

EXECUTIVE SUMMARY

**” B1” CATEGORY – MINOR MINERAL – CLUSTER – NON-FOREST LAND-PATTA
LAND-EXISTING**

KOTHAPETTA ROUGH STONE CLUSTER QUARRIES

At

Kothapetta Village, Krishnagiri Taluk, Krishnagiri District, Tamil Nadu State

For Obtaining

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

IN CLUSTER OVER AN EXTENT OF 16.44.9 Ha

NAME OF PROPOSED PROJECT PROPONENTS APPLYING IN CLUSTER

Code	Proponent Name	Extent (Ha)
P1	M/s. Sri Devaraajaa ‘M’ Sand	4.00.0
P2	Tmt.K.M. Vijaya	4.00.0
P3	M/s. A.M. Quality Stone	4.74.9

Compiled as per Tor Obtained Vide

Lr No. SEIAA-TN/F.No.10244/2023/SEAC/ToR- 1681/2024 Dated:14.02.2024- P1

Lr No. SEIAA-TN/F.No.10248/SEAC/ToR-1676/2024 Dated:14.02.2024-P2

ToR Identification No: TO23B0108TN5558418N dated 13.03.2024 -P3

<p>Environmental Consultant GEO EXPLORATION AND MINING SOLUTIONS  Old No. 260-B, New No. 17, Advaitha Ashram Road, Alagapuram, Salem – 636 004, Tamil Nadu, India Accredited for sector 1 Cat ‘A’, sector 31 & 38 Cat ‘B’ Certificate No : NABET/EIA/2225/RA 0276 Phone: 0427-2431989, Email: ifthiahmed@gmail.com, geothangam@gmail.com Web: www.gemssalem.com</p>	<p>Laboratory EHS 360 LABS PRIVATE LIMITED, 10/2 Ground floor, 50th street, 7th Avenue, Ashok Nagar, Chennai – 600 083.</p>
<p><u>Baseline Monitoring Period</u> Oct 2023-Dec 2023</p>	
<p>MARCH 2024</p>	

1. INTRODUCTION

Rough Stone quarry are the major requirements for construction industry. This EIA report is prepared by considering Cumulative load of all proposed & existing quarries of Kothapetta Rough Stone Quarries Cluster consisting of three Proposed quarries and one existing quarry with total extent of Cluster of 16.44.9Ha in Kothapetta Village, Krishnagiri Taluk, Krishnagiri District, Tamil Nadu State, cluster area calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016.

The proponent has obtained necessary statutory clearances from the Department of Geology and Mining, Krishnagiri 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

CODE	Name of the proponent	Extent (Ha)	Terms of Reference (ToR)
P1	M/s. Sri Devaraajaa ‘M’ Sand	4.00.0	Lr No. SEIAA-TN/F.No.10244/2023/SEAC/ToR-1681/2024 Dated:14.02.2024
P2	Tmt.K.M. Vijaya	4.00.0	Lr No. SEIAA-TN/F.No.10248/SEAC/ToR-1676/2024 Dated:14.02.2024
P3	M/s. A.M. Quality Stone	4.74.9	ToR Identification No TO23B0108TN5558418N dated 13.03.2024
	Total	14.74.9	

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 proposed & existing quarries of Kothapetta Rough Stone Cluster Quarries have engaged a consultant M/s. Geo Exploration and Mining Solutions, Salem, Tamil Nadu. The Baseline Monitoring study has been carried out during Post Monsoon season (Oct– Dec2023) considering the provisions of MoEF & CC Office Memorandum Dated: 29.08.2017 and MoEF & CC Notification S.O. 996 (E) Dated: 10.04.2015.

