BELOW :

In below ground working	In open - cast working	In all
Nil	35	35
Nil		

Signature of Candidate

of THEMALAI LIME STONE MINES

Signature of Manager with (Date & Seal)  
[T.VENKATARAJA GOPALAN]

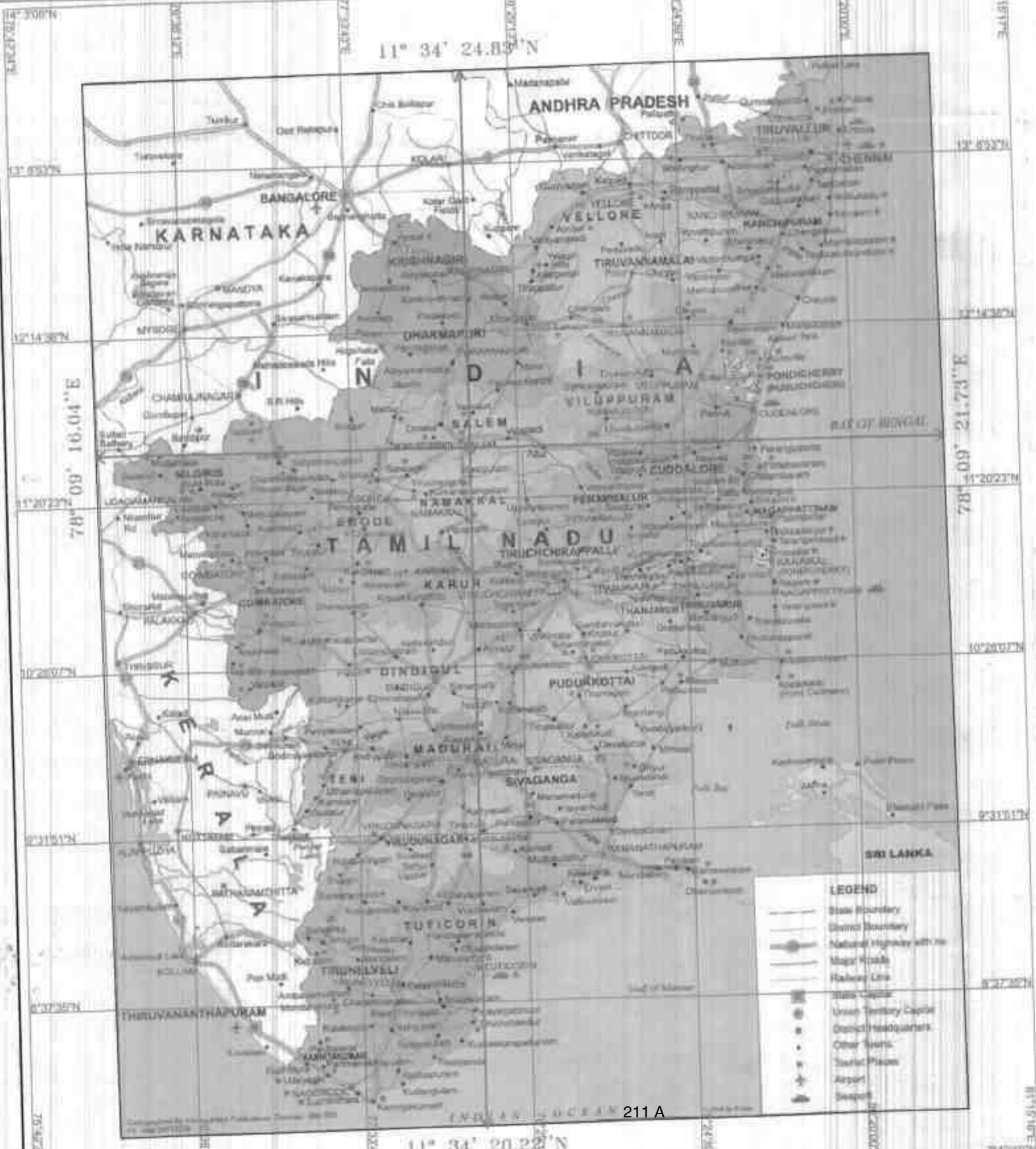
Name of the Mine :

**Instructions :-**

01. State clearly the nature of duties
02. State whether on surface, in open cast workings or below ground
03. State specifically, the period spent by the applicant in different mining operations, or surveying operations, or the case may be. If the employment has not been such as to involve continuous employment at the mine, it shall be stated by how many days a week he was employed, whether underground or above ground, and in what capacity.

THMALAI LIME STONE MINES





**PLATE NO:1**

DATE OF SURVEY : 03.08.2020

**APPLICANT:**

THIRU.P.SIVAKUMAR,  
S/O.S.PANNERSELVAM,  
No.268/8,2nd CROSS STREET,  
KATTUR ,ALAGAPUAM,  
SALEM-636016.

**LOCATION OF QUARRY  
LEASE APPLIED AREA:**

S.F.NO : 1/7(Part-11),  
EXTENT : 1.00.0 Ha,  
VILLAGE : PANAMARATHUPATTI,  
TALUK : SALEM,  
DISTRICT : SALEM,  
STATE : TAMIL NADU.

**INDEX**

Q. L.A. AREA : ●  
TOPO SHEET NO. : 58 I/02  
LATITUDE : 11° 34' 20.22"N to 11° 34' 24.83"N  
LONGITUDE : 78° 09' 16.04"E to 78° 09' 21.73"E

**LOCATION PLAN**

SCALE 1 : 24,00,000

**PREPARED BY :**

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

*[Signature]*  
DR.PITHANBARAJU, M.Sc,PH.D.,  
QUALIFIED PERSON



LANDUSE PATTERN

DESCRIPTION	PERCENTAGE
ROADS	(05%)
HABITATION	(10%)
TREES	(10%)
AGRICULTURAL LAND	(35%)
QUARRY PIT \ CRUSHER	(05%)
HILLOCK	(35%)

OCTOBER TO DECEMBER



PLATE NO: I-B

DATE OF SURVEY : 03.08.2020



1Km Radius

500m Radius

Q.L. Applied Area

TOPO SHEET NO. : 58 /02

LATITUDE : 11° 34' 20.22"N to 11° 34' 24.83"N

LONGITUDE : 78° 09' 16.04"E to 78° 09' 21.73"E

**APPLICANT:**

THIRU.P.SIVAKUMAR,  
S/O.S.PANNERSELVAM,  
No.268/B,2nd CROSS STREET,  
KATTUR ,ALAGAPUAM,SALEM-636016.

**LOCATION OF QUARRY**

**LEASE APPLIED AREA:**

S.F.NO : 1/7(Part-11),  
EXTENT : 1.00.0 Ha.  
VILLAGE : PANAMARATHUPATTI,  
TALUK : SALEM,  
DISTRICT : SALEM,  
STATE : TAMIL NADU.

**INDEX**

APPROACH ROAD

MAJOR ROAD

HABITATION

TREES

AGRICULTURAL LAND

PIT

WIND DIRECTION

CRUSHER PLANT

TANK

HILLOCK



**ENVIRONMENTAL AND**

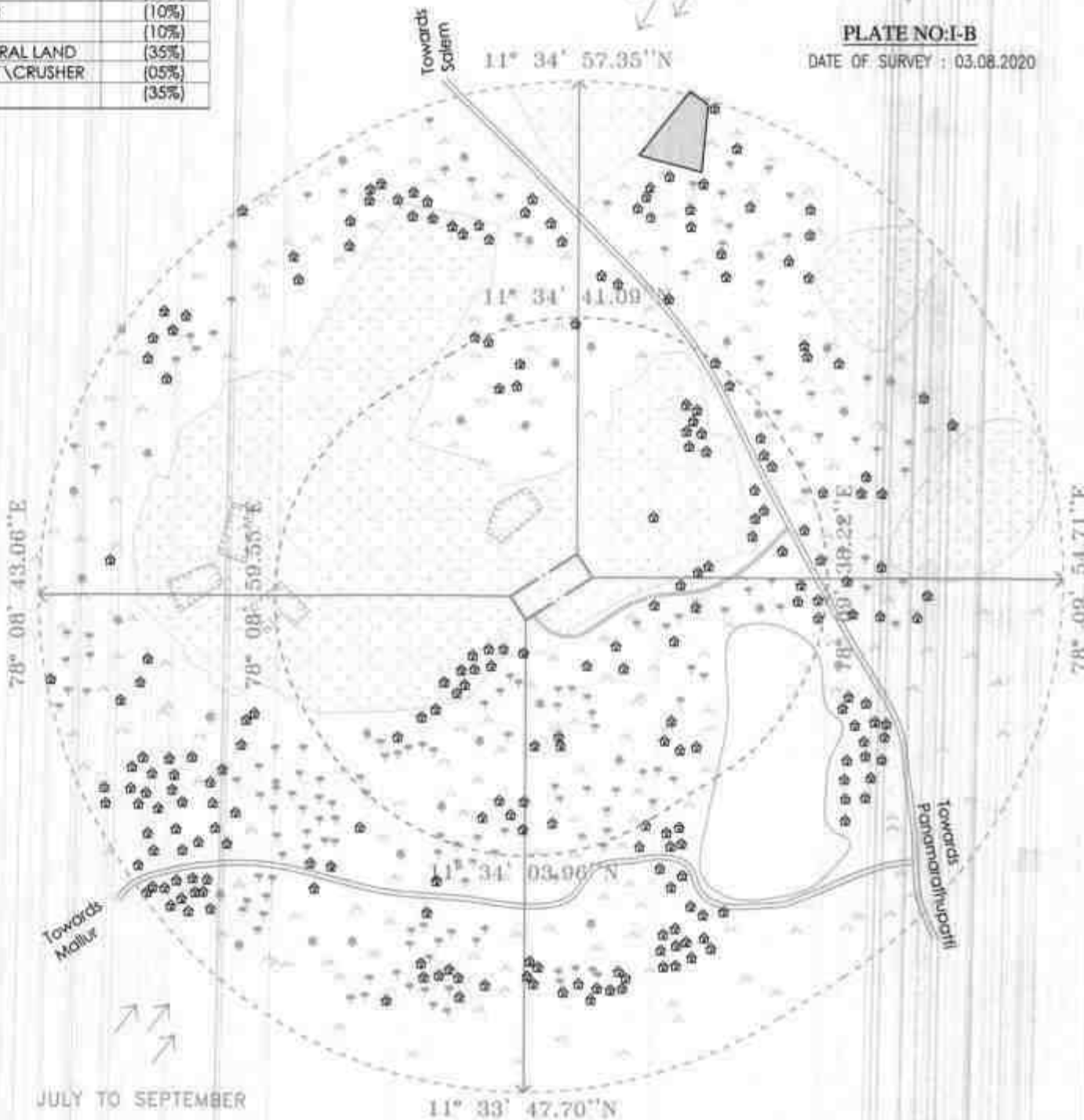
**LANDUSE PLAN FOR 1KM RADIUS**

SCALE- 1:10,000

**PREPARED BY:**

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

*(Signature)*  
THANIGARAJU, N.S.P.N.2.  
QUALIFIED PERSON



JULY TO SEPTEMBER

11° 33' 47.70"N



PLATE NO: I-C

DATE OF SURVEY : 03.08.2020



**APPLICANT:**

THIRU.P.SIVAKUMAR  
S/O.S.PANNERSELVAN  
No.268/8,2nd CROSS STREET,  
KATTUR,ALAGAPUAM,  
SALEM-636016.

**LOCATION OF QUARRY**

**LEASE APPLIED AREA:**

S.F.NO : 1/7(Part-11),  
EXTENT :1.00.0 Ha.  
VILLAGE : PANAMARATHUPATTI,  
TALUK : SALEM,  
DISTRICT : SALEM,  
STATE : TAMIL NADU.



**INDEX**

Q. LEASE AREA	
NH-ROAD	
MAJOR ROAD	
PANCHAYAT ROAD	
APPROACH ROAD	

**ROUTE MAP**

Not To Scale.

**PREPARED BY :**

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

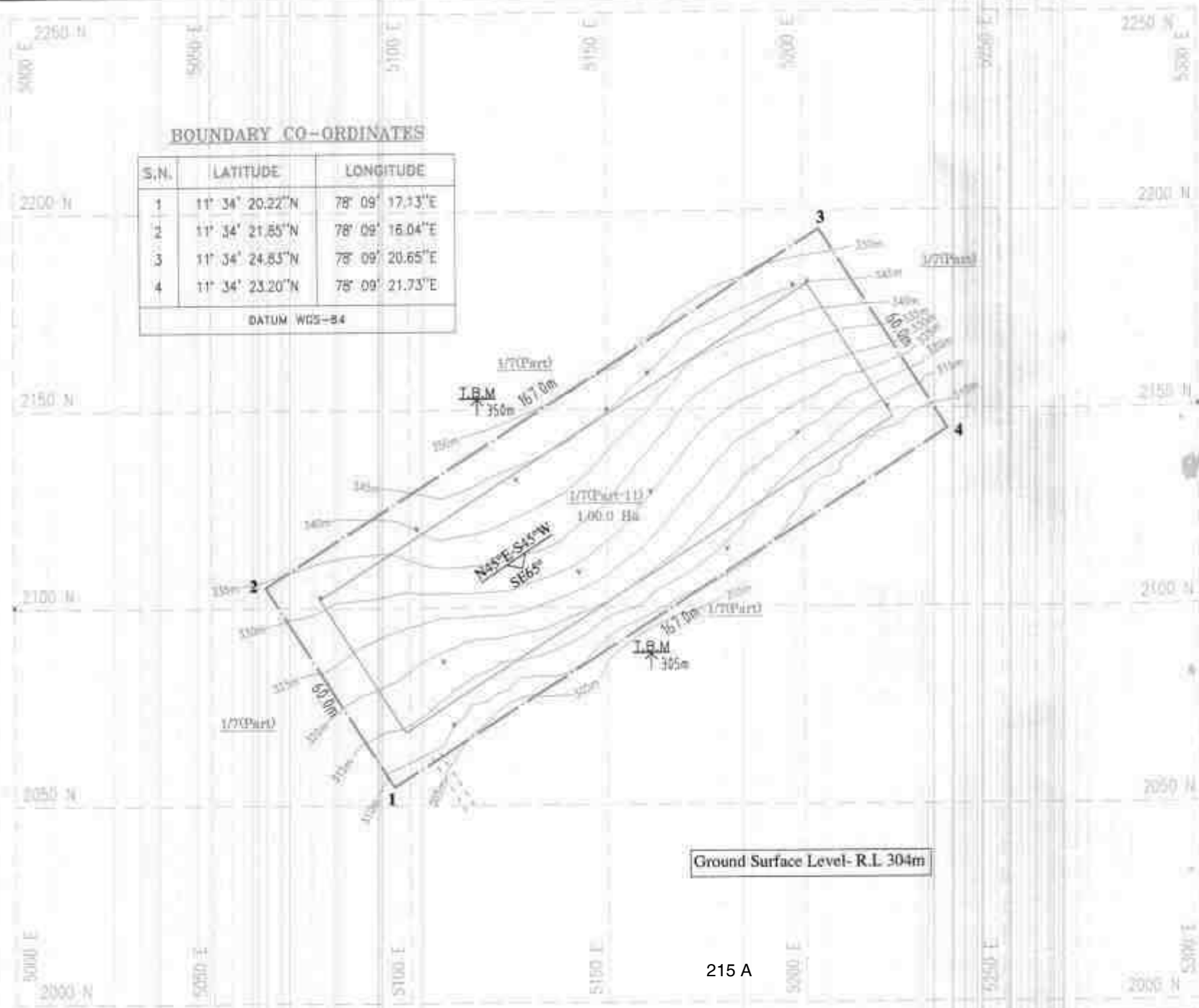
M. THANARAJU, M.Sc, Ph.D.,  
QUALIFIED PERSON



**BOUNDARY CO-ORDINATES**

S.N.	LATITUDE	LONGITUDE
1	11° 34' 20.22"N	78° 09' 17.13"E
2	11° 34' 21.65"N	78° 09' 16.04"E
3	11° 34' 24.85"N	78° 09' 20.65"E
4	11° 34' 23.20"N	78° 09' 21.73"E

DATUM WGS-84



**PLATE NO-II**  
DATE OF SURVEY : 03.08.2020

**APPLICANT:**  
THIRU.P.SIVAKUMAR,  
S/O.S.PANNERSELVAM,  
No.268/8,2nd CROSS STREET,  
KATTUR ,ALAGAPUAM,  
SALEM-636016.

**LOCATION OF QUARRY LEASE APPLIED AREA:**  
S.F.NO : 1/7(Part-11),  
EXTENT : 1.00.0 Ha,  
VILLAGE : PANAMARATHUPATTI,  
TALUK : SALEM,  
DISTRICT : SALEM,  
STATE : TAMIL NADU.

**INDEX**

Q.L. APPLIED AREA BOUNDARY	
10m SAFETY DISTANCE	
TEMPORARY BENCH MARK	
APPROACH ROAD	
CONTOUR	
STRIKE AND DIP	
TOP SOIL	

**QUARRY LEASE & SURFACE PLAN**  
SCALE 1 : 1000

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

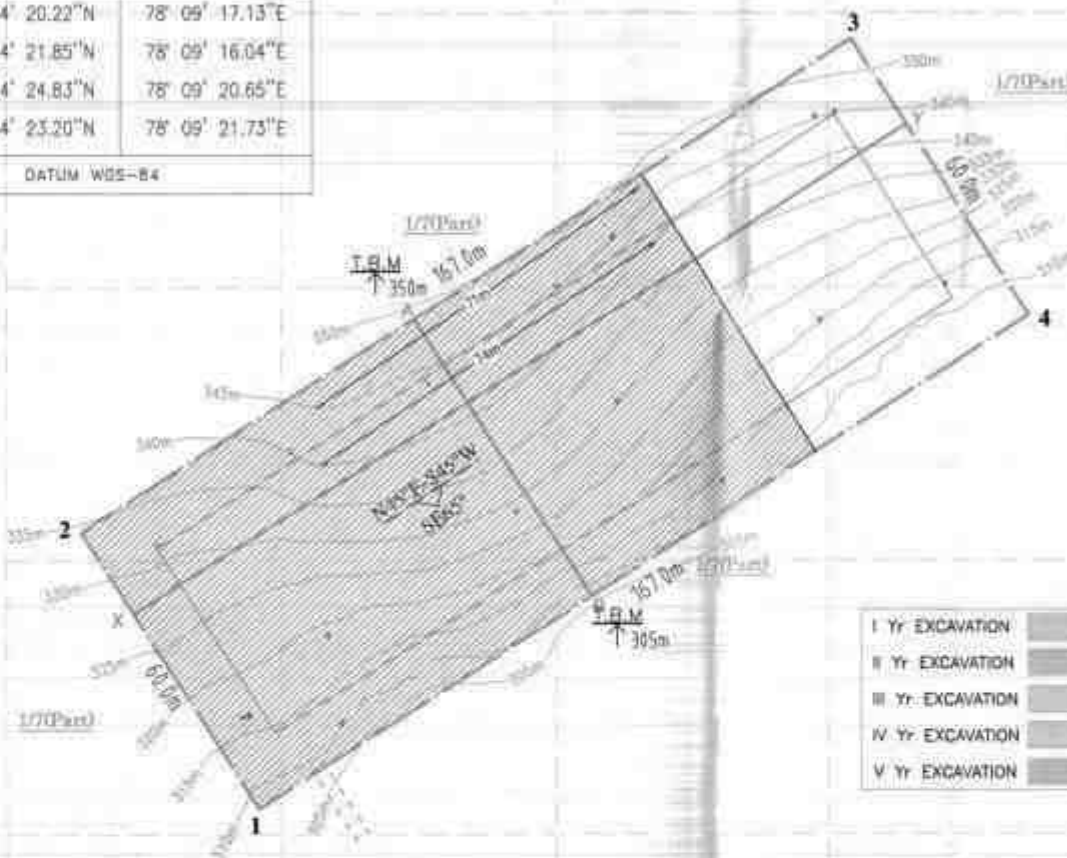
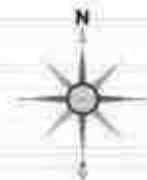
*Srinivasan*  
SRI SRINIVASAN S.PH.D.,  
QUALIFIED PERSON



**BOUNDARY CO-ORDINATES**

S.N.	LATITUDE	LONGITUDE
1	11° 34' 20.22"N	78° 09' 17.13"E
2	11° 34' 21.85"N	78° 09' 16.04"E
3	11° 34' 24.83"N	78° 09' 20.65"E
4	11° 34' 23.20"N	78° 09' 21.73"E

DATUM WGS-84



- I Yr EXCAVATION
- II Yr EXCAVATION
- III Yr EXCAVATION
- IV Yr EXCAVATION
- V Yr EXCAVATION

Ground Surface Level- R.L 304m

**PRESENT & POST LAND USE PATTERN**

DESCRIPTION	PRESENT AREA (Ha)	AREA AT THE END OF THIS QUARRYING PERIOD (Ha)
AREA UNDER QUARRYING	Nil	0.72.8
INFRASTRUCTURE	Nil	Nil
ROADS	Nil	Nil
GREEN BELT	Nil	Nil
UN-UTILIZED AREA	1.00.0	0.27.4
<b>GRAND TOTAL</b>	<b>1.00.0</b>	<b>1.00.0</b>

**PLATE NO-III**  
DATE OF SURVEY : 03.08.2020

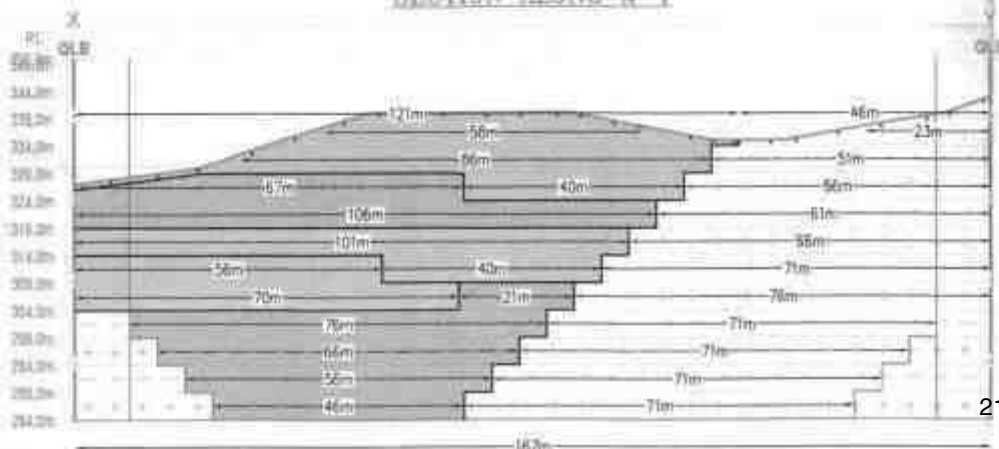
**APPLICANT:**  
THIRU.P.SIVAKUMAR,  
S/O S.PANNERSELVAM,  
No.268/B,2nd CROSS STREET,  
KATTUR ,ALAGAPUAM,  
SALEM-636016.

**LOCATION OF QUARRY LEASE APPLIED AREA:**  
S.F.NO : 1/7(Part-11),  
EXTENT :1.00.0 Ha,  
VILLAGE : PANAMARATHUPATTI,  
TALUK : SALEM,  
DISTRICT : SALEM,  
STATE : TAMIL NADU.

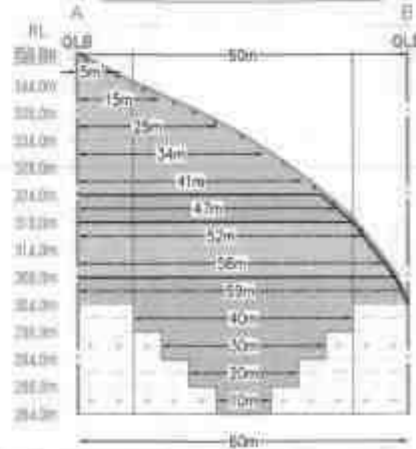
**INDEX**

- Q.L. APPLIED AREA BOUNDARY
- 10m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- APPROACH ROAD
- CONTOUR
- STRIKE AND DIP
- TOP SOIL
- ROUGH STONE

**SECTION ALONG X-Y**



**SECTION ALONG A-B**



**TOPOGRAPHY, GEOLOGICAL, YEARWISE DEVELOPMENT & PRODUCTION PLAN & SECTIONS**  
SCALE 1 : 1000

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

*(Signature)*  
THIRUMALAI S.P.,  
DRAWING PERSON

**BOUNDARY CO-ORDINATES**

S.N.	LATITUDE	LONGITUDE
1	11° 34' 20.22"N	78° 09' 17.13"E
2	11° 34' 21.85"N	78° 09' 16.04"E
3	11° 34' 24.83"N	78° 09' 20.65"E
4	11° 34' 23.20"N	78° 09' 21.73"E

DATUM WGS-84



**PLATE NO-IV**

DATE OF SURVEY : 03.08.2020

**APPLICANT:**

THIRU P.SIVAKUMAR,  
S/O.S.PANNERSELVAM,  
No.268/B,2nd CROSS STREET,  
KATTUR ,ALAGAPUAM,  
SALEM-636016.

**LOCATION OF QUARRY  
LEASE APPLIED AREA:**

S.F.NO : 1/77(Part-1),  
EXTENT : 1.00.0 Ha.  
VILLAGE : PANAMARATHUPATTI,  
TALUK : SALEM,  
DISTRICT : SALEM,  
STATE : TAMIL NADU.

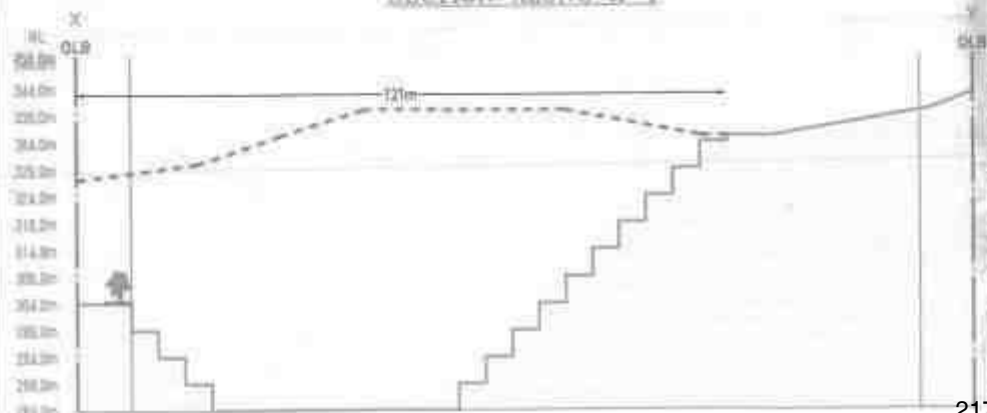
**INDEX**

Q.L. APPLIED AREA BOUNDARY	
10m SAFETY DISTANCE	
TEMPORARY BENCH MARK	
APPROACH ROAD	
CONTOUR	
STRIKE AND DIP	
QUARRY PIT	
QUARRY ROAD	
EXISTING LANDFORM	
OLD SURFACE LEVEL	
FINISHED SURFACE LEVEL	
TREES	
SOIL LAYER	
FENCING	
PROPOSED GARLAND DRAIN	
REHABILITATED LANDFORM	

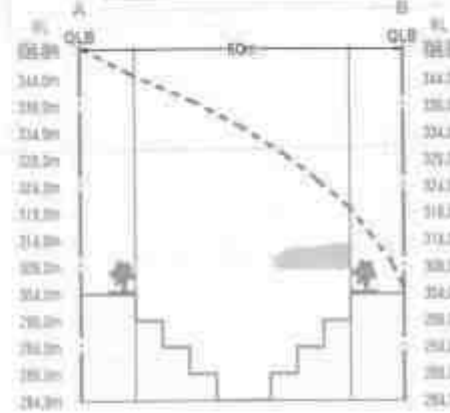
**Proposed Pit Dimension**  
121mX60mX66m(d)  
Above Ground Level 46m  
Below Ground Level 20m

Ground Surface Level- R.L 304m

**SECTION ALONG X-Y**



**SECTION ALONG A-B**



**PROGRESSIVE QUARRY  
CLOSURE PLAN & SECTIONS**  
SCALE 1 : 1000

**PREPARED BY :**

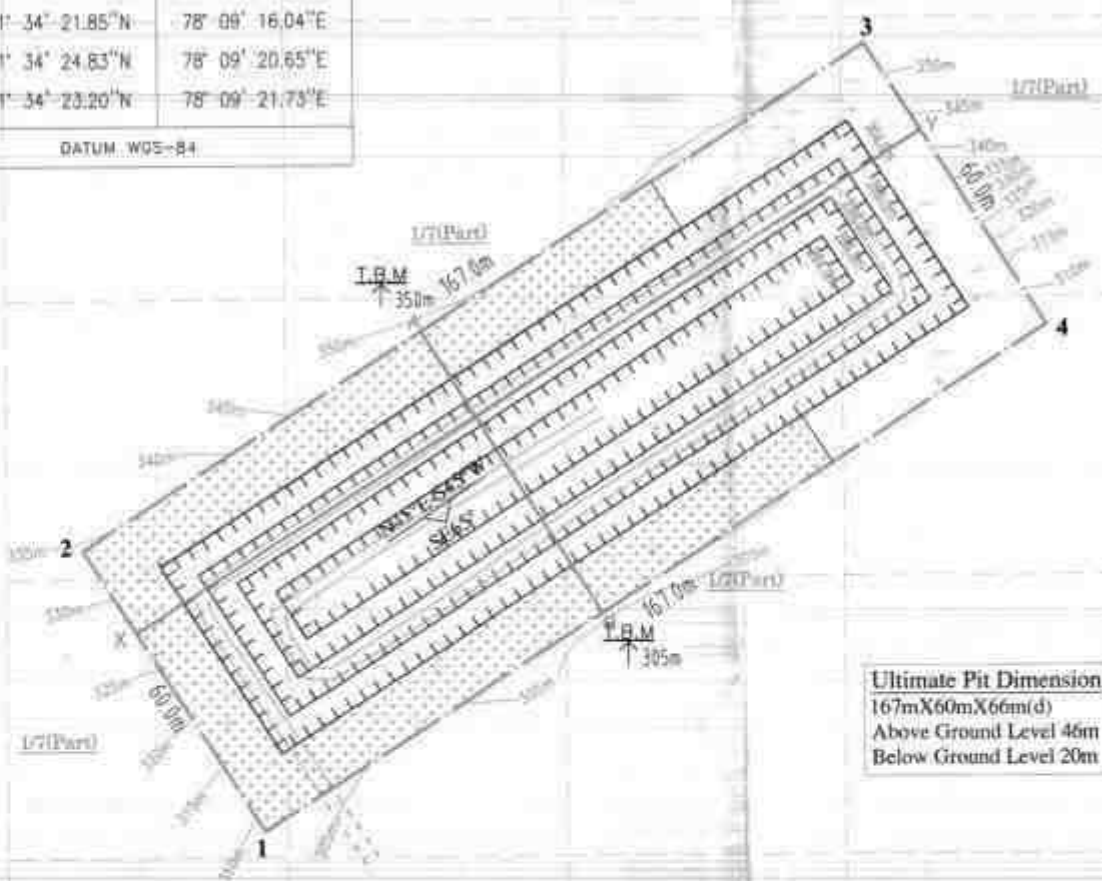
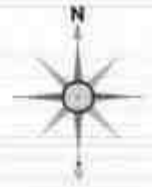
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS  
PLAN IS TRUE AND CORRECT TO THE  
BEST OF MY KNOWLEDGE BASED UPON THE LEASER'S  
AUTHORITATED  
BY STATE GOVERNMENT

*Signature*  
D. JAYARAJAN, S.A.P.S.R.,  
SURVEYED PERSON

**BOUNDARY CO-ORDINATES**

S.N.	LATITUDE	LONGITUDE
1	11° 34' 20.22"N	78° 09' 17.13"E
2	11° 34' 21.85"N	78° 09' 16.04"E
3	11° 34' 24.83"N	78° 09' 20.65"E
4	11° 34' 23.20"N	78° 09' 21.73"E

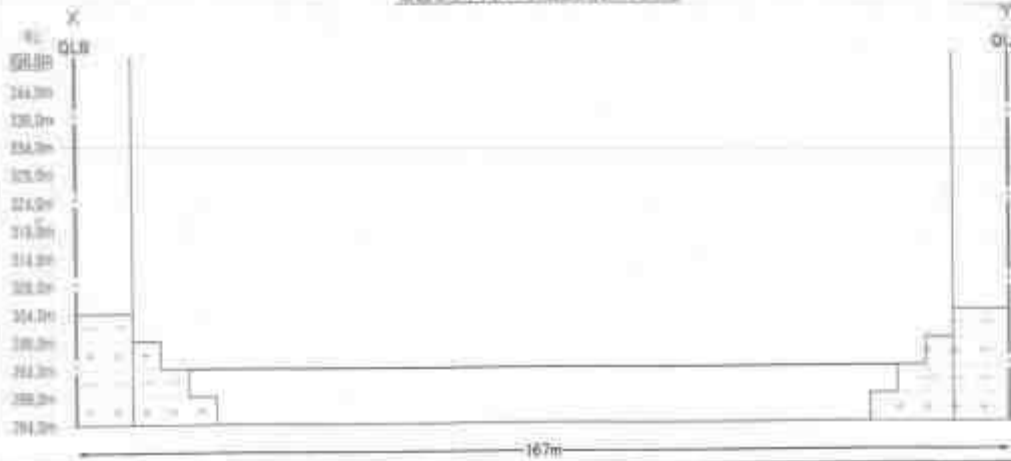
DATUM: WGS-84



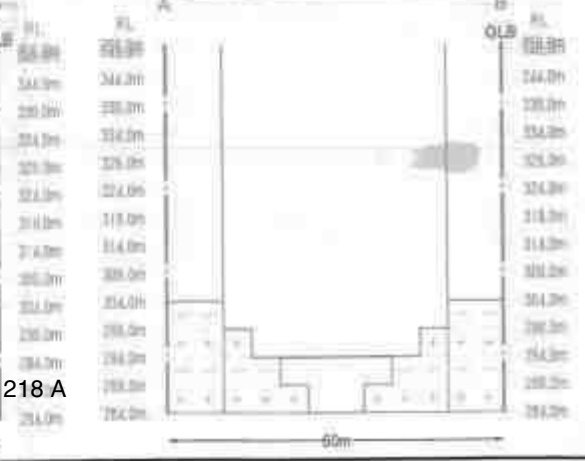
**Ultimate Pit Dimension**  
 167mX60mX66m(d)  
 Above Ground Level 46m  
 Below Ground Level 20m

Ground Surface Level- R.L 304m

**SECTION ALONG X-Y**



**SECTION ALONG A-B**



**PLATE NO-V**  
 DATE OF SURVEY : 03.08.2020

**APPLICANT:**  
 THIRU.P.SIVAKUMAR,  
 S/O.S.PANNERSELVAM,  
 No.268/8,2nd CROSS STREET,  
 KATTUR ,ALAGAPUJAM,  
 SALEM-636016.

**LOCATION OF QUARRY**  
**LEASE APPLIED AREA:**  
 S.F.NO : 1/7(Part-11).  
 EXTENT : 1.00.0 Ha.  
 VILLAGE : PANAMARATHUPATTI,  
 TALUK : SALEM,  
 DISTRICT : SALEM,  
 STATE : TAMIL NADU.

**INDEX**

Q.L. APPLIED AREA BOUNDARY	
10m SAFETY DISTANCE	
TEMPORARY BENCH MARK	
APPROACH ROAD	
CONTOUR	
STRIKE AND DIP	
ROUGH STONE	
STRIKE AND DIP	
QUARRY PIT	
REHABILITATED LANDFORM	

**CONCEPTUAL PLAN & SECTIONS**  
 SCALE 1 : 1000

**PREPARED BY :**  
 THIS IS TO CERTIFY THAT THE INFORMATION IN THIS  
 PLATE IS TRUE AND CORRECT TO THE  
 BEST OF MY KNOWLEDGE GAINED UPON THE LEADERSHIP  
 AUTHENTICATED  
 BY STATE GOVERNMENT

*Signature*  
 M. T. MOHAMMAD SULTAN, D.C.  
 QUALIFIED PERSON



**HYDRO GEOLOGICAL REPORT FOR**  
**Rough Stone Quarry Over an Extent of 1.00.0Ha in**  
**S.F.No. 1/7 (Part-11), Panamarathupatti Village,**  
**Salem Taluk, Salem District, Tamil Nadu**

  
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**HYDRO GEOLOGICAL REPORT FOR**  
**PANAMARATHUPATTI ROUGH STONE QUARRY**

The applicant requires detailed information on ground water occurrences at proposed project site of Panamarathupatti Rough Stone quarry. The objective of the present study is to assess the availability of groundwater and comment on aspects of depth to potential aquifers, aquifer availability and type, possible yields and waterquality. For this purpose all available hydrogeological information of the areas has been analyzed, and a geophysical survey was done.

**1. INTRODUCTION**

**NAME OF THE APPLICANT WITH ADDRESS**

**Name of the Company** : **Thiru.P.Sivakumar**  
S/o. S.Panneerselvam  
**Address** : No.268/8, 2<sup>nd</sup> Cross Street,  
Kattur, Alagapuram,  
Salem District – 636 016.  
**State** : Tamilnadu.

**DETAILS OF THE AREA-**

**Land Classification** : Government Poramboke Land  
**Survey No** : 1/7 (Part-11)  
**Extent** : 1.00.0Ha  
**Village** : Panamarathupatti  
**Taluk** : Salem  
**District** : Salem

The investigations involved hydrogeological, geophysical field investigations and a detailed study in which the available relevant geological and hydrogeological data were collected, analyzed, collated and evaluated within the context of the Client's requirements.

The data sources consulted were mainly:

- a) Central Ground Water Board (CGWB) Data
- b) State & District Geological and Hydrogeological Reports and Maps.
- c) Technical reports of the area by various organizations.

  
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## 2. SCOPE OF THE WORKS

The scope of works includes:

- ❖ Site visits to familiarize with the project areas. Identify any issues that might impact the Ground Water Scenario due to proposed mining activities.
- ❖ To obtain, study and synthesize background information including the geology, hydrogeology and existing borehole data, for the purpose of improving the quality of assessment and preparing comprehensive hydrogeological reports,
- ❖ To carry out hydrogeological evaluation and geophysical investigations in the selected sites in order to determine potential for groundwater at project site.
- ❖ To prepare hydrogeological survey reports in conformity with the provisions of the rules and procedure outlined by the Central Ground Water Board (CGWB), by Assessment of water quality and potential infringement of National standards, Assessment of availability of groundwater and Impact of proposed activity on aquifer, water quality and other abstractors.

## 3. BACKGROUND INFORMATION

**Geographical information of the study area-**

Toposheet No	58- I/02
Latitude	11°34'20.22"N to 11°34'24.83"N
Longitude	78°09'16.04"E to 78°09'21.73"E

## 4. GEOMORPHOLOGY

Salem district forms part of the upland plateau region of Tamil Nadu with many hillranges, hillocks and undulating terrain with a gentle slope towards east.

The prominent geomorphic units identified in the district are 1) Plateau, 2) Structural hills, 3) Bazada zone, 4) Valley fill, 5) Pediments, 6) Shallow Pediments and 7) Buried Pediments.

A number of hill ranges are located in the northern and northeastern parts of the district, whereas the southern, western and eastern parts of the district are gently undulating and dotted with a few isolated hillocks. The important hill ranges in the district are Yercaud hills, Kanjamalai hills, Godumalai hills and Pachamalai hills.

### Soils

The soils can be broadly classified into 6 major soils types viz., Red insitu, Red Colluvial Soil, Black Soil, Brown Soil, Alluvial and Mixed Soil. Major part of the district is covered by Red insitu and Red Colluvial soils. Block soils are mostly seen in Salem, Attur,

Omalur and sankari taluk. Brown Soil occupies major portion of Yercaud and parts of Salem and Omalur taluk and the Alluvial Soil is seen along the river courses in Omalur and Sankari taluk. Mixed soil is occurring only in Attur taluk.

### **Rainfall**

The district receives the rain under the influence of both southwest and northeast monsoons. The northeast monsoon chiefly contributes to the rainfall in the district. The normal annual rainfall over the district varies from about 800 mm to 1600 mm. It is the minimum around Sankari (800 mm) in the southwestern part of the district. It gradually increases towards north, northeast and east and attains a maximum around Yercaud (1594.3 mm) in the northern part.

### **Climate**

The district enjoys a tropical climate. The weather is pleasant during the period from November to January. Mornings in general are more humid than the afternoons, with the humidity exceeding 75% on an average. In the period June to November the afternoon humidity exceeds 60% on an average. In the rest of the year the afternoons are drier, the summer afternoons being the driest.

The hot weather begins early in March, the highest temperature being reached in April and May. Weather cools down progressively from about the middle of June and by December, the mean daily maximum temperature drops to 30.2°C, while the mean daily minimum drops to 19.2°C and 19.6°C in January in Salem and Mettur Dam respectively.

## **5. GEOLOGY**

### **Regional geology of Salem District**

Salem is a part of Western Tamil Nadu and is located at the base of the popular tourist destination of the Yercaud hills. Salem boasts large textile, steel, automotive, poultry and sago industries. Salem also has one of the largest magnesite deposits in India. As per the Department of Geology and Mining, a major part of the mineral wealth of Tamil Nadu is confined to Salem District, where a variety of important minerals like Magnesite, Dunite, Bauxite, Limestone, Iron ore, Quartz, Feldspar and Soapstone, Granites etc, are found.

The area forms part of Archean complex of peninsular India. The Geological formations consist of biotite-gneiss, Hornblende-gneisses, granite-gneisses intruded by younger granite, pegmatite and quartz vein. The granite-gneiss and biotite-gneisses represent ancient calcareous sediments which have suffered repeated metamorphic intrusions by younger granites.

**Magnesite**

The most prominent deposit of Magnesite is located in Chalk hills of Salem over an area of 17 Sq. Kms and estimated to be 44 million tonnes.

**Bauxite**

Bauxite, ore of aluminium, occur in the form of cappings in the Shevaroy hills of Yercaud Taluk. Six Bauxite occurrences are known in Semmaduvu, Manjakuttai and Puliur villages.

**Limestone**

The crystalline limestone of Precambrian age occurs in the form of lenticular and linear bands in the Sankari Taluk which is exploited for the production of Cement by India Cements Limited, Sankari west.

**Iron Ore**

Huge quantity of low grade iron ore deposits occur in Kanjamalai and Goodamalai area of Salem District, the reserves which are unexploited.

**Quartz and Feldspar**

Quartz and Feldspar deposits associated with granitic pegmatites occur in various places of Sankari, Omalur, Mettur and Edppady taluk.

**Soapstone:**

Soapstone or talc formed as an altered product of ultramafic rocks occur in Periyasoragai, Aranganur, Tholasampatty, Marakottai and Kongupatty of Omalur Taluks.

**Dimensional Stones**

The Dolerite dyke rocks, commercially called as Black granite occur in Paithur, Seeliampatty Manjini, Umayalpuram of Attur Taluk and in Yellikaradu, Sampalli, Kaveripuram and Kannamoochi of Mettur Taluk. The Colour granites mainly of Granite and liptinite occur in Edappadi and Sankari Taluks which is extensively quarried for building and ornamental purposes.

The pegmatite's vein occurs is an intrusive body into granite-gneiss which is the country rock. The granite-gneisses forms of oldest formation in the stratigraphic sequence. The country rock is moderately weathered whereas the pegmatite body resists weathered.

The general geological sequences of the rocks this area is given below:

<u>AGE</u>	-	<u>FORMATION</u>
Recent	-	Reddish gravelly soil
<u>UNCONFORMITY</u>		
Archaean	-	Pegmatite (Quartz & Feldspar)
	-	Granite – Gneisses
	-	Hornblende – Gneisses
	-	Biotite – Gneisses

Granites and pegmatites have intruded into the older gneisses and they are also of Archaean age, being more resistant than the gneiss to erosion. the granites and pegmatites stand out as residual ridges.

Pure quartz consists of only silica (SiO<sub>2</sub>). Its hardness is 7 and it can easily scratch glass. Quartz is not soluble in ordinary acids and has a vitreous luster. Some Quartz crystals are perfectly transparent, some translucent and other opaque.

Quartz Occurs in three form (a) crystalline, (b) Cryptocrystalline and (c) Amorphous, large quantities of Quartz occur in the earth's crust in massive forms as veins or as grains of various sizes in granites, quartzites and related rocks. It also occurs as six sided crystals surmounted by pyramidal faces. There are several varieties of Quartz.

Crystals of quartz are given different names, according to their physical characters. When a crystal is clear, transparent and white in colour, it is known as transparent quartz or rock crystal, when the crystal is rose or pink, it is known as rose quartz, if it is yellow, it is citrine quartz, if it is smoky quartz colour, it is called smoky quartz or cairngorm and when the quartz is likely white, it is known as milky quartz. when the quartz is opalescent, it is known as Cat's eye or Tiger's eye. Quartz crystals containing fine flstening flakes of mica, are known as aventurine quartz if blue in colour is called as false sapphire.

Feldspar is a group of aluminosilicates of potash, soda or lime. The most important varieties are orthoclase and microcline (Potassium Aluminium Silicate) Albite (Sodium Aluminium Silicate) and Anorthite (Calcium Aluminium Silicate). In nature, however, feldspar do not occur as pure single varieties. Usually, the Potassium feldspars contains a little Sodium and the soda feldspar may be mixed with lime feldspar in various proportions. The feldspar is known as amazon stone. The soda aluminium feldspar Albite with a pearly luster is known as "moonstone".

Labradorite which has an intermediate composition between albite and anorthite, shows beautiful green and blue reflections and this property is known as (Play of colour's) the specific gravity of Feldspar ranges between 2.56 and 2.76 depending on their composition. Their hardness is 6.0 on Moh's scale.

Feldspar are usually found in acid rocks especially granites and pegmatites. Commercial quantities of feldspar are generally derived from pegmatitic rocks which consists of quartz and feldspar with little mica, tourmaline, beryl and a few other minerals.

### **Pegmatites:**

Granites and pegmatites have intruded the gneisses and they are also of Archaean age. Being more resistant than the gneisses to erosion, the granites and pegmatites stand out as residual ridges and hills in this area. In the area under consideration, the pegmatite vein trends in a N10<sup>0</sup>E to S10<sup>0</sup>W direction and with a dip of 80<sup>0</sup> SE. It is made up of pink potash (orthoclase) Quartz and a few stray accessory minerals such as mica, magnetite, etc. In Zones where the quartz is separately concentrated, it is mined and sold as industrial minerals. In parts where the quartz is closely intergrown, as graphic granite, it is not separate.

A thin cover of gravelly reddish 'Muram' soil, 1.0m thick is seen over the gneissic rocks in the shallow parts of the region. This area of recent age and are of a residual nature being products of weathering of the underlying gneissic rocks. The country rock is highly weathered whereas the pegmatite resists weathering, resulting in the formation of a distinct outcrops.

## **6. GEOPHYSICAL INVESTIGATION METHODS**

A variety of methods are available to assist in the assessment of geological sub-surface conditions. The main emphasis of the fieldwork undertaken was to determine the thickness and composition of the sub-surface formations and to identify water-bearing zones. This information was principally obtained in the field using, and vertical electrical soundings (VES). The VES probes the resistivity layering below the site of measurement. This method is described below.

### **Resistivity Method**

Vertical electrical soundings (VES) were carried out to probe the condition of the sub-surface and to confirm the existence of deep groundwater. The VES investigates the resistivity layering below the site of measurement.

### **Basic Principles**

The electrical properties of rocks in the upper part of the earth's crust are dependent upon the lithology, porosity, and the degree of pore space saturation and the salinity of the

pore water. Saturated rocks have lower resistivity than unsaturated and dry rocks. The higher the porosity of the saturated rock, or the higher the salinity of the saturating fluids, the lower is the resistivity. The presence of clays and conductive minerals also reduces the resistivity of the rock.

The resistivity of earth materials can be studied by measuring the electrical potential distribution produced at the earth's surface by an electric current that is passed through the earth. Current is moved through the subsurface from one current electrode to the other and the potential difference is recorded as the current passes. From this information, resistivity values of various layers are acquired and layer thickness can be identified.

The apparent resistivity values determined are plotted as a log function versus the log of the spacing between the electrodes. These plotted curves identify thickness of layers. If there are multiple layers (more than 2), the acquired data is compared to a master curve to determine layer thickness.

This method is least influenced by lateral in-homogeneities and capable of providing higher depth of investigation.

The resistance  $R$  of a certain material is directly proportional to its length  $L$  and cross-sectional area  $A$ , expressed as:

$$R = R_s * L/A \text{ (in Ohm)}$$

Where  $R_s$  is known as the specific resistivity (characteristic of the material and independent of its shape or size)

With Ohm's Law,

$$R = dV/I \text{ (Ohm)}$$

Where  $dV$  is the potential difference across the resistor and  $I$  is the electric current through the resistor. The specific resistivity may be determined by:

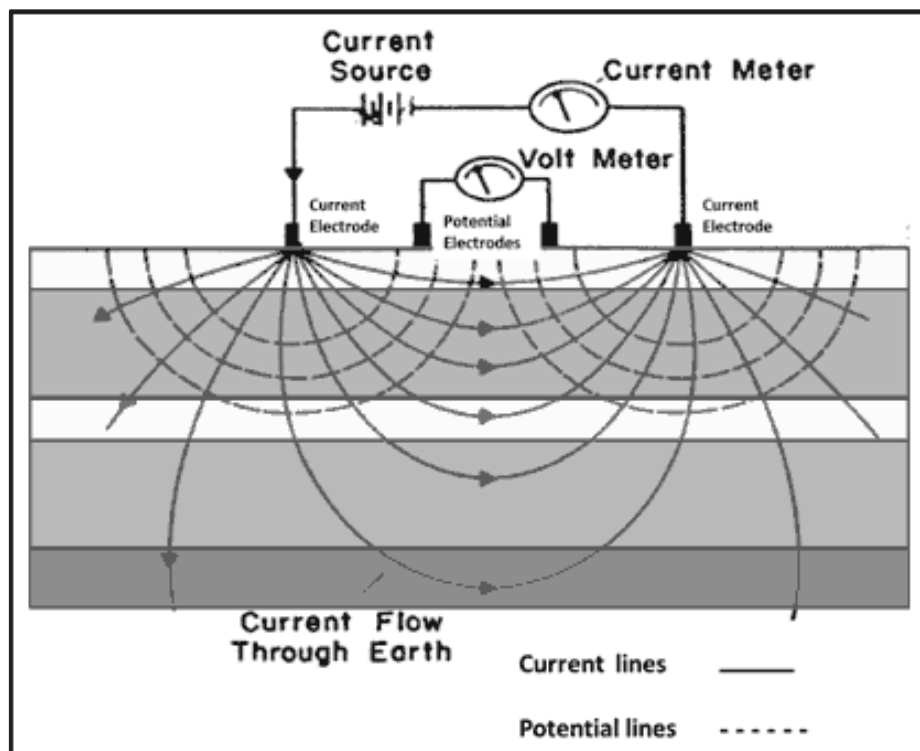
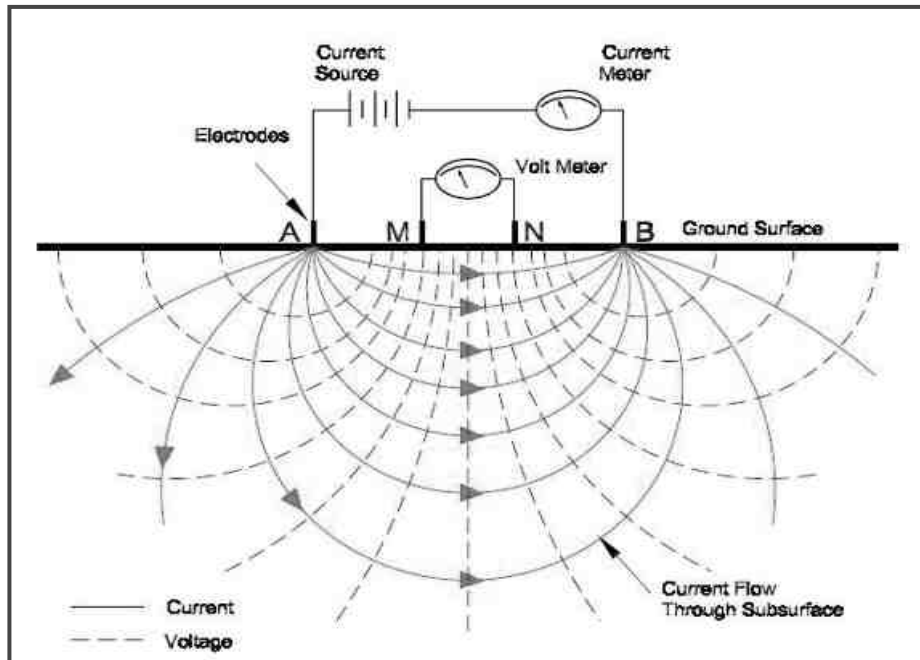
$$R_s = (A/L) * (dV/I) \text{ (in Ohm m)}$$

### **Vertical Electrical Sounding (VES)**

When carrying out a resistivity sounding, current is led into the ground by means of two electrodes. With two other electrodes, situated near the center of the array, the potential field generated by the current is measured. From the observations of the current strength and the potential difference, and taking into account the electrode separations, the ground resistivity can be determined. During a resistivity sounding, the separation between the electrodes is step-wise increased (known as a Schlumberger Array), thus causing the flow of current to penetrate greater depths. When plotting the observed resistivity values against depth on double logarithmic paper, a resistivity graph is formed, which depicts the variation

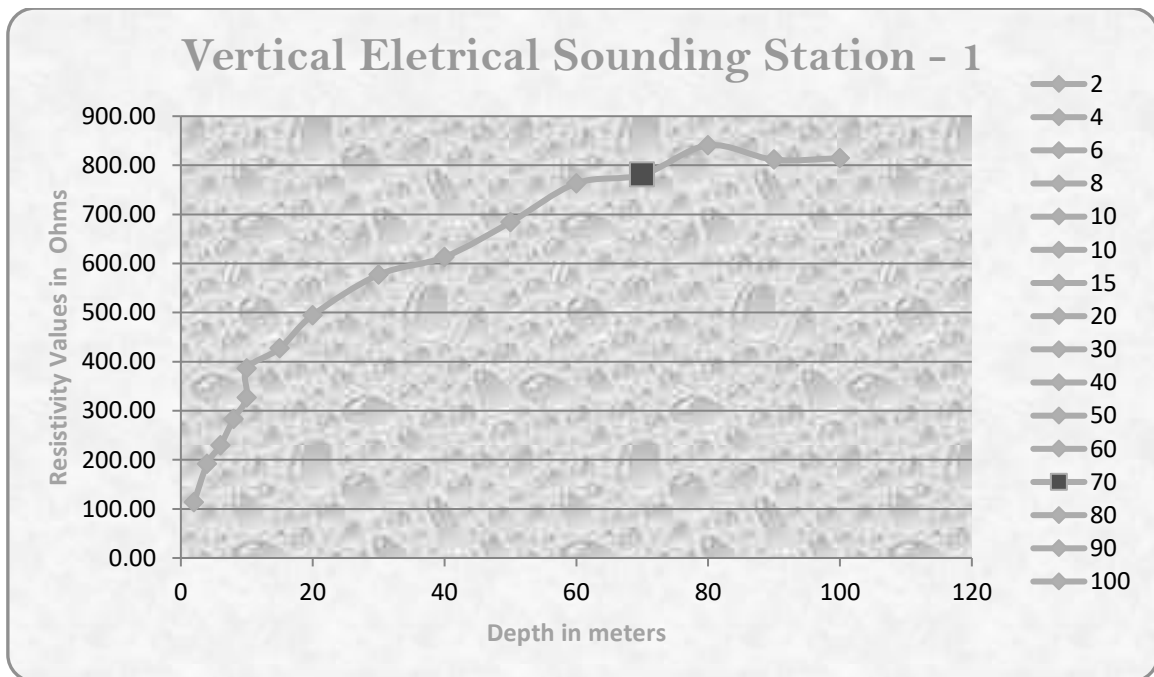


of resistivity with depth. This graph can be interpreted with the aid of a computer, and the actual resistivity layering of the subsoil is obtained. The depths and resistivity values provide the hydro geologist with information on the geological layering and thus the occurrence of groundwater.



## Vertical Electrical Sounding Data's and Graphs

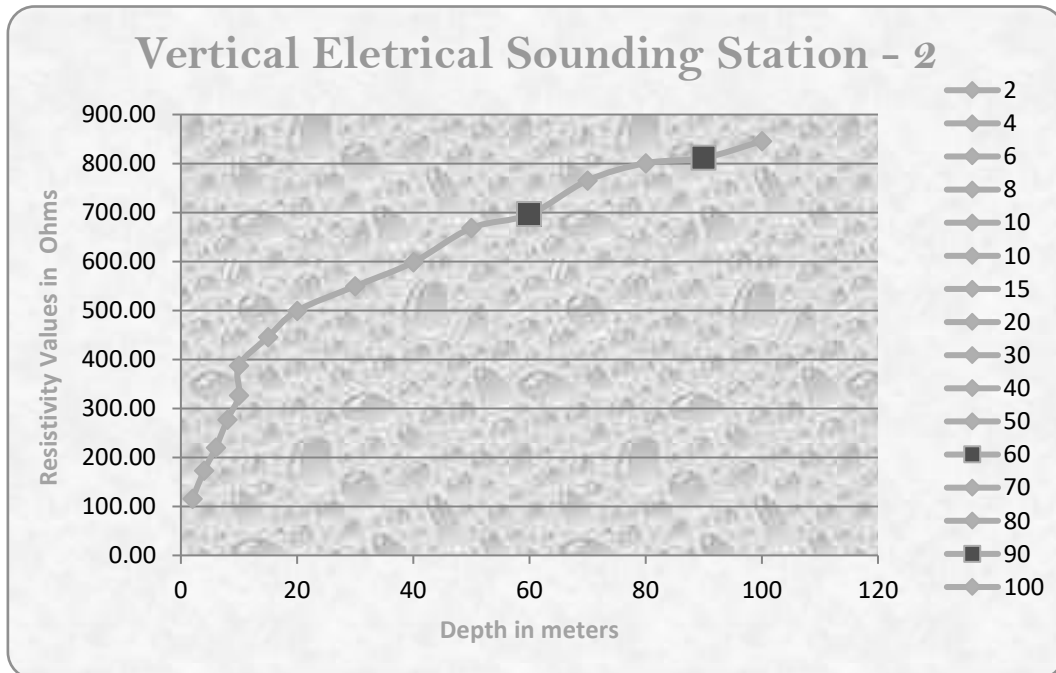
<b>Vertical Electrical Sounding Station - 1</b>					
<b>GPS Coordinates - 11°34'18.83"N78° 9'18.82"E</b>					
<i>S.No</i>	<i>Ab/2(m)</i>	<i>Mn/2(m)</i>	<i>Geometrical Factor (G)</i>	<i>Resistance Value in Ohms</i>	<i>Apparent Resistance in Ohms</i>
1	2	1	4.71	24.15	113.79
2	4	1	23.55	8.14	191.70
3	6	1	54.95	4.17	229.69
4	8	1	98.91	2.86	282.88
5	10	1	155.45	2.10	326.45
6	10	5	23.55	16.40	386.22
7	15	5	62.80	6.80	427.04
8	20	5	117.75	4.20	494.55
9	30	5	274.75	2.10	576.98
10	40	5	494.55	1.25	613.24
11	50	5	777.15	0.88	683.89
12	60	5	1122.55	0.68	763.33
13	70	5	1530.75	0.51	780.68
14	80	5	2001.75	0.43	840.74
15	90	5	2535.55	0.32	811.38
16	100	5	3132.15	0.25	814.36



Above the Vertical Electrical Sounding Station graphs purple Colouris fracture zone.

*A. Sultana*  
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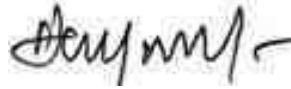
<b>Vertical Electrical Sounding Station - 2</b>					
<b>GPS Coordinates - 11°34'21.67"N 78° 9'22.55"E</b>					
<i>S.No</i>	<i>Ab/2(m)</i>	<i>Mn/2(m)</i>	<i>Geometrical Factor (G)</i>	<i>Resistance Value in Ohms</i>	<i>Apparent Resistance in Ohms</i>
1	2	1	4.71	24.55	115.68
2	4	1	23.55	7.36	173.33
3	6	1	54.95	4.00	219.80
4	8	1	98.91	2.80	276.95
5	10	1	155.45	2.10	326.45
6	10	5	23.55	16.45	387.63
7	15	5	62.80	7.10	445.88
8	20	5	117.75	4.24	499.26
9	30	5	274.75	2.00	549.50
10	40	5	494.55	1.22	598.41
11	50	5	777.15	0.86	668.35
12	60	5	1122.55	0.62	695.98
13	70	5	1530.75	0.51	765.38
14	80	5	2001.75	0.40	800.70
15	90	5	2535.55	0.32	811.38
16	100	5	3132.15	0.28	845.68



Above the Vertical Electrical Sounding Station graphs purple Colour is fracture zone

## 7. Conclusion

Based on the available information and the geophysical investigations it is concluded that the project area is considered to have medium groundwater potential. Productive aquifers are expected at depth of 85m to 90m where minor fractures are observed and shallow aquifers are expected above 65m-70m BGL. The ultimate pit limit as per the approved mining plan depth is 66m (46m AGL + 20m BGL) which will have no impact on the Ground Water.



**Dr.P.Thangaraju, M.Sc., Ph.D.,**

Govt. Approved Hydro Geologist

M/s. Geo Exploration and Mining Solutions,

Regd. Office: No. 17, Advaita Ashram Road,

Alagapuram, Salem – 636 004, Tamil Nadu

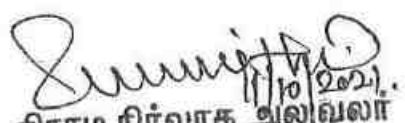
Mobile: +91 - 94433 56539

E-Mail: [infogeoexploration@gmail.com](mailto:infogeoexploration@gmail.com)



சீரணிப்பு

சேலம் மாவட்டம், சேலம் வட்டம்,  
17. அண்மையில் : 76.34.5 ஏக்கர்கள் நிலம்  
பிரதம சீரணிப்பு திட்டம், 49. பனமரத்தூப்பட்டி  
உடைபாடு தெரிந்து பிரதமம் கண்காணிப்பு திட்டப்படி  
-யளிக்கிறது. மேலும் 49 அண்மை, சேலம் மாவட்ட  
ஆட்சியர் அலுவலகம் 180/2020/கண்காணிப்பு/அ.  
நாள் : 22.06.2020 ஆய்வு சிறு. பி.சி.அ.கி.அ.அ.  
S/o, பண்ணை நிலம் சீரணிப்பு கமிட்டியார்  
கிடைக்கக்கூடிய அட்டைகள் சேலம் மாவட்டம்  
மேலும் 49 அண்மை 17.ல் 2000 1.00.0 ஏக்கர்கள்  
கிடைக்கக்கூடிய சீரணிப்பு திட்டத்தில் குடியிருப்பவர்களை,  
சேலம் மாவட்டம் சீரணிப்பு திட்டம் இல்லை என்று  
சீரணிப்பு திட்டப்படி கமிட்டியார்.

  
கிராம நிர்வாக அலுவலர்  
49. பனமரத்தூப்பட்டி,  
சேலம் வட்டம்.



ந.க.எண். 70/2018/கனிமம்/அ

மாவட்ட ஆட்சியர் துறைமுகம்,  
சேலம்.  
நாள்: 31.03.2018.

### குறிப்பாணை

**பொருள்:** கனிமங்களும் குவாரிகளும் - சிறுகனிமம் - சாதாரண கற்கள் -சேலம் மாவட்டம் மற்றும் வட்டம் - பனமரத்துப்பட்டி கிராமம் - புல எண்.1/7 (பாகம் -9) விஸ்தீர்ணம் 4.90.0 ஹெக்டேர் பரப்பளவில் அரக நிலத்தில் அமைந்துள்ள சாதாரண கற்குவாரிக்கு டெண்டருடன் இணைந்த பொது ஏல முறையில் குத்தகை வழங்க டெண்டர்/பொது ஏலம் நடத்தப்பட்டு-பொது ஏலத்தில் அதிக தொகை கோரிய திரு.கே. அர்ஜுனன் என்பவருக்கு 10 ஆண்டுகளுக்கு சாதாரண கற்குவாரி குத்தகை வழங்குதல் தொடர்பாக - கரங்கத்திட்டம், சேலம் மாவட்ட கற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின் தடையின்மைச் சான்று மற்றும் தமிழ்நாடு மாக கட்டுப்பாட்டு வாரிய இசைவு ஆகியவற்றை பெற்று வழங்க கோருதல் - தொடர்பாக.

- பார்வை:**
1. சேலம் மாவட்ட அரசிதழ் சிறப்பு வெளியீடு எண்.1, நாள் 04.01.2018.
  2. 21.01.2018 அன்று தினமணி நாளிதழில் வெளியிடப்பட்ட பத்திரிக்கை செய்தி.
  3. திரு.கே. அர்ஜுனன் த/பெ.குப்புசாமி, 11, பூங்கா நகர், 3வது கிழக்கு தெரு, சோத்துப்பாக்கம், மேல் மருவத்தூர் அஞ்சல், செய்யூர் வட்டம், காஞ்சிபுரம் மாவட்டம் என்பவரது டெண்டர்/ஏல விண்ணப்பம் நாள். 31.01.2018.

சேலம் மாவட்டம் மற்றும் வட்டம், பனமரத்துப்பட்டி கிராமம், புல எண். 1/7 (பாகம்-9)-ல் விஸ்தீர்ணம் 4.90.0 ஹெக்டேர் பரப்பளவில் அமைந்துள்ள சாதாரண கற்குவாரிக்கு பத்து ஆண்டுகளுக்கு குவாரி குத்தகை வழங்குவது தொடர்பாக 31.01.2018 அன்று நடைபெற்ற டெண்டருடன் இணைந்த பொது ஏலத்தில் திரு.கே. அர்ஜுனன் த/பெ.குப்புசாமி, 11, பூங்கா நகர், 3வது கிழக்கு தெரு, சோத்துப்பாக்கம், மேல் மருவத்தூர் அஞ்சல், செய்யூர் வட்டம், காஞ்சிபுரம் மாவட்டம் என்பவர் அரக நிர்ணயம் செய்த குறைந்த பட்ச குத்தகை தொகையை விட அதி தொகையான ரூ.180,01,000/-ஐவிட (ரூபாய் ஒரு கோடியே எண்பது இலட்சத்து ஆயிரம் மட்டும்) ஐ பொது ஏலத்தில் கோரியதால் அவருக்கு தமிழ்நாடு சிறுகனிம சலுகை விதிகள், 1959-ன் விதி 8(6)(b)-ன்படி அவருக்கு கீழ்க்கண்ட நிபந்தனைகளுடன் குவாரி குத்தகை வழங்க உத்தேசிக்கப்பட்டுள்ளது.

- (i) குவாரி குத்தகை வழங்க உத்தேசிக்கப்பட்டுள்ள குவாரிக்க அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளியிட்டு குவாரிய்ப்பணி செய்ய வேண்டும்.

(ii) அருகிலுள்ள அரசு புறம்போக்கு புலங்கள், வண்டிப்பாதை மற்றும் கிராம சாலைகளுக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளியும், நெடுஞ்சாலை, மின்கம்பி பாதை மற்றும் நிலையான அமைப்புகளுக்கு 50 மீட்டர் பாதுகாப்பு இடைவெளியும் விட்டு குவாரிப் பணி செய்ய வேண்டும்.

(iii) மேலும் மாவட்ட அரசிதழ் எண்.1, நாள் 04.01.2018-ல் குறிப்பிட்டுள்ள நிபந்தனைகளை தவறாமல் கடைபிடித்து குவாரிப் பணி செய்ய வேண்டும்.

2) எனவே, சேலம் மாவட்டம் மற்றும் வட்டம், பனமரத்துப்பட்டி கிராமம், புலஎண். 1/7 (பாகம் -9) விஸ்தீர்ணம் 4.90.0 ஹெக்டேர் பரப்பளவில் புல வரையடத்தில் குறிப்பிட்டுள்ள பகுதியில் குவாரி குத்தகை ஒப்பந்த ஆவணம் நிறைவேற்றும் நாளிலிருந்து 10 ஆண்டுகளுக்கு சாதாரண கற்கள் வெட்டியெடுக்க குவாரி குத்தகை வழங்குதல் தொடர்பாக தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959-ன் விதி 41 மற்றும் 42 ஆகியவற்றில் கண்டுள்ள காலவரையறைக்குள் கரங்கத்திட்டம், சேலம் மாவட்ட கற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின் இசைவு மற்றும் தமிழ்நாடு மாகாணப்பாட்டு வாரிய இசைவு ஆகியவற்றை சமர்ப்பிக்க வேண்டும் என திரு.கே.அர்ஜுனன் என்பவருக்கு தெரிவிக்கப்படுகிறது.

3) உரிய காலத்தில் மேற்கண்ட ஆவணங்களை சமர்ப்பிக்க தவறினால் விதிகளின்படி உரிய நடவடிக்கை எடுக்கப்படும் எனவும் தெரிவிக்கப்படுகிறது.

4) மேற்கூறிய ஆவணங்களை சமர்ப்பித்த பின்பு குவாரி குத்தகை வழங்கப்பட்டு குவாரி குத்தகை ஒப்பந்த ஆவணம் நிறைவேற்றிய பின்பே மேற்கண்ட புலத்தில் குவாரிப் பணிகளை தொடங்க வேண்டும். தவறினால் தமிழ்நாடு சிறுகனிமச் சலுகை விதிகள் 1959-ன் விதி 36 (அ)-ன்படி உரிய நடவடிக்கை எடுக்கப்படும் எனவும் தெரிவிக்கப்படுகிறது.

இணைப்பு: புல வரையடம்.

(ஓம்/-ரோஹிணி ரா. பாஜிபாகரே)  
மாவட்ட ஆட்சித்தலைவர்,  
சேலம்.

//உண்மை நகல்/ உத்திரவுப்படி//

மாவட்ட ஆட்சித்தலைவருக்காக,  
சேலம்.

பெறுதல்:-

திரு.கே. அர்ஜுனன்  
த/பெ.குப்புசாமி,  
11, பூங்கா நகர், 3வது கிழக்கு தெரு,  
சோத்துப்பாக்கம், மேல் மருவத்தூர் அஞ்சல்,  
செய்யூர் வட்டம், காஞ்சிபுரம் மாவட்டம்.

நகல்: வட்டாட்சியர், சேலம் - குவாரி குத்தகை வழங்க உள்ள புலத்தினை புல வரையடத்தில் உள்ளவாறு குறுவட்ட அளவர் மூலம் அளவீடு செய்து எல்லைக் கற்கள் ஏற்படுத்தி ஒரு வார காலத்திற்குள் அறிக்கை அளிக்க இதன்மூலம் கேட்டுக்கொள்ளப்படுகிறது.

**M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES**  
**Panamarathupatti Village, Salem Taluk, Salem District.**

Code	Name of the Proponent and Address	S.F. Nos	Extent
P1	<b>M/s. Royal Stones,</b> 1.Thiru. M. Bharanitharan (Partner) 2.Thiru. P. Dharmalingam (Partner) 207A, Chinnammal Building, No.102-A, Peramanur Main Road, Four Roads, Salem - 636 007	1/7 (Part-7)	1.00.0 ha
P2	<b>Thiru. P. Siva Kumar,</b> S/o. S. Panneerselvam, No.268/8, 2nd Cross Street, Kattur, Alagapuram, Salem District – 636 016.	1/7 (Part-11)	1.00.0 ha

\*\*\*\*\*End of Report\*\*\*\*\*

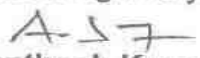
Page 1 of 4

Verified by





Authorised Signatory

  
Name: Santhosh Kumar A.  
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.



**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/001	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	IS 5182	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Air	<b>Sample Code</b>	EHS360/001
<b>Sample Description</b>	Ambient Air Quality Monitoring	<b>Sample Condition</b>	Good
<b>Sampling Location</b>	<b>AAQ 1 – Core Zone- 11°34'29.16"N 78° 9'10.29"E</b>		

Date	Period. hrs	Fugitive Dust	PM10 (µg/m³)	PM2.5 (µg/m³)	SO <sub>2</sub> (µg/m³)	NO <sub>2</sub> (µg/m³)	O <sub>3</sub> (µg/m³)	NH <sub>3</sub> (µg/m³)	CO (µg/m³)
03.03.2024	07.00-07.00	64.8	22.7	41.9	9.6	26.5	<5	<5	<1.0
04.03.2024	07.15-07.15	64.9	23.5	45.3	10.2	24.9	<5	<5	<1.0
10.03.2024	07.00-07.00	65.9	24.4	44.2	10.3	25.3	<5	<5	<1.0
11.03.2024	07.15-07.15	63.8	23.2	43.2	9.5	25.1	<5	<5	<1.0
17.03.2024	07.00-07.00	64.9	26.9	42.7	9.7	25.7	<5	<5	<1.0
18.03.2024	07.15-07.15	65.5	25.4	41.9	9.6	24.1	<5	<5	<1.0
24.03.2024	07.00-07.00	62.9	23.8	45.4	8.3	25.8	<5	<5	<1.0
25.03.2024	07.15-07.15	65.5	24.7	42.3	8.7	26.7	<5	<5	<1.0
31.03.2024	07.00-07.00	63.7	22.9	46.7	9.6	25.4	<5	<5	<1.0
01.04.2024	07.15-07.15	66.5	25.1	42.5	9.2	25.3	<5	<5	<1.0
07.04.2024	07.00-07.00	64.8	25.3	41.9	10.1	26.9	<5	<5	<1.0
08.04.2024	07.15-07.15	63.9	23.8	42.5	10.3	26.8	<5	<5	<1.0
14.04.2024	07.00-07.00	64.8	23.7	43.8	9.9	24.1	<5	<5	<1.0
15.04.2024	07.15-07.15	62.8	25.4	44.1	9.7	26.3	<5	<5	<1.0
21.04.2024	07.00-07.00	63.8	24.9	43.2	10.3	25.8	<5	<5	<1.0
22.04.2024	07.15-07.15	64.9	23.6	43.7	10.8	26.9	<5	<5	<1.0
28.04.2024	07.00-07.00	65.4	24.5	41.5	9.3	25.7	<5	<5	<1.0
29.04.2024	07.15-07.15	63.7	22.5	42.3	9.4	24.1	<5	<5	<1.0
05.05.2024	07.00-07.00	65.9	23.8	43.8	9.2	26.3	<5	<5	<1.0
06.05.2024	07.15-07.15	65.3	26.5	41.7	9.2	25.5	<5	<5	<1.0
12.05.2024	07.00-07.00	64.9	24.9	43.2	9.0	24.8	<5	<5	<1.0
13.05.2024	07.15-07.15	63.5	26.7	41.5	8.6	24.1	<5	<5	<1.0
19.05.2024	07.00-07.00	62.3	28.4	43.8	8.7	22.4	<5	<5	<1.0
20.05.2024	07.15-07.15	64.7	25.8	41.5	8.6	21.8	<5	<5	<1.0
26.05.2024	07.00-07.00	65.7	25.4	43.4	8.1	23.9	<5	<5	<1.0
27.05.2024	07.15-07.15	64.9	25.9	42.6	8.4	24.3	<5	<5	<1.0
NAAQ* Standard		<100	<100	<80	<80	<100	<400	<4	

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

\*\*\*\*\*End of Report\*\*\*\*\*



Verified by

*[Signature]*

Authorised Signatory

*[Signature]*

Name: Santhosh Kumar A  
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

**TEST REPORT**

Report No	EHS360/TR/2023-2024/001	Report Date	03.06.2024
Site Location	M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES Panamarathupatti Village, Salem Taluk, Salem District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/001
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 1 – Core Zone- 11°34'29.16"N 78° 9'10.29"E		

Date	Period. hrs	Pb (µg/m <sup>3</sup> )	As (ng/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )	C <sub>6</sub> H <sub>6</sub> (µg/m <sup>3</sup> )	BaP (ng/m <sup>3</sup> )
03.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
04.03.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
10.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
11.03.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
17.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
18.03.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
24.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
25.03.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
31.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
01.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
07.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
08.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
14.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
15.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
21.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
22.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
28.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
29.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
05.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
06.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
12.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
13.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
19.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
20.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
26.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
27.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
NAAQ* Standard		<200	<100	<60	<80	<80

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

Verified by



Authorised Signatory

Name: Santhosh Kumar A  
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/002	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	IS 5182	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Air	<b>Sample Code</b>	EHS360/002
<b>Sample Description</b>	Ambient Air Quality Monitoring	<b>Sample Condition</b>	Good
<b>Sampling Location</b>	AAQ 2 – Core Zone- 11°34'35.93"N 78° 9'17.61"E		

Date	Period. hrs	Fugitive Dust	PM10 (µg/m³)	PM2.5 (µg/m³)	SO <sub>2</sub> (µg/m³)	NO <sub>2</sub> (µg/m³)	O <sub>3</sub> (µg/m³)	NH <sub>3</sub> (µg/m³)	CO (µg/m³)
03.03.2024	07.15-07.15	64.5	24.2	44.3	8.6	24.6	<5	<5	<1.0
04.03.2024	07.30-07:30	62.3	23.5	43.5	8.6	22.3	<5	<5	<1.0
10.03.2024	07.15-07.15	65.5	24.2	44.1	9.2	25.5	<5	<5	<1.0
11.03.2024	07.30-07:30	63.9	22.6	42.9	9.4	26.9	<5	<5	<1.0
17.03.2024	07.15-07.15	64.4	21.7	44.7	8.3	24.1	<5	<5	<1.0
18.03.2024	07.30-07:30	62.8	25.9	42.3	8.7	25.1	<5	<5	<1.0
24.03.2024	07.15-07.15	65.6	23.2	43.6	8.6	27.4	<5	<5	<1.0
25.03.2024	07.30-07:30	63.6	21.8	41.5	9.2	23.6	<5	<5	<1.0
31.03.2024	07.15-07.15	65.2	25.5	43.2	9.7	25.2	<5	<5	<1.0
01.04.2024	07.30-07:30	64.7	23.6	42.7	8.8	23.5	<5	<5	<1.0
07.04.2024	07.15-07.15	65.5	24.7	41.6	8.3	24.9	<5	<5	<1.0
08.04.2024	07.30-07:30	62.3	24.3	42.3	8.1	23.6	<5	<5	<1.0
14.04.2024	07.15-07.15	65.5	26.9	41.7	9.3	25.8	<5	<5	<1.0
15.04.2024	07.15-07.15	65.3	23.5	44.2	9.7	24.4	<5	<5	<1.0
21.04.2024	07.00-07.00	64.9	22.6	43.2	9.5	26.4	<5	<5	<1.0
22.04.2024	07.15-07.15	65.1	23.2	41.8	9.6	22.3	<5	<5	<1.0
28.04.2024	07.00-07.00	63.8	22.8	44.7	8.2	26.9	<5	<5	<1.0
29.04.2024	07.15-07.15	64.7	25.4	41.5	8.6	26.8	<5	<5	<1.0
05.05.2024	07.00-07.00	61.3	21.7	43.9	9.3	24.3	<5	<5	<1.0
06.05.2024	07.15-07.15	65.2	23.9	42.5	9.1	25.7	<5	<5	<1.0
12.05.2024	07.00-07.00	64.7	24.5	41.5	9.7	21.6	<5	<5	<1.0
13.05.2024	07.15-07.15	63.2	23.1	43.9	8.2	22.8	<5	<5	<1.0
19.05.2024	07.00-07.00	61.5	21.7	42.5	8.6	21.5	<5	<5	<1.0
20.05.2024	07.15-07.15	62.7	23.6	43.2	9.3	25.4	<5	<5	<1.0
26.05.2024	07.00-07.00	64.3	25.4	42.7	9.5	23.9	<5	<5	<1.0
27.05.2024	07.15-07.15	62.5	24.9	41.3	9.7	25.3	<5	<5	<1.0
NAAQ* Standard			<100	<100	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

\*\*\*\*\*End of Report\*\*\*\*\*

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Verified by



Authorised Signatory

Name: Santhosh Kumar A  
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/002	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	IS 5182	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Air	<b>Sample Code</b>	EHS360/002
<b>Sample Description</b>	Ambient Air Quality Monitoring	<b>Sample Condition</b>	Good
<b>Sampling Location</b>	<b>AAQ 2 – Core Zone- 11°34'35.93"N 78° 9'17.61"E</b>		

Date	Period. hrs	Pb ( $\mu\text{g}/\text{m}^3$ )	As ( $\text{ng}/\text{m}^3$ )	Ni ( $\text{ng}/\text{m}^3$ )	C <sub>6</sub> H <sub>6</sub> ( $\mu\text{g}/\text{m}^3$ )	BaP ( $\text{ng}/\text{m}^3$ )
03.03.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
04.03.2024	07.30-07:30	<0.01	<5	<3	<1.0	<3.0
10.03.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
11.03.2024	07.30-07:30	<0.01	<5	<3	<1.0	<3.0
17.03.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
18.03.2024	07.30-07:30	<0.01	<5	<3	<1.0	<3.0
24.03.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
25.03.2024	07.30-07:30	<0.01	<5	<3	<1.0	<3.0
31.03.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
01.04.2024	07.30-07:30	<0.01	<5	<3	<1.0	<3.0
07.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
08.04.2024	07.30-07:30	<0.01	<5	<3	<1.0	<3.0
14.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
15.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
21.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
22.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
28.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
29.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
05.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
06.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
12.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
13.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
19.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
20.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
26.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
27.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
NAAQ* Standard		<200	<0.01	<60	<80	<80

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

\*\*\*\*\*End of Report\*\*\*\*\*

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Verified by



Authorised Signatory

A 17

Name: Santhosh Kumar A.  
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/003	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	IS 5182	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Air	<b>Sample Code</b>	EHS360/003
<b>Sample Description</b>	Ambient Air Quality Monitoring	<b>Sample Condition</b>	Good
<b>Sampling Location</b>	<b>AAQ 3 – Near Parapatti- 11°35'28.33"N 78° 7'36.64"E</b>		

Date	Period. hrs	Fugitive Dust	PM10 (µg/m <sup>3</sup> )	PM2.5 (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	NH <sub>3</sub> (µg/m <sup>3</sup> )	CO (µg/m <sup>3</sup> )
03.03.2024	07.00-07.00	65.7	22.5	43.9	8.3	22.7	<5	<5	<1.0
04.03.2024	07.15-07.15	62.9	21.9	42.7	8.2	21.3	<5	<5	<1.0
10.03.2024	07.00-07.00	61.3	24.9	41.8	8.6	25.1	<5	<5	<1.0
11.03.2024	07.15-07.15	63.6	22.6	43.2	8.4	23.9	<5	<5	<1.0
17.03.2024	07.00-07.00	64.2	23.3	42.5	8.3	24.1	<5	<5	<1.0
18.03.2024	07.15-07.15	63.9	24.4	43.6	8.6	22.8	<5	<5	<1.0
24.03.2024	07.00-07.00	64.2	23.9	44.9	7.6	23.3	<5	<5	<1.0
25.03.2024	07.15-07.15	63.5	21.5	43.5	7.2	22.7	<5	<5	<1.0
31.03.2024	07.00-07.00	61.8	22.9	41.8	7.8	21.4	<5	<5	<1.0
01.04.2024	07.15-07.15	63.3	23.7	42.3	7.9	23.9	<5	<5	<1.0
07.04.2024	07.00-07.00	62.5	24.4	43.5	8.3	22.5	<5	<5	<1.0
08.04.2024	07.15-07.15	64.9	21.6	44.9	8.1	21.7	<5	<5	<1.0
14.04.2024	07.00-07.00	62.3	23.5	43.1	8.6	21.3	<5	<5	<1.0
15.04.2024	07.15-07.15	64.7	21.6	42.9	8.7	23.6	<5	<5	<1.0
21.04.2024	07.00-07.00	63.9	23.8	44.5	8.4	21.4	<5	<5	<1.0
22.04.2024	07.15-07.15	62.8	22.6	43.6	8.3	22.5	<5	<5	<1.0
28.04.2024	07.00-07.00	64.2	23.4	42.5	8.9	21.3	<5	<5	<1.0
29.04.2024	07.15-07.15	62.3	21.5	41.9	8.1	23.8	<5	<5	<1.0
05.05.2024	07.00-07.00	64.9	23.9	43.3	7.3	21.5	<5	<5	<1.0
06.05.2024	07.15-07.15	63.8	25.4	41.5	7.6	23.6	<5	<5	<1.0
12.05.2024	07.00-07.00	63.7	22.1	42.9	7.8	22.8	<5	<5	<1.0
13.05.2024	07.15-07.15	65.9	23.3	43.4	7.1	21.7	<5	<5	<1.0
19.05.2024	07.00-07.00	64.3	22.7	41.9	7.8	23.5	<5	<5	<1.0
20.05.2024	07.15-07.15	62.8	21.5	43.5	7.9	22.2	<5	<5	<1.0
26.05.2024	07.00-07.00	64.2	24.7	41.6	7.5	21.3	<5	<5	<1.0
27.05.2024	07.15-07.15	63.9	21.9	42.2	7.1	23.8	<5	<5	<1.0
NAAQ* Standard			<100	<100	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

\*\*\*\*\*End of Report\*\*\*\*\*



Verified by

Authorised Signatory

Name: Santhosh Kumar A  
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/003	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	IS 5182	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Air	<b>Sample Code</b>	EHS360/003
<b>Sample Description</b>	Ambient Air Quality Monitoring	<b>Sample Condition</b>	Good
<b>Sampling Location</b>	AAQ 3 – Near Parapatti- 11°35'28.33"N 78° 7'36.64"E		

Date	Period. hrs	Pb (µg/m <sup>3</sup> )	As (ng/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )	C <sub>6</sub> H <sub>6</sub> (µg/m <sup>3</sup> )	BaP (ng/m <sup>3</sup> )
03.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
04.03.2024	07.15-07:15	<0.01	<5	<3	<1.0	<3.0
10.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
11.03.2024	07.15-07:15	<0.01	<5	<3	<1.0	<3.0
17.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
18.03.2024	07.15-07:15	<0.01	<5	<3	<1.0	<3.0
24.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
25.03.2024	07.15-07:15	<0.01	<5	<3	<1.0	<3.0
31.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
01.04.2024	07.15-07:15	<0.01	<5	<3	<1.0	<3.0
07.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
08.04.2024	07.15-07:15	<0.01	<5	<3	<1.0	<3.0
14.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
15.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
21.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
22.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
28.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
29.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
05.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
06.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
12.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
13.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
19.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
20.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
26.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
27.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
NAAQ* Standard		<200	<0.01	<60	<80	<80

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

\*\*\*\*\*End of Report\*\*\*\*\*



Verified by

Authorised Signatory

Name: Santhosh Kumar A  
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/004	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	IS 5182	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Air	<b>Sample Code</b>	EHS360/004
<b>Sample Description</b>	Ambient Air Quality Monitoring	<b>Sample Condition</b>	Good
<b>Sampling Location</b>	<b>AAQ 4 – Pasuvanatampatti- 11°34'18.64"N 78° 7'25.94"E</b>		

Date	Period. hrs	Fugitive Dust	PM10 (µg/m <sup>3</sup> )	PM2.5 (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	NH <sub>3</sub> (µg/m <sup>3</sup> )	CO (µg/m <sup>3</sup> )
03.03.2024	07:30-07:30	65.9	23.7	41.6	8.3	23.7	<5	<5	<1.0
04.03.2024	07:45-07:45	62.3	21.9	43.2	8.2	21.9	<5	<5	<1.0
10.03.2024	07:30-07:30	62.6	23.7	41.7	8.1	22.6	<5	<5	<1.0
11.03.2024	07:45-07:45	61.4	21.5	42.9	8.6	23.5	<5	<5	<1.0
17.03.2024	07:30-07:30	62.3	23.6	43.6	7.3	22.4	<5	<5	<1.0
18.03.2024	07:45-07:45	61.8	23.9	42.5	8.2	26.8	<5	<5	<1.0
24.03.2024	07:30-07:30	62.5	24.5	41.3	8.8	22.3	<5	<5	<1.0
25.03.2024	07:45-07:45	63.4	21.2	43.4	7.3	25.1	<5	<5	<1.0
31.03.2024	07:30-07:30	62.5	23.6	42.5	7.4	23.5	<5	<5	<1.0
01.04.2024	07:45-07:45	61.9	23.5	43.6	7.6	21.7	<5	<5	<1.0
07.04.2024	07:30-07:30	62.3	24.7	41.8	7.8	23.4	<5	<5	<1.0
08.04.2024	07:45-07:45	62.5	21.9	43.5	7.5	24.9	<5	<5	<1.0
14.04.2024	07:30-07:30	63.9	23.6	42.7	7.3	21.5	<5	<5	<1.0
15.04.2024	07:15-07:15	64.4	22.5	41.2	7.6	24.3	<5	<5	<1.0
21.04.2024	07:00-07:00	63.9	23.8	43.6	7.1	23.1	<5	<5	<1.0
22.04.2024	07:15-07:15	62.5	24.3	43.8	7.8	21.9	<5	<5	<1.0
28.04.2024	07:00-07:00	63.8	22.5	41.5	8.3	23.5	<5	<5	<1.0
29.04.2024	07:15-07:15	61.2	21.9	42.9	8.7	22.4	<5	<5	<1.0
05.05.2024	07:00-07:00	62.7	23.5	41.2	8.6	21.9	<5	<5	<1.0
06.05.2024	07:15-07:15	62.3	21.5	42.3	7.1	24.6	<5	<5	<1.0
12.05.2024	07:00-07:00	64.9	23.6	41.9	7.6	23.5	<5	<5	<1.0
13.05.2024	07:15-07:15	62.3	22.8	42.3	7.3	22.7	<5	<5	<1.0
19.05.2024	07:00-07:00	63.8	23.5	44.6	7.6	24.8	<5	<5	<1.0
20.05.2024	07:15-07:15	64.3	24.8	44.7	7.8	21.5	<5	<5	<1.0
26.05.2024	07:00-07:00	62.5	21.6	43.2	7.1	25.4	<5	<5	<1.0
27.05.2024	07:15-07:15	61.9	23.4	42.5	7.6	26.2	<5	<5	<1.0
NAAQ* Standard			<100	<100	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

\*\*\*\*\*End of Report\*\*\*\*\*



Verified by

Authorised Signatory

Name: Santhosh Kumar A  
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/004	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	IS 5182	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Air	<b>Sample Code</b>	EHS360/004
<b>Sample Description</b>	Ambient Air Quality Monitoring	<b>Sample Condition</b>	Good
<b>Sampling Location</b>	<b>AAQ 4 – Pasuvanatampatti- 11°34'18.64"N 78° 7'25.94"E</b>		

Date	Period. hrs	Pb (µg/m <sup>3</sup> )	As (ng/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )	C <sub>6</sub> H <sub>6</sub> (µg/m <sup>3</sup> )	BaP (ng/m <sup>3</sup> )
03.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
04.03.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
10.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
11.03.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
17.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
18.03.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
24.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
25.03.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
31.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
01.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
07.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
08.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
14.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
15.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
21.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
22.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
28.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
29.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
05.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
06.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
12.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
13.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
19.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
20.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
26.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
27.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
NAAQ* Standard		<200	<100	<60	<80	<80

**Note:** BDL: Below Detection Limit; DL: Detection Limit

**Remarks:** The values observed for the pollutants given above are within the CPCB standards.

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

Verified by



Authorised Signatory

A 17

Name: Santhosh Kumar A  
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.



**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/005	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	IS 5182	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Air	<b>Sample Code</b>	EHS360/005
<b>Sample Description</b>	Ambient Air Quality Monitoring	<b>Sample Condition</b>	Good
<b>Sampling Location</b>	<b>AAQ 5 – Ammapalayam- 11°33'51.19"N 78° 8'48.57"E</b>		

Date	Period. hrs	Fugitive Dust	PM10 (µg/m³)	PM2.5 (µg/m³)	SO <sub>2</sub> (µg/m³)	NO <sub>2</sub> (µg/m³)	O <sub>3</sub> (µg/m³)	NH <sub>3</sub> (µg/m³)	CO (µg/m³)
03.03.2024	08:00-08:00	61.9	21.9	45.3	6.2	25.3	<5	<5	<1.0
04.03.2024	08:15-08:15	62.7	23.5	42.6	6.7	24.1	<5	<5	<1.0
10.03.2024	08:00-08:00	63.9	23.6	43.4	7.3	23.6	<5	<5	<1.0
11.03.2024	08:15-08:15	61.5	21.7	41.8	7.8	23.6	<5	<5	<1.0
17.03.2024	08:00-08:00	62.9	21.5	42.3	7.9	26.4	<5	<5	<1.0
18.03.2024	08:15-08:15	64.2	23.6	43.7	8.3	21.9	<5	<5	<1.0
24.03.2024	08:00-08:00	63.9	22.9	41.5	8.4	22.7	<5	<5	<1.0
25.03.2024	08:15-08:15	61.5	21.4	43.3	8.6	21.8	<5	<5	<1.0
31.03.2024	08:00-08:00	62.6	23.5	42.5	8.9	23.9	<5	<5	<1.0
01.04.2024	08:15-08:15	63.7	23.9	42.6	8.1	24.2	<5	<5	<1.0
07.04.2024	08:00-08:00	61.4	21.5	41.4	9.2	21.7	<5	<5	<1.0
08.04.2024	08:15-08:15	62.9	23.8	45.2	7.6	23.5	<5	<5	<1.0
14.04.2024	08:00-08:00	62.3	24.6	43.2	7.4	25.7	<5	<5	<1.0
15.04.2024	07:15-07:15	65.5	23.8	41.2	7.2	24.6	<5	<5	<1.0
21.04.2024	07:00-07:00	64.1	24.4	42.9	7.6	23.4	<5	<5	<1.0
22.04.2024	07:15-07:15	62.9	21.6	44.7	7.5	22.3	<5	<5	<1.0
28.04.2024	07:00-07:00	63.6	23.3	42.5	7.2	25.8	<5	<5	<1.0
29.04.2024	07:15-07:15	62.7	22.5	45.9	7.6	21.7	<5	<5	<1.0
05.05.2024	07:00-07:00	61.5	21.7	43.2	6.8	22.9	<5	<5	<1.0
06.05.2024	07:15-07:15	62.3	21.3	41.7	6.1	24.6	<5	<5	<1.0
12.05.2024	07:00-07:00	63.9	22.4	45.6	6.1	23.2	<5	<5	<1.0
13.05.2024	07:15-07:15	62.9	24.3	42.2	6.8	22.3	<5	<5	<1.0
19.05.2024	07:00-07:00	63.7	23.5	43.5	7.2	23.7	<5	<5	<1.0
20.05.2024	07:15-07:15	61.5	21.3	44.9	7.5	24.1	<5	<5	<1.0
26.05.2024	07:00-07:00	62.9	23.9	42.3	7.8	23.9	<5	<5	<1.0
27.05.2024	07:15-07:15	63.7	22.1	41.9	7.6	25.4	<5	<5	<1.0
NAAQ* Standard			<100	<100	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

\*\*\*\*\*End of Report\*\*\*\*\*



Verified by

Authorised Signatory

Name: Santhosh Kumar A  
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/005	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	IS 5182	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Air	<b>Sample Code</b>	EHS360/005
<b>Sample Description</b>	Ambient Air Quality Monitoring	<b>Sample Condition</b>	Good
<b>Sampling Location</b>	<b>AAQ 5 – Ammapalayam- 11°33'51.19"N 78° 8'48.57"E</b>		

Date	Period. hrs	Pb (µg/m <sup>3</sup> )	As (ng/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )	C <sub>6</sub> H <sub>6</sub> (µg/m <sup>3</sup> )	BaP (ng/m <sup>3</sup> )
03.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
04.03.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
10.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
11.03.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
17.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
18.03.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
24.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
25.03.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
31.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
01.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
07.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
08.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
14.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
15.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
21.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
22.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
28.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
29.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
05.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
06.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
12.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
13.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
19.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
20.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
26.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
27.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
NAAQ* Standard		<200	<100	<60	<80	<80

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

Verified by




Authorised Signatory

Name: Santhosh Kumar A.  
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/006	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	IS 5182	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Air	<b>Sample Code</b>	EHS360/006
<b>Sample Description</b>	Ambient Air Quality Monitoring	<b>Sample Condition</b>	Good
<b>Sampling Location</b>	<b>AAQ 6 – Pichampalayam- 11°32'45.33"N 78° 9'50.42"E</b>		

Date	Period. hrs	Fugitive Dust	PM10 (µg/m <sup>3</sup> )	PM2.5 (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	NH <sub>3</sub> (µg/m <sup>3</sup> )	CO (µg/m <sup>3</sup> )
03.03.2024	07.00-07.00	63.7	21.9	45.3	6.2	25.3	<5	<5	<1.0
04.03.2024	07.15-07.15	64.2	23.5	42.6	6.7	24.1	<5	<5	<1.0
10.03.2024	07.00-07.00	61.3	23.6	43.4	7.3	23.6	<5	<5	<1.0
11.03.2024	07.15-07.15	62.9	21.7	41.8	7.8	23.6	<5	<5	<1.0
17.03.2024	07.00-07.00	63.6	21.5	42.3	7.9	26.4	<5	<5	<1.0
18.03.2024	07.15-07.15	62.5	23.6	43.7	8.3	21.9	<5	<5	<1.0
24.03.2024	07.00-07.00	63.8	22.9	41.5	8.4	22.7	<5	<5	<1.0
25.03.2024	07.15-07.15	64.9	21.4	43.3	8.6	21.8	<5	<5	<1.0
31.03.2024	07.00-07.00	62.5	23.5	42.5	8.9	23.9	<5	<5	<1.0
01.04.2024	07.15-07.15	63.9	23.9	42.6	8.1	24.2	<5	<5	<1.0
07.04.2024	07.00-07.00	62.5	21.5	41.4	9.2	21.7	<5	<5	<1.0
08.04.2024	07.15-07.15	64.7	23.8	45.2	7.6	23.5	<5	<5	<1.0
14.04.2024	07.00-07.00	62.3	24.6	43.2	7.4	25.7	<5	<5	<1.0
15.04.2024	07.15-07.15	62.9	23.8	41.2	7.2	24.6	<5	<5	<1.0
21.04.2024	07.00-07.00	64.5	24.4	42.9	7.6	23.4	<5	<5	<1.0
22.04.2024	07.15-07.15	63.7	21.6	44.7	7.5	22.3	<5	<5	<1.0
28.04.2024	07.00-07.00	64.9	23.3	42.5	7.2	25.8	<5	<5	<1.0
29.04.2024	07.15-07.15	62.3	22.5	45.9	7.6	21.7	<5	<5	<1.0
05.05.2024	07.00-07.00	62.5	21.7	43.2	6.8	22.9	<5	<5	<1.0
06.05.2024	07.15-07.15	63.9	21.3	41.7	6.1	24.6	<5	<5	<1.0
12.05.2024	07.00-07.00	62.5	22.4	45.6	6.1	23.2	<5	<5	<1.0
13.05.2024	07.15-07.15	63.7	24.3	42.2	6.8	22.3	<5	<5	<1.0
19.05.2024	07.00-07.00	64.5	23.5	43.5	7.2	23.7	<5	<5	<1.0
20.05.2024	07.15-07.15	64.6	21.3	44.9	7.5	24.1	<5	<5	<1.0
26.05.2024	07.00-07.00	63.9	23.9	42.3	7.8	23.9	<5	<5	<1.0
27.05.2024	07.15-07.15	64.4	22.1	41.9	7.6	25.4	<5	<5	<1.0
NAAQ* Standard			<100	<100	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

\*\*\*\*\*End of Report\*\*\*\*\*



Verified by

Authorised Signatory

Name: Santhosh Kumar A  
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/006	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	IS 5182	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Air	<b>Sample Code</b>	EHS360/006
<b>Sample Description</b>	Ambient Air Quality Monitoring	<b>Sample Condition</b>	Good
<b>Sampling Location</b>	<b>AAQ 6 – Pichampalayam- 11°32'45.33"N 78° 9'50.42"E</b>		

Date	Period. hrs	Pb ( $\mu\text{g}/\text{m}^3$ )	As (ng/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )	C <sub>6</sub> H <sub>6</sub> ( $\mu\text{g}/\text{m}^3$ )	BaP (ng/m <sup>3</sup> )
03.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
04.03.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
10.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
11.03.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
17.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
18.03.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
24.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
25.03.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
31.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
01.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
07.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
08.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
14.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
15.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
21.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
22.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
28.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
29.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
05.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
06.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
12.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
13.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
19.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
20.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
26.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
27.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
NAAQ* Standard		<200	<100	<60	<80	<80

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

Verified by



Authorised Signatory

Name: Santhosh Kumar A  
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/007	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	IS 5182	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Air	<b>Sample Code</b>	EHS360/007
<b>Sample Description</b>	Ambient Air Quality Monitoring	<b>Sample Condition</b>	Good
<b>Sampling Location</b>	<b>AAQ 7 – Nilavarapatti- 11°36'22.25"N 78° 9'5.38"E</b>		

Date	Period. hrs	Fugitive Dust	PM10 (µg/m <sup>3</sup> )	PM2.5 (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	NH <sub>3</sub> (µg/m <sup>3</sup> )	CO (µg/m <sup>3</sup> )
03.03.2024	07.00-07.00	65.9	22.8	41.9	6.2	23.5	<5	<5	<1.0
04.03.2024	07.15-07.15	64.2	24.6	43.3	6.7	22.9	<5	<5	<1.0
10.03.2024	07.00-07.00	63.5	25.3	42.7	6.9	21.7	<5	<5	<1.0
11.03.2024	07.15-07.15	61.9	21.6	41.5	7.3	25.4	<5	<5	<1.0
17.03.2024	07.00-07.00	63.5	23.6	42.6	7.8	25.3	<5	<5	<1.0
18.03.2024	07.15-07.15	61.7	22.5	43.3	7.2	22.9	<5	<5	<1.0
24.03.2024	07.00-07.00	62.3	23.5	42.6	7.8	21.8	<5	<5	<1.0
25.03.2024	07.15-07.15	63.6	24.9	44.5	7.4	23.7	<5	<5	<1.0
31.03.2024	07.00-07.00	64.9	23.6	43.9	7.6	21.4	<5	<5	<1.0
01.04.2024	07.15-07.15	62.5	25.5	43.5	7.3	23.9	<5	<5	<1.0
07.04.2024	07.00-07.00	61.6	24.7	41.9	7.8	21.5	<5	<5	<1.0
08.04.2024	07.15-07.15	63.6	25.3	43.6	8.6	23.9	<5	<5	<1.0
14.04.2024	07.00-07.00	65.9	25.9	42.8	8.1	24.5	<5	<5	<1.0
15.04.2024	07.15-07.15	64.2	23.7	43.3	8.6	22.9	<5	<5	<1.0
21.04.2024	07.00-07.00	61.3	21.4	44.6	6.7	21.5	<5	<5	<1.0
22.04.2024	07.15-07.15	63.7	23.7	45.2	7.2	23.6	<5	<5	<1.0
28.04.2024	07.00-07.00	62.5	23.6	41.7	7.3	25.5	<5	<5	<1.0
29.04.2024	07.15-07.15	61.9	22.3	43.2	7.5	21.8	<5	<5	<1.0
05.05.2024	07.00-07.00	63.4	25.8	46.5	7.1	25.9	<5	<5	<1.0
06.05.2024	07.15-07.15	62.5	24.4	44.7	7.8	24.7	<5	<5	<1.0
12.05.2024	07.00-07.00	62.3	23.7	42.3	6.5	23.3	<5	<5	<1.0
13.05.2024	07.15-07.15	62.3	24.5	43.8	6.8	22.8	<5	<5	<1.0
19.05.2024	07.00-07.00	64.5	23.7	42.9	6.4	23.5	<5	<5	<1.0
20.05.2024	07.15-07.15	63.8	24.3	43.9	6.7	24.1	<5	<5	<1.0
26.05.2024	07.00-07.00	61.9	23.6	41.5	6.8	25.3	<5	<5	<1.0
27.05.2024	07.15-07.15	62.4	24.1	42.4	6.1	23.9	<5	<5	<1.0
NAAQ* Standard			<100	<100	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

\*\*\*\*\*End of Report\*\*\*\*\*



Verified by

Authorised Signatory

Name: Santhosh Kumar A  
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/007	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	IS 5182	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Air	<b>Sample Code</b>	EHS360/007
<b>Sample Description</b>	Ambient Air Quality Monitoring	<b>Sample Condition</b>	Good
<b>Sampling Location</b>	<b>AAQ 7 – Nilavarapatti- 11°36'22.25"N 78° 9'5.38"E</b>		

Date	Period. hrs	Pb (µg/m <sup>3</sup> )	As (ng/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )	C <sub>6</sub> H <sub>6</sub> (µg/m <sup>3</sup> )	BaP (ng/m <sup>3</sup> )
03.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
04.03.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
10.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
11.03.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
17.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
18.03.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
24.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
25.03.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
31.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
01.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
07.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
08.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
14.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
15.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
21.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
22.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
28.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
29.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
05.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
06.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
12.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
13.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
19.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
20.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
26.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
27.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
NAAQ* Standard		<200	<100	<60	<80	<80

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

Verified by




Authorised Signatory

Name: Santhosh Kumar A.  
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/008	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	IS 5182	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Air	<b>Sample Code</b>	EHS360/008
<b>Sample Description</b>	Ambient Air Quality Monitoring	<b>Sample Condition</b>	Good
<b>Sampling Location</b>	<b>AAQ 8 – Adikarai- 11°34'21.46"N 78°10'3.43"E</b>		

Date	Period. hrs	Fugitive Dust	PM10 (µg/m <sup>3</sup> )	PM2.5 (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	NH <sub>3</sub> (µg/m <sup>3</sup> )	CO (µg/m <sup>3</sup> )
03.03.2024	07.00-07.00	63.8	21.2	42.3	6.9	22.7	<5	<5	<1.0
04.03.2024	07.15-07.15	64.2	23.5	45.4	7.5	23.3	<5	<5	<1.0
10.03.2024	07.00-07.00	61.9	25.5	45.7	7.8	24.9	<5	<5	<1.0
11.03.2024	07.15-07.15	62.5	24.8	41.5	7.1	21.5	<5	<5	<1.0
17.03.2024	07.00-07.00	65.3	23.9	43.6	7.3	23.6	<5	<5	<1.0
18.03.2024	07.15-07.15	62.3	24.4	44.7	7.5	22.5	<5	<5	<1.0
24.03.2024	07.00-07.00	62.8	25.3	43.2	7.8	24.5	<5	<5	<1.0
25.03.2024	07.15-07.15	64.4	22.7	42.7	8.3	25.8	<5	<5	<1.0
31.03.2024	07.00-07.00	62.3	21.8	44.3	8.1	26.4	<5	<5	<1.0
01.04.2024	07.15-07.15	65.3	23.6	45.6	8.6	22.3	<5	<5	<1.0
07.04.2024	07.00-07.00	66.8	22.5	43.9	8.2	23.5	<5	<5	<1.0
08.04.2024	07.15-07.15	62.3	23.9	45.4	8.7	24.1	<5	<5	<1.0
14.04.2024	07.00-07.00	64.7	24.4	44.9	7.3	25.7	<5	<5	<1.0
15.04.2024	07.15-07.15	65.3	25.3	43.3	8.6	23.2	<5	<5	<1.0
21.04.2024	07.00-07.00	62.6	25.2	44.7	8.9	25.4	<5	<5	<1.0
22.04.2024	07.15-07.15	64.5	23.2	43.5	7.6	21.9	<5	<5	<1.0
28.04.2024	07.00-07.00	63.9	21.7	42.8	7.2	23.5	<5	<5	<1.0
29.04.2024	07.15-07.15	65.2	23.9	44.3	7.4	24.7	<5	<5	<1.0
05.05.2024	07.00-07.00	65.8	24.5	43.9	7.8	25.5	<5	<5	<1.0
06.05.2024	07.15-07.15	61.5	24.1	42.7	6.2	23.7	<5	<5	<1.0
12.05.2024	07.00-07.00	63.6	23.6	45.9	6.8	22.7	<5	<5	<1.0
13.05.2024	07.15-07.15	63.9	22.8	44.3	6.1	22.3	<5	<5	<1.0
19.05.2024	07.00-07.00	64.3	23.4	42.9	6.7	24.5	<5	<5	<1.0
20.05.2024	07.15-07.15	64.7	22.4	43.2	6.4	25.5	<5	<5	<1.0
26.05.2024	07.00-07.00	62.3	21.8	42.9	6.8	24.7	<5	<5	<1.0
27.05.2024	07.15-07.15	65.8	24.3	44.3	6.1	26.4	<5	<5	<1.0
NAAQ* Standard			<100	<100	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

Verified by




Authorised Signatory

Name: Santhosh Kumar A  
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

**TEST REPORT**

Report No	EHS360/TR/2023-2024/008	Report Date	03.06.2024
Site Location	M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES Panamarathupatti Village, Salem Taluk, Salem District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/008
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 8 – Adikarai- 11°34'21.46"N 78°10'3.43"E		

Date	Period. hrs	Pb (µg/m <sup>3</sup> )	As (ng/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )	C <sub>6</sub> H <sub>6</sub> (µg/m <sup>3</sup> )	BaP (ng/m <sup>3</sup> )
03.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
04.03.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
10.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
11.03.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
17.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
18.03.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
24.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
25.03.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
31.03.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
01.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
07.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
08.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
14.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
15.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
21.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
22.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
28.04.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
29.04.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
05.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
06.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
12.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
13.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
19.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
20.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
26.05.2024	07.00-07.00	<0.01	<5	<3	<1.0	<3.0
27.05.2024	07.15-07.15	<0.01	<5	<3	<1.0	<3.0
NAAQ* Standard		<200	<100	<60	<80	<80

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 4

Verified by



Authorised Signatory

Name: Santhosh Kumar A  
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.



**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/ 009	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	IS 9989	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Noise Level Monitoring	<b>Sample Code</b>	EHS360/ 009
<b>Sample Description</b>	Noise (Sound Pressure) Level Monitoring	<b>Sample Collected Date</b>	27.05.2024

Location Parameter Time	N1 – Core Zone			N2 – Core Zone		
	Min dB(A)	Max dB(A)	Result dB(A)	Min dB(A)	Max dB(A)	Result dB(A)
06:00-07:00	32.5	45.9	<b>43.1</b>	32.7	40.6	<b>38.24</b>
07:00-08:00	38.4	47.3	<b>44.8</b>	32.9	42.9	<b>40.30</b>
08:00-09:00	36.5	42.9	<b>40.8</b>	35.2	45.6	<b>42.97</b>
09:00-10:00	32.6	45.1	<b>42.3</b>	36.4	48.2	<b>45.47</b>
10:00-11:00	38.4	41.3	<b>40.1</b>	37.9	47.3	<b>44.76</b>
11:00-12:00	36.5	44.8	<b>42.4</b>	35.4	43.7	<b>41.29</b>
12:00-13:00	35.9	42.3	<b>40.2</b>	36.3	44.9	<b>42.45</b>
13:00-14:00	36.3	44.7	<b>42.3</b>	36.2	45.2	<b>42.70</b>
14:00-15:00	36.7	48.2	<b>45.5</b>	35.9	46.8	<b>44.13</b>
15:00-16:00	35.7	44.2	<b>41.8</b>	34.2	43.4	<b>40.88</b>
16:00-17:00	36.8	41.3	<b>39.6</b>	35.5	46.2	<b>43.54</b>
17:00-18:00	35.4	43.5	<b>41.1</b>	36.8	44.7	<b>42.34</b>
18:00-19:00	39.4	47.2	<b>44.9</b>	34.5	42.9	<b>40.48</b>
19:00-20:00	37.6	44.9	<b>42.6</b>	36.8	44.7	<b>42.34</b>
20:00-21:00	38.2	41.5	<b>40.2</b>	34.4	45.4	<b>42.72</b>
21:00-22:00	35.4	40.9	<b>39.0</b>	36.2	44.7	<b>42.26</b>
22:00-23:00	36.5	44.2	<b>41.9</b>	35.8	46.2	<b>43.57</b>
23:00-00:00	35.2	43.5	<b>41.1</b>	31.5	40.7	<b>38.18</b>
00:00-01:00	32.9	41.8	<b>39.3</b>	32.7	43.2	<b>40.56</b>
01:00-02:00	34.1	44.5	<b>41.9</b>	31.6	40.7	<b>38.19</b>
02:00-03:00	32.6	39.4	<b>37.2</b>	32.5	41.9	<b>39.36</b>
03:00-04:00	35.6	40.5	<b>38.7</b>	34.2	40.7	<b>38.57</b>
04:00-05:00	35.4	42.7	<b>40.4</b>	32.6	39.2	<b>37.05</b>
05:00-06:00	32.5	38.4	<b>36.4</b>	31.9	35.4	<b>33.99</b>
Result	Day Means		<b>41.9</b>	Day Means		<b>42.4</b>
	Night Means		<b>39.3</b>	Night Means		<b>38.0</b>

**Note:** CPCB Norms Industrial Area Day Time:75 dB(A); Nighttime:70 dB(A)  
The Noise level in the above location exists within the permissible limits of CPCB.

\*\*\*\*\*End of Report\*\*\*\*\*



Verified by

Authorised Signatory

Name: Santhosh Kumar A  
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/ 010	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	IS 9989	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Noise Level Monitoring	<b>Sample Code</b>	EHS360/ 010
<b>Sample Description</b>	Noise (Sound Pressure) Level Monitoring	<b>Sample Collected Date</b>	27.05.2024

Location	N3 – Near Parapatti			N4 – Pasuvanatampatti		
	Min dB(A)	Max dB(A)	Result dB(A)	Min dB(A)	Max dB(A)	Result dB(A)
06:00-07:00	32.9	40.6	<b>38.27</b>	32.7	40.6	<b>38.24</b>
07:00-08:00	31.4	35.2	<b>33.70</b>	35.4	46.3	<b>43.63</b>
08:00-09:00	36.7	40.6	<b>39.07</b>	36.8	44.5	<b>42.17</b>
09:00-10:00	36.2	42.1	<b>40.08</b>	31.8	38.3	<b>36.17</b>
10:00-11:00	33.9	45.2	<b>42.50</b>	33.5	42.6	<b>40.09</b>
11:00-12:00	35.4	44.6	<b>42.08</b>	31.9	42.3	<b>39.67</b>
12:00-13:00	36.8	41.5	<b>39.76</b>	35.7	43.7	<b>41.33</b>
13:00-14:00	32.4	39.2	<b>37.01</b>	36.1	47.2	<b>44.51</b>
14:00-15:00	33.5	42.8	<b>40.27</b>	31.5	42.7	<b>40.01</b>
15:00-16:00	35.7	44.2	<b>41.76</b>	32.9	43.5	<b>40.85</b>
16:00-17:00	34.1	43.7	<b>41.14</b>	33.7	41.7	<b>39.33</b>
17:00-18:00	33.7	41.9	<b>39.50</b>	32.9	40.6	<b>38.27</b>
18:00-19:00	32.8	40.5	<b>38.17</b>	31.4	42.5	<b>39.81</b>
19:00-20:00	35.5	44.2	<b>41.74</b>	33.5	44.2	<b>41.54</b>
20:00-21:00	36.7	45.4	<b>42.94</b>	31.6	42.7	<b>40.01</b>
21:00-22:00	35.4	43.9	<b>41.46</b>	32.8	41.5	<b>39.04</b>
22:00-23:00	32.9	40.4	<b>38.10</b>	34.5	43.2	<b>40.74</b>
23:00-00:00	33.6	41.8	<b>39.40</b>	31.8	42.4	<b>39.75</b>
00:00-01:00	34.8	41.3	<b>39.17</b>	32.5	41.3	<b>38.83</b>
01:00-02:00	31.2	39.5	<b>37.09</b>	33.7	41.7	<b>39.33</b>
02:00-03:00	32.7	40.4	<b>38.07</b>	31.5	39.5	<b>37.13</b>
03:00-04:00	31.9	38.2	<b>36.10</b>	33.9	41.4	<b>39.10</b>
04:00-05:00	32.5	40.7	<b>38.30</b>	32.7	40.2	<b>37.90</b>
05:00-06:00	31.7	38.5	<b>36.31</b>	31.5	38.4	<b>36.20</b>
Result	Day Means		<b>39.9</b>	Day Means		<b>40.3</b>
	Night Means		<b>37.8</b>	Night Means		<b>38.3</b>

**Note:** CPCB Norms Industrial Area Day Time:75 dB(A); Nighttime:70 dB(A)  
The Noise level in the above location exists within the permissible limits of CPCB.



Verified by

Authorised Signatory

Name: Santhosh Kumar A  
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/ 011	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	IS 9989	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Noise Level Monitoring	<b>Sample Code</b>	EHS360/ 011
<b>Sample Description</b>	Noise (Sound Pressure) Level Monitoring	<b>Sample Collected Date</b>	27.05.2024

Location	N5 - Ammapalayam			N6 - Pitchampalayam		
	Min dB(A)	Max dB(A)	Result dB(A)	Min dB(A)	Max dB(A)	Result dB(A)
06:00-07:00	31.7	39.5	<b>37.16</b>	35.6	40.7	<b>38.86</b>
07:00-08:00	32.9	41.3	<b>38.88</b>	31.2	39.2	<b>36.83</b>
08:00-09:00	32.5	40.7	<b>38.30</b>	34.6	45.8	<b>43.11</b>
09:00-10:00	36.2	45.5	<b>42.97</b>	32.6	41.5	<b>39.02</b>
10:00-11:00	35.4	46.7	<b>44.00</b>	33.8	44.3	<b>41.66</b>
11:00-12:00	32.7	40.5	<b>38.16</b>	32.6	43.1	<b>40.46</b>
12:00-13:00	35.8	43.2	<b>40.92</b>	36.5	40.3	<b>38.80</b>
13:00-14:00	32.5	41.3	<b>38.83</b>	31.5	41.5	<b>38.90</b>
14:00-15:00	33.6	41.4	<b>39.06</b>	32.5	43.2	<b>40.54</b>
15:00-16:00	34.6	42.5	<b>40.14</b>	36.5	45.7	<b>43.18</b>
16:00-17:00	36.2	44.8	<b>42.35</b>	34.9	43.7	<b>41.23</b>
17:00-18:00	36.8	45.1	<b>42.69</b>	35.7	44.2	<b>41.76</b>
18:00-19:00	34.8	43.6	<b>41.13</b>	34.9	43.8	<b>41.32</b>
19:00-20:00	33.2	41.4	<b>39.00</b>	32.6	40.7	<b>38.32</b>
20:00-21:00	31.8	38.3	<b>36.17</b>	32.5	41.3	<b>38.83</b>
21:00-22:00	32.8	40.1	<b>37.83</b>	33.6	44.8	<b>42.11</b>
22:00-23:00	33.5	41.3	<b>38.96</b>	32.9	41.4	<b>38.96</b>
23:00-00:00	32.9	40.7	<b>38.36</b>	34.3	43.2	<b>40.72</b>
00:00-01:00	31.2	39.2	<b>36.83</b>	31.5	38.9	<b>36.62</b>
01:00-02:00	33.6	41.5	<b>39.14</b>	32.8	41.7	<b>39.22</b>
02:00-03:00	31.5	39.2	<b>36.87</b>	33.6	42.3	<b>39.84</b>
03:00-04:00	32.5	40.4	<b>38.04</b>	34.2	43.7	<b>41.15</b>
04:00-05:00	31.8	38.2	<b>36.09</b>	31.5	38.5	<b>36.28</b>
05:00-06:00	32.4	40.3	<b>37.94</b>	32.6	40.2	<b>37.89</b>
Result	Day Means		<b>39.8</b>	Day Means		<b>40.2</b>
	Night Means		<b>37.6</b>	Night Means		<b>38.8</b>

**Note:** CPCB Norms Industrial Area Day Time:75 dB(A); Nighttime:70 dB(A)  
The Noise level in the above location exists within the permissible limits of CPCB.

\*\*\*\*\*End of Report\*\*\*\*\*



Verified by  
*[Signature]*

Authorised Signatory  
*[Signature]*  
Name: Santhosh Kumar A  
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/ 012	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES Panamarathupatti Village, Salem Taluk, Salem District.</b>		
<b>Sampling Method</b>	IS 9989	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Noise Level Monitoring	<b>Sample Code</b>	EHS360/ 012
<b>Sample Description</b>	Noise (Sound Pressure) Level Monitoring	<b>Sample Collected Date</b>	27.05.2024

Location Parameter Time	N7 - Nilavarapatti			N8 - Adikarai		
	Min dB(A)	Max dB(A)	Result dB(A)	Min dB(A)	Max dB(A)	Result dB(A)
06:00-07:00	33.8	41.7	<b>39.34</b>	32.8	41.3	<b>38.86</b>
07:00-08:00	35.4	43.2	<b>40.86</b>	31.6	40.8	<b>38.28</b>
08:00-09:00	32.9	43.6	<b>40.94</b>	32.4	42.1	<b>39.53</b>
09:00-10:00	36.3	47.2	<b>44.53</b>	33.9	44.5	<b>41.85</b>
10:00-11:00	35.2	45.2	<b>42.60</b>	33.2	41.7	<b>39.26</b>
11:00-12:00	34.1	42.9	<b>40.43</b>	36.2	45.2	<b>42.70</b>
12:00-13:00	32.5	43.1	<b>40.45</b>	35.1	40.2	<b>38.36</b>
13:00-14:00	38.5	46.8	<b>44.39</b>	33.9	44.6	<b>41.94</b>
14:00-15:00	34.9	45.2	<b>42.58</b>	37.4	46.2	<b>43.73</b>
15:00-16:00	36.2	43.2	<b>40.98</b>	35.3	43.7	<b>41.28</b>
16:00-17:00	38.4	46.7	<b>44.29</b>	32.6	40.2	<b>37.89</b>
17:00-18:00	32.5	40.2	<b>37.87</b>	34.2	43.5	<b>40.97</b>
18:00-19:00	33.6	41.3	<b>38.97</b>	36.2	45.1	<b>42.62</b>
19:00-20:00	34.3	43.7	<b>41.16</b>	35.9	44.7	<b>42.23</b>
20:00-21:00	35.6	44.2	<b>41.75</b>	31.8	38.3	<b>36.17</b>
21:00-22:00	31.7	42.8	<b>40.11</b>	32.5	40.7	<b>38.30</b>
22:00-23:00	32.4	40.3	<b>37.94</b>	33.6	41.5	<b>39.14</b>
23:00-00:00	36.5	45.4	<b>42.92</b>	31.5	39.2	<b>36.87</b>
00:00-01:00	33.7	41.7	<b>39.33</b>	33.5	42.4	<b>39.92</b>
01:00-02:00	34.6	43.5	<b>41.02</b>	34.3	41.2	<b>39.00</b>
02:00-03:00	32.6	40.5	<b>38.14</b>	32.6	41.3	<b>38.84</b>
03:00-04:00	31.2	39.2	<b>36.83</b>	31.2	40.6	<b>38.06</b>
04:00-05:00	32.7	41.3	<b>38.85</b>	33.9	41.3	<b>39.02</b>
05:00-06:00	33.6	41.5	<b>39.14</b>	31.5	39.5	<b>37.13</b>
Result	Day Means		<b>41.1</b>	Day Means		<b>40.2</b>
	Night Means		<b>39.5</b>	Night Means		<b>38.4</b>

**Note:** CPCB Norms Industrial Area Day Time:75 dB(A); Nighttime:70 dB(A)  
The Noise level in the above location exists within the permissible limits of CPCB.

\*\*\*\*\*End of Report\*\*\*\*\*



Verified by

*[Signature]*

Authorised Signatory

*[Signature]*

Name: Santhosh Kumar A  
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/ 013	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES Panamarathupatti Village, Salem Taluk, Salem District.</b>		
<b>Sampling Method</b>	SOP Method	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Soil	<b>Sample Code</b>	EHS360/ 013
<b>Sample Description</b>	Soil 1	<b>Sample Collected Date</b>	27.05.2024
<b>Qty. of Sample Received</b>	2 KG	<b>Sample Received On</b>	28.05.2024
<b>Sample Condition</b>	Good	<b>Test Commenced On</b>	28.05.2024
<b>Sampling Location</b>	<b>S-1 Core Zone</b>		

S. No	Test Parameters	Units	Protocols	Results
1.	pH @ 25°C	-	IS 2720 Part 26 - 1987 (Reaff:2016)	7.36
2.	Conductivity @ 25°C	µs/cm	IS 14767 - 2000 (Reaff: 2016)	326
3.	Texture	-	Gravimetric Method	Sandy Loam
4.	Sand	%		73.6
5.	Slit	%		11.1
6.	Clay	%		15.3
7.	Water Holding Capacity	%	By Gravimetric Method	37.3
8.	Bulk Density	g/cc	By Cylindrical Method	0.82
9.	Porosity	%	By Gravimetric Method	24.3
10.	Exchangeable Calcium(asCa)	mg/kg	Food and Agriculture organization of the united Nation Rome 2007: 2018	146
11.	Exchangeable Magnesium(asMg)	mg/kg		22.4
12.	Exchangeable Manganese(asMn)	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	29.5
13.	Exchangeable Zinc as Zn	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	0.53

\*\*\*\*\*End of Report\*\*\*\*\*

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Authorised Signatory

Name: Santhosh Kumar A  
Designation: Quality Manager

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**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/ 013	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	SOP Method	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Soil	<b>Sample Code</b>	EHS360/ 013
<b>Sample Description</b>	Soil 1	<b>Sample Collected Date</b>	27.05.2024
<b>Qty. of Sample Received</b>	2 KG	<b>Sample Received On</b>	28.05.2024
<b>Sample Condition</b>	Good	<b>Test Commenced On</b>	28.05.2024
<b>Sampling Location</b>	<b>S-1 Core Zone</b>		

S. No	Test Parameters	Units	Protocols	Results
14.	Available Boron (as B)	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	0.68
15.	Soluble Chloride (as Cl)	mg/kg	APHA 23rd Edn 2019 4500 Cl B	143
16.	Soluble Sulphate (as S04)	mg/kg	IS 2720 Part 27: 1977 (Reaff:2015)	119
17.	Available Potassium (as K)	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	33.5
18.	Available Phosphorous (as P)	Kg/hect	IS 10158: 1982 (Reaff: 2019)	0.79
19.	Available Nitrogen (as N)	Kg/hect	IS 14684: 1999 (Reaff:2019)	163
20.	Cadmium (as Cd)	mg/Kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	BDL
21.	Chromium (asCr)	mg/Kg		(DL:0.003)
22.	Copper(asCu)	mg/Kg		0.12
23.	Lead (asPb)	mg/Kg		BDL (DL:0.05)
24.	Total Iron	mg/Kg		0.95
25.	Organic Matter	%	IS: 2720 Part 22: 1972 (Reaff: 2015)	1.68
26.	Organic Carbon	%	IS: 2720 Part 22: 1972 (Reaff: 2015)	1.34
27.	CEC	meq/100g	USEPA 9080 – 1986	0.78

\*\*\*\*\*End of Report\*\*\*\*\*

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Authorised Signatory

Name: Santhosh Kumar A  
Designation: Quality Manager

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**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/ 014	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES Panamarathupatti Village, Salem Taluk, Salem District.</b>		
<b>Sampling Method</b>	SOP Method	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Soil	<b>Sample Code</b>	EHS360/ 014
<b>Sample Description</b>	Soil 2	<b>Sample Collected Date</b>	27.05.2024
<b>Qty. of Sample Received</b>	2 KG	<b>Sample Received On</b>	28.05.2024
<b>Sample Condition</b>	Good	<b>Test Commenced On</b>	28.05.2024
<b>Sampling Location</b>	<b>S-2 Near Parapatti</b>		

S. No	Test Parameters	Units	Protocols	Results
1.	pH @ 25°C	-	IS 2720 Part 26 - 1987 (Reaff:2016)	8.46
2.	Conductivity @ 25°C	µs/cm	IS 14767 - 2000 (Reaff: 2016)	684
3.	Texture	-	Gravimetric Method	Clay
4.	Sand	%		36.7
5.	Slit	%		18.7
6.	Clay	%		44.6
7.	Water Holding Capacity	%	By Gravimetric Method	53.8
8.	Bulk Density	g/cc	By Cylindrical Method	1.23
9.	Porosity	%	By Gravimetric Method	34.9
10.	Exchangeable Calcium(asCa)	mg/kg	Food and Agriculture organization of the united Nation Rome 2007: 2018	178
11.	Exchangeable Magnesium(asMg)	mg/kg		34.2
12.	Exchangeable Manganese(asMn)	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	35.4
13.	Exchangeable Zinc as Zn	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	1.29

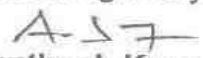
\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

Verified by




Authorised Signatory



Name: Santhosh Kumar A  
Designation: Quality Manager

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**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/ 014	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	SOP Method	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Soil	<b>Sample Code</b>	EHS360/ 014
<b>Sample Description</b>	Soil 2	<b>Sample Collected Date</b>	27.05.2024
<b>Qty. of Sample Received</b>	2 KG	<b>Sample Received On</b>	28.05.2024
<b>Sample Condition</b>	Good	<b>Test Commenced On</b>	28.05.2024
<b>Sampling Location</b>	<b>S-2 Near Parapatti</b>		

S. No	Test Parameters	Units	Protocols	Results
14.	Available Boron (as B)	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	0.93
15.	Soluble Chloride (as Cl)	mg/kg	APHA 23rd Edn 2019 4500 Cl B	176
16.	Soluble Sulphate (as S04)	mg/kg	IS 2720 Part 27: 1977 (Reaff:2015)	162
17.	Available Potassium (as K)	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	46.8
18.	Available Phosphorous (as P)	Kg/hect	IS 10158: 1982 (Reaff: 2019)	1.38
19.	Available Nitrogen (as N)	Kg/hect	IS 14684: 1999 (Reaff:2019)	265
20.	Cadmium (as Cd)	mg/Kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	BDL (DL:0.003)
21.	Chromium (asCr)	mg/Kg		BDL (DL:0.05)
22.	Copper(asCu)	mg/Kg		BDL (DL:0.05)
23.	Lead (asPb)	mg/Kg		1.35
24.	Total Iron	mg/Kg		2.72
25.	Organic Matter	%	IS: 2720 Part 22: 1972 (Reaff: 2015)	2.63
26.	Organic Carbon	%	IS: 2720 Part 22: 1972 (Reaff: 2015)	1.53
27.	CEC	meq/100g	USEPA 9080 – 1986	43.2


\*\*\*\*\*End of Report\*\*\*\*\*

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Designation: Quality Manager

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**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-24/ 015	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	SOP Method	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Soil	<b>Sample Code</b>	EHS360/ 015
<b>Sample Description</b>	Soil 3	<b>Sample Collected Date</b>	27.05.2024
<b>Qty. of Sample Received</b>	2 KG	<b>Sample Received On</b>	28.05.2024
<b>Sample Condition</b>	Good	<b>Test Commenced On</b>	28.05.2024
<b>Sampling Location</b>	<b>S-3 Pasuvanatampatti</b>		

S. No	Test Parameters	Units	Protocols	Results
1.	pH @ 25°C	-	IS 2720 Part 26 - 1987 (Reaff:2016)	7.65
2.	Conductivity @ 25°C	µs/cm	IS 14767 - 2000 (Reaff: 2016)	546
3.	Texture	-	Gravimetric Method	Sandy Clay Loam
4.	Sand	%		62.3
5.	Slit	%		11.2
6.	Clay	%		26.5
7.	Water Holding Capacity	%	By Gravimetric Method	46.4
8.	Bulk Density	g/cc	By Cylindrical Method	1.14
9.	Porosity	%	By Gravimetric Method	31.5
10.	Exchangeable Calcium(asCa)	mg/kg	Food and Agriculture organization of the united Nation Rome 2007: 2018	153
11.	Exchangeable Magnesium(asMg)	mg/kg		30.8
12.	Exchangeable Manganese(asMn)	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	33.4
13.	Exchangeable Zinc as Zn	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	1.06

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**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/ 015	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	SOP Method	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Soil	<b>Sample Code</b>	EHS360/ 015
<b>Sample Description</b>	Soil 3	<b>Sample Collected Date</b>	27.05.2024
<b>Qty. of Sample Received</b>	2 KG	<b>Sample Received On</b>	28.05.2024
<b>Sample Condition</b>	Good	<b>Test Commenced On</b>	28.05.2024
<b>Sampling Location</b>	<b>S-3 Pasuvanatampatti</b>		

S. No	Test Parameters	Units	Protocols	Results
14.	Available Boron (as B)	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	0.77
15.	Soluble Chloride (as Cl)	mg/kg	APHA 23rd Edn 2019 4500 Cl B	152
16.	Soluble Sulphate (as S04)	mg/kg	IS 2720 Part 27: 1977 (Reaff:2015)	149
17.	Available Potassium (as K)	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	38.2
18.	Available Phosphorous (as P)	Kg/hect	IS 10158: 1982 (Reaff: 2019)	0.83
19.	Available Nitrogen (as N)	Kg/hect	IS 14684: 1999 (Reaff:2019)	231
20.	Cadmium (as Cd)	mg/Kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	BDL (DL:0.003)
21.	Chromium (asCr)	mg/Kg		BDL (DL:0.05)
22.	Copper(asCu)	mg/Kg		BDL (DL:0.05)
23.	Lead (asPb)	mg/Kg		1.12
24.	Total Iron	mg/Kg		2.07
25.	Organic Matter	%		IS: 2720 Part 22: 1972 (Reaff: 2015)
26.	Organic Carbon	%	IS: 2720 Part 22: 1972 (Reaff: 2015)	0.89
27.	CEC	meq/100g	USEPA 9080 – 1986	39.5

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**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/ 016	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	SOP Method	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Soil	<b>Sample Code</b>	EHS360/ 016
<b>Sample Description</b>	Soil 4	<b>Sample Collected Date</b>	27.05.2024
<b>Qty. of Sample Received</b>	2 KG	<b>Sample Received On</b>	28.05.2024
<b>Sample Condition</b>	Good	<b>Test Commenced On</b>	28.05.2024
<b>Sampling Location</b>	<b>S-4 Nilavarapatti</b>		

S. No	Test Parameters	Units	Protocols	Results
1.	pH @ 25°C	-	IS 2720 Part 26 - 1987 (Reaff:2016)	7.82
2.	Conductivity @ 25°C	µs/cm	IS 14767 - 2000 (Reaff: 2016)	429
3.	Texture	-	Gravimetric Method	Clay Loam
4.	Sand	%		41.9
5.	Slit	%		24.4
6.	Clay	%		33.7
7.	Water Holding Capacity	%	By Gravimetric Method	43.5
8.	Bulk Density	g/cc	By Cylindrical Method	1.03
9.	Porosity	%	By Gravimetric Method	27.5
10.	Exchangeable Calcium(asCa)	mg/kg	Food and Agriculture organization of the united Nation Rome 2007: 2018	145
11.	Exchangeable Magnesium(asMg)	mg/kg		29.4
12.	Exchangeable Manganese(asMn)	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	31.9
13.	Exchangeable Zinc as Zn	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	0.89

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**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/ 016	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	SOP Method	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Soil	<b>Sample Code</b>	EHS360/ 016
<b>Sample Description</b>	Soil 4	<b>Sample Collected Date</b>	27.05.2024
<b>Qty. of Sample Received</b>	2 KG	<b>Sample Received On</b>	28.05.2024
<b>Sample Condition</b>	Good	<b>Test Commenced On</b>	28.05.2024
<b>Sampling Location</b>	<b>S-4 Nilavarapatti</b>		

S. No	Test Parameters	Units	Protocols	Results
14.	Available Boron (as B)	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	0.75
15.	Soluble Chloride (as Cl)	mg/kg	APHA 23rd Edn 2019 4500 Cl B	141
16.	Soluble Sulphate (as S04)	mg/kg	IS 2720 Part 27: 1977 (Reaff:2015)	153
17.	Available Potassium (as K)	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	36.4
18.	Available Phosphorous (as P)	Kg/hect	IS 10158: 1982 (Reaff: 2019)	0.92
19.	Available Nitrogen (as N)	Kg/hect	IS 14684: 1999 (Reaff:2019)	219
20.	Cadmium (as Cd)	mg/Kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	BDL (DL:0.003)
21.	Chromium (asCr)	mg/Kg		BDL (DL:0.05)
22.	Copper(asCu)	mg/Kg		BDL (DL:0.05)
23.	Lead (asPb)	mg/Kg		1.05
24.	Total Iron	mg/Kg		2.23
25.	Organic Matter	%	IS: 2720 Part 22: 1972 (Reaff: 2015)	1.89
26.	Organic Carbon	%	IS: 2720 Part 22: 1972 (Reaff: 2015)	1.10
27.	CEC	meq/100g	USEPA 9080 – 1986	40.6

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**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/ 017	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	SOP Method	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Soil	<b>Sample Code</b>	EHS360/ 017
<b>Sample Description</b>	Soil 5	<b>Sample Collected Date</b>	27.05.2024
<b>Qty. of Sample Received</b>	2 KG	<b>Sample Received On</b>	28.05.2024
<b>Sample Condition</b>	Good	<b>Test Commenced On</b>	28.05.2024
<b>Sampling Location</b>	<b>S-5 Pichampalayam</b>		

S. No	Test Parameters	Units	Protocols	Results
1.	pH @ 25°C	-	IS 2720 Part 26 - 1987 (Reaff:2016)	8.16
2.	Conductivity @ 25°C	µs/cm	IS 14767 - 2000 (Reaff: 2016)	493
3.	Texture	-	Gravimetric Method	Sandy Clay Loam
4.	Sand	%		63.7
5.	Slit	%		13.1
6.	Clay	%		23.2
7.	Water Holding Capacity	%	By Gravimetric Method	52.7
8.	Bulk Density	g/cc	By Cylindrical Method	1.21
9.	Porosity	%	By Gravimetric Method	31.9
10.	Exchangeable Calcium(asCa)	mg/kg	Food and Agriculture organization of the united Nation Rome 2007: 2018	173
11.	Exchangeable Magnesium(asMg)	mg/kg		33.7
12.	Exchangeable Manganese(asMn)	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	34.2
13.	Exchangeable Zinc as Zn	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	0.67

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**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/ 017	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	SOP Method	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Soil	<b>Sample Code</b>	EHS360/ 017
<b>Sample Description</b>	Soil 5	<b>Sample Collected Date</b>	27.05.2024
<b>Qty. of Sample Received</b>	2 KG	<b>Sample Received On</b>	28.05.2024
<b>Sample Condition</b>	Good	<b>Test Commenced On</b>	28.05.2024
<b>Sampling Location</b>	<b>S-5 Pichampalayam</b>		

S. No	Test Parameters	Units	Protocols	Results
14.	Available Boron (as B)	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	0.81
15.	Soluble Chloride (as Cl)	mg/kg	APHA 23rd Edn 2019 4500 Cl B	164
16.	Soluble Sulphate (as S04)	mg/kg	IS 2720 Part 27: 1977 (Reaff:2015)	157
17.	Available Potassium (as K)	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	40.3
18.	Available Phosphorous (as P)	Kg/hect	IS 10158: 1982 (Reaff: 2019)	1.06
19.	Available Nitrogen (as N)	Kg/hect	IS 14684: 1999 (Reaff:2019)	248
20.	Cadmium (as Cd)	mg/Kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	BDL (DL:0.003)
21.	Chromium (asCr)	mg/Kg		BDL (DL:0.05)
22.	Copper(asCu)	mg/Kg		BDL (DL:0.05)
23.	Lead (asPb)	mg/Kg		0.86
24.	Total Iron	mg/Kg		2.15
25.	Organic Matter	%	IS: 2720 Part 22: 1972 (Reaff: 2015)	2.03
26.	Organic Carbon	%	IS: 2720 Part 22: 1972 (Reaff: 2015)	1.18
27.	CEC	meq/100g	USEPA 9080 – 1986	41.2

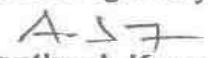
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Name: Santhosh Kumar A  
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**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/ 018	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	SOP Method	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Soil	<b>Sample Code</b>	EHS360/ 018
<b>Sample Description</b>	Soil 6	<b>Sample Collected Date</b>	27.05.2024
<b>Qty. of Sample Received</b>	2 KG	<b>Sample Received On</b>	28.05.2024
<b>Sample Condition</b>	Good	<b>Test Commenced On</b>	28.05.2024
<b>Sampling Location</b>	<b>S-6 Adikarai</b>		

S. No	Test Parameters	Units	Protocols	Results
1.	pH @ 25°C	-	IS 2720 Part 26 - 1987 (Reaff:2016)	8.36
2.	Conductivity @ 25°C	µs/cm	IS 14767 - 2000 (Reaff: 2016)	524
3.	Texture	-	Gravimetric Method	Clay
4.	Sand	%		36.7
5.	Slit	%		9.7
6.	Clay	%		53.6
7.	Water Holding Capacity	%	By Gravimetric Method	47.8
8.	Bulk Density	g/cc	By Cylindrical Method	1.22
9.	Porosity	%	By Gravimetric Method	31.7
10.	Exchangeable Calcium(asCa)	mg/kg	Food and Agriculture organization of the united Nation Rome 2007: 2018	165
11.	Exchangeable Magnesium(asMg)	mg/kg		24.7
12.	Exchangeable Manganese(asMn)	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	27
13.	Exchangeable Zinc as Zn	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	0.85

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**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/ 018	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	SOP Method	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Soil	<b>Sample Code</b>	EHS360/ 018
<b>Sample Description</b>	Soil 6	<b>Sample Collected Date</b>	27.05.2024
<b>Qty. of Sample Received</b>	2 KG	<b>Sample Received On</b>	28.05.2024
<b>Sample Condition</b>	Good	<b>Test Commenced On</b>	28.05.2024
<b>Sampling Location</b>	<b>S-6 Adikarai</b>		

S. No	Test Parameters	Units	Protocols	Results
14.	Available Boron (as B)	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	0.71
15.	Soluble Chloride (as Cl)	mg/kg	APHA 23rd Edn 2019 4500 Cl B	158
16.	Soluble Sulphate (as S04)	mg/kg	IS 2720 Part 27: 1977 (Reaff:2015)	144
17.	Available Potassium (as K)	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	33.7
18.	Available Phosphorous (as P)	Kg/hect	IS 10158: 1982 (Reaff: 2019)	0.75
19.	Available Nitrogen (as N)	Kg/hect	IS 14684: 1999 (Reaff:2019)	163
20.	Cadmium (as Cd)	mg/Kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	BDL(DL:0.003)
21.	Chromium (asCr)	mg/Kg		BDL (DL:0.05)
22.	Copper(asCu)	mg/Kg		BDL (DL:0.05)
23.	Lead (asPb)	mg/Kg		0.78
24.	Total Iron	mg/Kg		2.02
25.	Organic Matter	%	IS: 2720 Part 22: 1972 (Reaff: 2015)	2.46
26.	Organic Carbon	%	IS: 2720 Part 22: 1972 (Reaff: 2015)	1.43
27.	CEC	meq/100g	USEPA 9080 – 1986	52


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**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/ 019	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES Panamarathupatti Village, Salem Taluk, Salem District.</b>		
<b>Sampling Method</b>	SOP Method	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Water	<b>Sample Code</b>	EHS360/019
<b>Sample Description</b>	Surface Water (SW-1)	<b>Sample Collected Date</b>	27.05.2024
<b>Qty. of Sample Received</b>	2 Litres	<b>Sample Received On</b>	28.05.2024
<b>Sample Condition</b>	Fit for Analysis	<b>Test Commenced On</b>	28.05.2024
<b>Sampling Location</b>	<b>Panamarathupatti Lake</b>		

S.No.	Parameters	Units	Test Method	RESULTS
1	Color	Hazen	IS 3025 Part 4:1983	5
2	Odour	-	IS 3025 Part 5:2018	Agreeable
3	pH@ 25oC	-	IS 3025 Part 11:1983	7.65
4	Electrical Conductivity @ 25oC	µs/cm	IS 3025 Part 14:2013	632
5	Turbidity	NTU	IS 3025 Part 10:1984	4.3
6	Total Dissolved Solids	mg /l	IS 3025 Part 16:1984	372
7	Total Hardness as CaCO3	mg/l	IS 3025 Part 21:2009	183.2
8	Calcium as Ca	mg/l	IS 3025 Part 40:1991	31.6
9	Magnesium as Mg	mg/l	IS 3025 Part 46:1994	25.4
10	Total Alkalinity as CaCO3	mg/l	IS 3025 Part 23:1986	157
11	Chloride as Cl-	mg/l	IS 3025 Part 32:1988	72.2
12	Sulphate as SO4-	mg/l	IS 3025 Part 24:1986	25.6
13	Iron as Fe	mg/l	IS 3025 Part 53:2003	0.28
14	Free Residual Chlorine	mg/l	IS 3025 Part 26:1986	BDL (DL: 2.0)
15	Fluoride as F	mg/l	APHA 23 <sup>rd</sup> Edn. 2017:4500 F,D	0.33
16	Nitrates as NO3	mg/l	IS 3025 Part 34:1988	12.3

\*\*\*\*\*End of Report\*\*\*\*\*

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Name: Santhosh Kumar A  
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/019	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	SOP Method	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Water	<b>Sample Code</b>	EHS360/019
<b>Sample Description</b>	Surface Water (SW-1)	<b>Sample Collected Date</b>	27.05.2024
<b>Qty. of Sample Received</b>	2 Litres	<b>Sample Received On</b>	28.05.2024
<b>Sample Condition</b>	Fit for Analysis	<b>Test Commenced On</b>	28.05.2024
<b>Sampling Location</b>	<b>Panamarathupatti Lake</b>		

S. No	Parameters	Units	Test Method	RESULTS
17	Copper as Cu	mg/l	IS 3025 Part 65:2014	BDL (DL:0.2)
18	Manganese as Mn	mg/l	IS 3025 Part 65:2014	BDL (DL:0.05)
19	Mercury as Hg	mg/l	USEPA 200.8	(BDL (DL: 0.0005)
20	Cadmium as Cd	mg/l	IS 3025 Part 65:2014	BDL (DL:0.01)
21	Selenium as Se	mg/l	IS 3025 Part 65:2014	BDL (DL: 0.05)
22	Aluminium as Al	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL: 0.03)
23	Lead as Pb	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01)
24	Zinc as Zn	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02)
25	Total Chromium	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL: 0.05)
26	Boron as B	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.1)
27	Mineral Oil	mg/l	IS 3025 Part 39-1991 (Reaff. 2019)	BDL (DL:1.0)
28	Phenolic Compounds as	mg/l	IS 3025 Part 43-1992(Reaff: 2019)	Absent
29	Anionic Detergents as	mg/l	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.1)
30	Cynaide as CN	mg/l	IS 3025 Part 27-1986 (Reaff. 2019)	Absent
31	Biological Oxygen	mg/l	IS 3025 Part 44:1993 (Reaff:2019)	6.3
32	Chemical Oxygen	mg/l	IS 3025 Part 58:2006 (Reaff:2017)	21.3
33	Dissolved Oxygen	mg/l	IS 3025 Part 38:1989 (Reaff:2019)	5.1
34	Total Coliform	Per 100ml	APHA 23 <sup>rd</sup> Edn. 2017:9221B	present
35	E-Coli	Per 100ml	APHA 23 <sup>rd</sup> Edn. 2017:9221F	present
36	Barium as Ba	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.5)
37	Ammonia-n (as Total	mg/l	IS 3025 Part 34-1988 (Reaff. 2019)	2.5
38	Sulphide as H2S	mg/l	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:0.05)
39	Molybdenum as Mo	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.5)
40	Total Arsenic as	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01)
41	Total Suspended Solids	mg/l	IS 3025 Part 17 -1984 (Reaff:2017)	4.3

\*\*\*\*\*End of Report\*\*\*\*\*



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*[Signature]*

Authorised Signatory

*[Signature]*

Name: Santhosh Kumar A  
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

<b>Report No</b>	EHS360/TR/2023-2024/ 020	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	SOP Method	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Water	<b>Sample Code</b>	EHS360/020
<b>Sample Description</b>	Surface Water (SW-2)	<b>Sample Collected Date</b>	27.05.2024
<b>Qty. of Sample Received</b>	2 Litres	<b>Sample Received On</b>	28.05.2024
<b>Sample Condition</b>	Fit for Analysis	<b>Test Commenced On</b>	28.05.2024
<b>Sampling Location</b>	<b>Kottanathan Lake</b>		

S.No.	Parameters	Units	Test Method	RESULTS
1	Color	Hazen	IS 3025 Part 4:1983	5
2	Odour	-	IS 3025 Part 5:2018	Agreeable
3	pH@ 25oC	-	IS 3025 Part 11:1983	8.12
4	Electrical Conductivity @ 25oC	µs/cm	IS 3025 Part 14:2013	695
5	Turbidity	NTU	IS 3025 Part 10:1984	3.7
6	Total Dissolved Solids	mg /l	IS 3025 Part 16:1984	410
7	Total Hardness as CaCO3	mg/l	IS 3025 Part 21:2009	196
8	Calcium as Ca	mg/l	IS 3025 Part 40:1991	33.7
9	Magnesium as Mg	mg/l	IS 3025 Part 46:1994	27.2
10	Total Alkalinity as CaCO3	mg/l	IS 3025 Part 23:1986	164
11	Chloride as Cl-	mg/l	IS 3025 Part 32:1988	90.9
12	Sulphate as SO4-	mg/l	IS 3025 Part 24:1986	29.3
13	Iron as Fe	mg/l	IS 3025 Part 53:2003	0.35
14	Free Residual Chlorine	mg/l	IS 3025 Part 26:1986	BDL (DL: 2.0)
15	Fluoride as F	mg/l	APHA 23rd Edn. 2017:4500 F, D	0.35
16	Nitrates as NO3	mg/l	IS 3025 Part 34:1988	14.2

\*\*\*\*\*End of Report\*\*\*\*\*

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Name: Santhosh Kumar A  
Designation: Quality Manager

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**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/020	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	SOP Method	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Water	<b>Sample Code</b>	EHS360/020
<b>Sample Description</b>	Surface Water (SW-2)	<b>Sample Collected Date</b>	27.05.2024
<b>Qty. of Sample Received</b>	2 Litres	<b>Sample Received On</b>	28.05.2024
<b>Sample Condition</b>	Fit for Analysis	<b>Test Commenced On</b>	28.05.2024
<b>Sampling Location</b>	<b>Kottanathan Lake</b>		

S. No	Parameters	Units	Test Method	RESULTS
17	Copper as Cu	mg/l	IS 3025 Part 65:2014	BDL (DL:0.2)
18	Manganese as Mn	mg/l	IS 3025 Part 65:2014	BDL (DL:0.05)
19	Mercury as Hg	mg/l	USEPA 200.8	(BDL (DL: 0.0005)
20	Cadmium as Cd	mg/l	IS 3025 Part 65:2014	BDL (DL:0.01)
21	Selenium as Se	mg/l	IS 3025 Part 65:2014	BDL (DL: 0.05)
22	Aluminium as Al	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL: 0.03)
23	Lead as Pb	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01)
24	Zinc as Zn	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02)
25	Total Chromium	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL: 0.05)
26	Boron as B	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.1)
27	Mineral Oil	mg/l	IS 3025 Part 39-1991 (Reaff. 2019)	BDL (DL:1.0)
28	Phenolic Compounds as	mg/l	IS 3025 Part 43-1992(Reaff: 2019)	Absent
29	Anionic Detergents as	mg/l	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.1)
30	Cynaide as CN	mg/l	IS 3025 Part 27-1986 (Reaff. 2019)	Absent
31	Biological Oxygen	mg/l	IS 3025 Part 44:1993 (Reaff:2019)	8.5
32	Chemical Oxygen	mg/l	IS 3025 Part 58:2006 (Reaff:2017)	24.7
33	Dissolved Oxygen	mg/l	IS 3025 Part 38:1989 (Reaff:2019)	4.5
34	Total Coliform	Per 100ml	APHA 23 <sup>rd</sup> Edn. 2017:9221B	present
35	E-Coli	Per 100ml	APHA 23 <sup>rd</sup> Edn. 2017:9221F	present
36	Barium as Ba	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.5)
37	Ammonia-n (as Total	mg/l	IS 3025 Part 34-1988 (Reaff. 2019)	2.9
38	Sulphide as H2S	mg/l	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:0.05)
39	Molybdenum as Mo	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.5)
40	Total Arsenic as	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01)
41	Total Suspended Solids	mg/l	IS 3025 Part 17 -1984 (Reaff:2017)	6.8

\*\*\*\*\*End of Report\*\*\*\*\*



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Name: Santhosh Kumar A  
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

**TEST REPORT**



TC-9583

<b>Report No</b>	EHS360/TR/2023-2024/ 021	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	SOP Method	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Water	<b>Sample Code</b>	EHS360/021
<b>Sample Description</b>	Ground Water (WW-3)	<b>Sample Collected Date</b>	27.05.2024
<b>Qty. of Sample Received</b>	2 Litres	<b>Sample Received On</b>	28.05.2024
<b>Sample Condition</b>	Fit for Analysis	<b>Test Commenced On</b>	28.05.2024
<b>Sampling Location</b>	<b>Core Zone</b>		

S.No.	Parameters	Units	Test Method	RESULTS
1	Color	Hazen	IS 3025 Part 4:1983	< 5
2	Odour	-	IS 3025 Part 5:2018	Agreeable
3	pH@ 25oC	-	IS 3025 Part 11:1983	7.23
4	Electrical Conductivity	µs/cm	IS 3025 Part 14:2013	581
5	Turbidity	NTU	IS 3025 Part 10:1984	< 1
6	Total Dissolved Solids	mg /l	IS 3025 Part 16:1984	342
7	Total Hardness as CaCO3	mg/l	IS 3025 Part 21:2009	182.8
8	Calcium as Ca	mg/l	IS 3025 Part 40:1991	32.9
9	Magnesium as Mg	mg/l	IS 3025 Part 46:1994	24.5
10	Total Alkalinity	mg/l	IS 3025 Part 23:1986	142
11	Chloride as Cl-	mg/l	IS 3025 Part 32:1988	60.9
12	Sulphate as SO4-	mg/l	IS 3025 Part 24:1986	23.3
13	Iron as Fe	mg/l	IS 3025 Part 53:2003	0.21
14	Free Residual Chlorine	mg/l	IS 3025 Part 26:1986	BDL (DL: 2.0)
15	Fluoride as F	mg/l	APHA 23rd Edn. 2017:4500 F, D	0.28
16	Nitrates as NO3	mg/l	IS 3025 Part 34:1988	11.3

\*\*\*\*\*End of Report\*\*\*\*\*

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*[Signature]*  
Name: Santhosh Kumar A  
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/021	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	SOP Method	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Water	<b>Sample Code</b>	EHS360/021
<b>Sample Description</b>	Ground Water (WW-3)	<b>Sample Collected Date</b>	27.05.2024
<b>Qty. of Sample Received</b>	2 Litres	<b>Sample Received On</b>	28.05.2024
<b>Sample Condition</b>	Fit for Analysis	<b>Test Commenced On</b>	28.05.2024
<b>Sampling Location</b>	Core Zone		

S. No	Parameters	Units	Test Method	RESULTS
17	Copper as Cu	mg/l	IS 3025 Part 65:2014	BDL (DL:0.2)
18	Manganese as Mn	mg/l	IS 3025 Part 65:2014	BDL (DL:0.05)
19	Mercury as Hg	mg/l	USEPA 200.8	(BDL (DL: 0.0005)
20	Cadmium as Cd	mg/l	IS 3025 Part 65:2014	BDL (DL:0.01)
21	Selenium as Se	mg/l	IS 3025 Part 65:2014	BDL (DL: 0.05)
22	Aluminium as Al	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL: 0.03)
23	Lead as Pb	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01)
24	Zinc as Zn	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02)
25	Total Chromium	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL: 0.05)
26	Boron as B	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.1)
27	Mineral Oil	mg/l	IS 3025 Part 39-1991 (Reaff. 2019)	BDL (DL:1.0)
28	Phenolic Compounds as	mg/l	IS 3025 Part 43-1992(Reaff: 2019)	Absent
29	Anionic Detergents as	mg/l	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.1)
30	Cynaide as CN	mg/l	IS 3025 Part 27-1986 (Reaff. 2019)	Absent
31	Total Coliform	Per 100ml	APHA 23 <sup>rd</sup> Edn. 2017:9221B	< 2
32	E-Coli	Per 100ml	APHA 23 <sup>rd</sup> Edn. 2017:9221F	< 2
33	Barium as Ba	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.5)
34	Ammonia-n (as Total	mg/l	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.1)
35	Sulphide as H2S	mg/l	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:0.05)
36	Molybdenum as Mo	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.5)
37	Total Arsenic as	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01)
38	Total Suspended Solids	mg/l	IS 3025 Part 17 -1984 (Reaff:2017)	BDL(DL:2)

\*\*\*\*\*End of Report\*\*\*\*\*

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Name: Santhosh Kumar A  
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

<b>Report No</b>	EHS360/TR/2023-2024/ 022	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	SOP Method	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Water	<b>Sample Code</b>	EHS360/022
<b>Sample Description</b>	Ground Water (WW-4)	<b>Sample Collected Date</b>	27.05.2024
<b>Qty. of Sample Received</b>	2 Litres	<b>Sample Received On</b>	28.05.2024
<b>Sample Condition</b>	Fit for Analysis	<b>Test Commenced On</b>	28.05.2024
<b>Sampling Location</b>	<b>Nilavarapatti</b>		

S.No.	Parameters	Units	Test Method	RESULTS
1	Color	Hazen	IS 3025 Part 4:1983	< 5
2	Odour	-	IS 3025 Part 5:2018	Agreeable
3	pH@ 25oC	-	IS 3025 Part 11:1983	6.87
4	Electrical Conductivity	µs/cm	IS 3025 Part 14:2013	528
5	Turbidity	NTU	IS 3025 Part 10:1984	< 1
6	Total Dissolved Solids	mg /l	IS 3025 Part 16:1984	312
7	Total Hardness as CaCO3	mg/l	IS 3025 Part 21:2009	146.5
8	Calcium as Ca	mg/l	IS 3025 Part 40:1991	28.6
9	Magnesium as Mg	mg/l	IS 3025 Part 46:1994	18.3
10	Total Alkalinity	mg/l	IS 3025 Part 23:1986	135
11	Chloride as Cl-	mg/l	IS 3025 Part 32:1988	51.8
12	Sulphate as SO4-	mg/l	IS 3025 Part 24:1986	21.5
13	Iron as Fe	mg/l	IS 3025 Part 53:2003	BDL(DL:0.1)
14	Free Residual Chlorine	mg/l	IS 3025 Part 26:1986	BDL (DL: 2.0)
15	Fluoride as F	mg/l	APHA 23rd Edn. 2017:4500 F, D	0.19
16	Nitrates as NO3	mg/l	IS 3025 Part 34:1988	4.5

\*\*\*\*\*End of Report\*\*\*\*\*

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Authorised Signatory

Name: Santhosh Kumar A  
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

<b>Report No</b>	EHS360/TR/2023-2024/022	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	SOP Method	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Water	<b>Sample Code</b>	EHS360/022
<b>Sample Description</b>	Ground Water (WW-4)	<b>Sample Collected Date</b>	27.05.2024
<b>Qty. of Sample Received</b>	2 Litres	<b>Sample Received On</b>	28.05.2024
<b>Sample Condition</b>	Fit for Analysis	<b>Test Commenced On</b>	28.05.2024
<b>Sampling Location</b>	Nilavarapatti		

S. No	Parameters	Units	Test Method	RESULTS
17	Copper as Cu	mg/l	IS 3025 Part 65:2014	BDL (DL:0.2)
18	Manganese as Mn	mg/l	IS 3025 Part 65:2014	BDL (DL:0.05)
19	Mercury as Hg	mg/l	USEPA 200.8	(BDL (DL: 0.0005)
20	Cadmium as Cd	mg/l	IS 3025 Part 65:2014	BDL (DL:0.01)
21	Selenium as Se	mg/l	IS 3025 Part 65:2014	BDL (DL: 0.05)
22	Aluminium as Al	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL: 0.03)
23	Lead as Pb	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01)
24	Zinc as Zn	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02)
25	Total Chromium	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL: 0.05)
26	Boron as B	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.1)
27	Mineral Oil	mg/l	IS 3025 Part 39-1991 (Reaff. 2019)	BDL (DL:1.0)
28	Phenolic Compounds as	mg/l	IS 3025 Part 43-1992(Reaff: 2019)	Absent
29	Anionic Detergents as	mg/l	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.1)
30	Cynaide as CN	mg/l	IS 3025 Part 27-1986 (Reaff. 2019)	Absent
31	Total Coliform	Per 100ml	APHA 23 <sup>rd</sup> Edn. 2017:9221B	< 2
32	E-Coli	Per 100ml	APHA 23 <sup>rd</sup> Edn. 2017:9221F	< 2
33	Barium as Ba	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.5)
34	Ammonia-n (as Total	mg/l	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.1)
35	Sulphide as H <sub>2</sub> S	mg/l	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:0.05)
36	Molybdenum as Mo	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.5)
37	Total Arsenic as	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01)
38	Total Suspended Solids	mg/l	IS 3025 Part 17 -1984 (Reaff:2017)	BDL(DL:2)

\*\*\*\*\*End of Report\*\*\*\*\*

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Authorised Signatory

Name: Santhosh Kumar A  
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.



**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/ 023	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES Panamarathupatti Village, Salem Taluk, Salem District.</b>		
<b>Sampling Method</b>	SOP Method	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Water	<b>Sample Code</b>	EHS360/023
<b>Sample Description</b>	Ground Water (BW-5)	<b>Sample Collected Date</b>	27.05.2024
<b>Qty. of Sample Received</b>	2 Litres	<b>Sample Received On</b>	28.05.2024
<b>Sample Condition</b>	Fit for Analysis	<b>Test Commenced On</b>	28.05.2024
<b>Sampling Location</b>	<b>Core Zone</b>		

S.No.	Parameters	Units	Test Method	RESULTS
1	Color	Hazen	IS 3025 Part 4:1983	< 5
2	Odour	-	IS 3025 Part 5:2018	Agreeable
3	pH@ 25oC	-	IS 3025 Part 11:1983	7.82
4	Electrical Conductivity	µs/cm	IS 3025 Part 14:2013	663
5	Turbidity	NTU	IS 3025 Part 10:1984	< 1
6	Total Dissolved Solids	mg /l	IS 3025 Part 16:1984	390
7	Total Hardness as CaCO3	mg/l	IS 3025 Part 21:2009	186.6
8	Calcium as Ca	mg/l	IS 3025 Part 40:1991	35.6
9	Magnesium as Mg	mg/l	IS 3025 Part 46:1994	23.8
10	Total Alkalinity	mg/l	IS 3025 Part 23:1986	167
11	Chloride as Cl-	mg/l	IS 3025 Part 32:1988	75.9
12	Sulphate as SO4-	mg/l	IS 3025 Part 24:1986	26.3
13	Iron as Fe	mg/l	IS 3025 Part 53:2003	0.27
14	Free Residual Chlorine	mg/l	IS 3025 Part 26:1986	BDL (DL: 2.0)
15	Fluoride as F	mg/l	APHA 23rd Edn. 2017:4500 F, D	0.25
16	Nitrates as NO3	mg/l	IS 3025 Part 34:1988	12.2

\*\*\*\*\*End of Report\*\*\*\*\*

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Authorised Signatory

Name: Santhosh Kumar A  
Designation: Quality Manager

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<b>Report No</b>	EHS360/TR/2023-2024/023	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	SOP Method	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Water	<b>Sample Code</b>	EHS360/023
<b>Sample Description</b>	Ground Water (BW-5)	<b>Sample Collected Date</b>	27.05.2024
<b>Qty. of Sample Received</b>	2 Litres	<b>Sample Received On</b>	28.05.2024
<b>Sample Condition</b>	Fit for Analysis	<b>Test Commenced On</b>	28.05.2024
<b>Sampling Location</b>	<b>Core Zone</b>		

S. No	Parameters	Units	Test Method	RESULTS
17	Copper as Cu	mg/l	IS 3025 Part 65:2014	BDL (DL:0.2)
18	Manganese as Mn	mg/l	IS 3025 Part 65:2014	BDL (DL:0.05)
19	Mercury as Hg	mg/l	USEPA 200.8	(BDL (DL: 0.0005)
20	Cadmium as Cd	mg/l	IS 3025 Part 65:2014	BDL (DL:0.01)
21	Selenium as Se	mg/l	IS 3025 Part 65:2014	BDL (DL: 0.05)
22	Aluminium as Al	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL: 0.03)
23	Lead as Pb	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01)
24	Zinc as Zn	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02)
25	Total Chromium	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL: 0.05)
26	Boron as B	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.1)
27	Mineral Oil	mg/l	IS 3025 Part 39-1991 (Reaff. 2019)	BDL (DL:1.0)
28	Phenolic Compounds as	mg/l	IS 3025 Part 43-1992(Reaff: 2019)	Absent
29	Anionic Detergents as	mg/l	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.1)
30	Cynaide as CN	mg/l	IS 3025 Part 27-1986 (Reaff. 2019)	Absent
31	Total Coliform	Per 100ml	APHA 23 <sup>rd</sup> Edn. 2017:9221B	< 2
32	E-Coli	Per 100ml	APHA 23 <sup>rd</sup> Edn. 2017:9221F	< 2
33	Barium as Ba	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.5)
34	Ammonia-n (as Total	mg/l	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.1)
35	Sulphide as H <sub>2</sub> S	mg/l	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:0.05)
36	Molybdenum as Mo	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.5)
37	Total Arsenic as	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01)
38	Total Suspended Solids	mg/l	IS 3025 Part 17 -1984 (Reaff:2017)	BDL(DL:2)

\*\*\*\*\*End of Report\*\*\*\*\*

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Name: Santhosh Kumar A  
Designation: Quality Manager

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**TEST REPORT**

<b>Report No</b>	EHS360/TR/2023-2024/ 024	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> <b>Panamarathupatti Village, Salem Taluk, Salem District.</b>		
<b>Sampling Method</b>	SOP Method	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Water	<b>Sample Code</b>	EHS360/024
<b>Sample Description</b>	Ground Water (BW-6)	<b>Sample Collected Date</b>	27.05.2024
<b>Qty. of Sample Received</b>	2 Litres	<b>Sample Received On</b>	28.05.2024
<b>Sample Condition</b>	Fit for Analysis	<b>Test Commenced On</b>	28.05.2024
<b>Sampling Location</b>	<b>Pichampalayam</b>		

S.No.	Parameters	Units	Test Method	RESULTS
1	Color	Hazen	IS 3025 Part 4:1983	< 5
2	Odour	-	IS 3025 Part 5:2018	Agreeable
3	pH@ 25oC	-	IS 3025 Part 11:1983	7.44
4	Electrical Conductivity	µs/cm	IS 3025 Part 14:2013	760
5	Turbidity	NTU	IS 3025 Part 10:1984	< 1
6	Total Dissolved Solids	mg /l	IS 3025 Part 16:1984	448
7	Total Hardness as CaCO3	mg/l	IS 3025 Part 21:2009	261.2
8	Calcium as Ca	mg/l	IS 3025 Part 40:1991	42.9
9	Magnesium as Mg	mg/l	IS 3025 Part 46:1994	37.5
10	Total Alkalinity	mg/l	IS 3025 Part 23:1986	173
11	Chloride as Cl-	mg/l	IS 3025 Part 32:1988	95.2
12	Sulphate as SO4-	mg/l	IS 3025 Part 24:1986	32.6
13	Iron as Fe	mg/l	IS 3025 Part 53:2003	BDL(DL:0.1)
14	Free Residual Chlorine	mg/l	IS 3025 Part 26:1986	BDL (DL: 2.0)
15	Fluoride as F	mg/l	APHA 23rd Edn. 2017:4500 F, D	0.31
16	Nitrates as NO3	mg/l	IS 3025 Part 34:1988	18

\*\*\*\*\*End of Report\*\*\*\*\*

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Name: Santhosh Kumar A  
Designation: Quality Manager

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<b>Report No</b>	EHS360/TR/2023-2024/024	<b>Report Date</b>	03.06.2024
<b>Site Location</b>	<b>M/s. PANAMARATHUPATTI ROUGH STONE CLUSTER QUARRIES</b> Panamarathupatti Village, Salem Taluk, Salem District.		
<b>Sampling Method</b>	SOP Method	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Water	<b>Sample Code</b>	EHS360/024
<b>Sample Description</b>	Ground Water (BW-6)	<b>Sample Collected Date</b>	27.05.2024
<b>Qty. of Sample Received</b>	2 Litres	<b>Sample Received On</b>	28.05.2024
<b>Sample Condition</b>	Fit for Analysis	<b>Test Commenced On</b>	28.05.2024
<b>Sampling Location</b>	<b>Pichampalayam</b>		

S. No	Parameters	Units	Test Method	RESULTS
17	Copper as Cu	mg/l	IS 3025 Part 65:2014	BDL (DL:0.2)
18	Manganese as Mn	mg/l	IS 3025 Part 65:2014	BDL (DL:0.05)
19	Mercury as Hg	mg/l	USEPA 200.8	(BDL (DL: 0.0005)
20	Cadmium as Cd	mg/l	IS 3025 Part 65:2014	BDL (DL:0.01)
21	Selenium as Se	mg/l	IS 3025 Part 65:2014	BDL (DL: 0.05)
22	Aluminium as Al	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL: 0.03)
23	Lead as Pb	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01)
24	Zinc as Zn	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02)
25	Total Chromium	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL: 0.05)
26	Boron as B	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.1)
27	Mineral Oil	mg/l	IS 3025 Part 39-1991 (Reaff. 2019)	BDL (DL:1.0)
28	Phenolic Compounds as	mg/l	IS 3025 Part 43-1992(Reaff: 2019)	Absent
29	Anionic Detergents as	mg/l	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.1)
30	Cynaide as CN	mg/l	IS 3025 Part 27-1986 (Reaff. 2019)	Absent
31	Total Coliform	Per 100ml	APHA 23 <sup>rd</sup> Edn. 2017:9221B	< 2
32	E-Coli	Per 100ml	APHA 23 <sup>rd</sup> Edn. 2017:9221F	< 2
33	Barium as Ba	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.5)
34	Ammonia-n (as Total	mg/l	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.1)
35	Sulphide as H <sub>2</sub> S	mg/l	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:0.05)
36	Molybdenum as Mo	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.5)
37	Total Arsenic as	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01)
38	Total Suspended Solids	mg/l	IS 3025 Part 17 -1984 (Reaff:2017)	BDL(DL:2)

\*\*\*\*\*End of Report\*\*\*\*\*

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Authorised Signatory

Name: Santhosh Kumar A  
Designation: Quality Manager

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## National Accreditation Board for Education and Training



# Certificate of Accreditation

### Geo Exploration & Mining Solutions, Salem

No. 17, Advaita Ashram Road, Fairlands, Salem – 636 004, Tamilnadu, India.

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 opencast only	1	1 (a) (i)	A
2	Industrial estates/ parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes	31	7 (c)	B
3	Building and construction projects	38	8(a)	B

**Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated Jan 06, 2023 and posted on QCI-NABET website.**

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no QCI/NABET/ENV/ACO/23/2684 dated Feb 20, 2023. The accreditation needs to be renewed before the expiry date by Geo Exploration & Mining Solutions, Salem following due process of assessment.

Sr. Director, NABET  
Dated: Feb 20, 2023

Certificate No.  
NABET/EIA/2225/RA 0276

Valid up to  
August 06, 2025

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