“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”

1.1 DETAILS OF PROJECT PROPONENT

PROPOSAL – P1	
Name of the Company	M/s. Sri Devaraajaa ‘M’ Sand
Address	D.No.58B, Gandhi Nagar, Krishnagiri Town, Krishnagiri District – 635001
Mobile	-
Status	Partnership firm
PROPOSAL – P2	
Name of the Company	Tmt.K.M. Vijaya W/o.D.Mathiazhagan
Address	D.No.58B, Gandhi Nagar, Krishnagiri Town, Krishnagiri District – 635001.
Mobile	-
Status	Individual
PROPOSAL – P3	

Name of the Company	M/s. A.M. Quality Stone (Kowshik dev- Managing Partner)
Address	S.F.Nos. 87/1B1 & 87/1B2, Akkalapuram, Kothapetta village, Krishnagiri Taluk & District – 635 001
Mobile	-
Status	Partnership firm

The project proponent is Partnership firm

1.2 QUARRY DETAILS WITHIN 500 M RADIUS

PROPOSED QUARRIES

CODE	Name of the Proponent and Address	S.F. Nos, Village & Taluk	Extent in Ha	G.O. No & Date	Status
P-1	M/s. Sri Devaraajaa 'M'Sand (Partnership firm)	78/1A(P), 78/1B(P) of Kothapetta Village, Krishnagiri Taluk	4.00.0	Roc.418/2018/Mines dated: 30.05.2018	Lr No. SEIAA-TN/F.No.10244/2023/SEAC/ToR-1681/2024 Dated:14.02.2024
P-2	Tmt.K.M.Vijaya W/o.D.Mathiazhagan	78/1B (P), of Kothapetta Village, Krishnagiri Taluk	4.00.0	Roc.419/2017/Mines dated: 30.05.2018	Lr No. SEIAA-TN/F.No.10248/SEAC/ToR-1676/2024 Dated:14.02.2024.
P-3	M/s. A.M. Quality Stone (Kowshik dev – Managing Partner)	87/1B1B & 87/1B2B, Kothapetta Village, Krishnagiri Taluk,	4.74.9	Roc.1314/2023/M dated: 10.11.2023	ToR Identification No TO23B0108TN5558418N dated 13.03.2024
		Total	12.74.90Ha		

EXISTING QUARRY

CODE	Name of the Proponent and Address	S.F. Nos, Village & Taluk	Extent in Ha	G.O. No & Date	Lease Period
E-1	M/S. Ma Quality Stone	87/1B2(P), Kothapetta Village, Krishnagiri Taluk	3.70.0	Roc.1179/2020/Mines dated: 23.11.2022	23.11.2022 to 22.11.2032
		Total	3.70.0Ha		

NIL

ABANDONED/EXPIRED QUARRIES

CODE	Name of the Proponent and Address	S.F. Nos, Village & Taluk	Extent in Ha	G.O. No & Date	Lease Period
A-1	Thiru.Ganesan	56/1(P-D) Kothapetta Village, Krishnagiri Taluk	2.54.0	Roc.611/2009/Mines dated: 14.05.2015	14.05.2015 to 13.05.2020
A-2	Tmt.Sa.Sumitha Shankar	56/1 (P-5) Kothapetta Village, Krishnagiri Taluk	1.20.0	Roc.49/2016/Mines dated: 18.08.2016	1.09.2016 to 31.08.2021
A-3	Thiru.A. Madesh	56/1(P-C) Kothapetta Village, Krishnagiri Taluk	3.06.0	Roc.126/2010/Mines dated: 27.10.2009	03.05.2010 to 02.05.2015
		Total	6.80.0Ha		
TOTAL CLUSTER EXTENT			16.44.9 Ha		

TABLE 1.3 SALIENT FEATURES OF THE PROPOSAL

SALIENT FEATURES OF PROPOSAL "P1"	
Name of the Mine	M/s. Sri Devaraajaa 'M' Sand (Thiru. D.Mathiazhagan- Managing Partner)
Land Type	It is a Patta land – non-Forest
S.F. No.	78/1A(P), 78/1B(P)
Extent	4.00.0 Ha

Previous EC clearance details	DEIAA – KGI Lr No 35/DEIAA-KGI/Ec.No. 27/2018 Dated 27.02.2018 EC Quantity: 10,25,995m ³ Depth 71m			
TNPCCB /CTO Copy	F.1682HSR/RS/DEE/TNPCCB/HSR/A/2022 Dated: 22.08.2022			
Previous quarry operation details	It is an Existing application			
Existing Pit Dimension	210m(L) x 97m (W) x20m(D) (Avg)			
Depth of Mining	41m (1m gravel +40m Rough stone)			
Geological Resources	Rough Stone quarry (Volume)	Recoverable Geological in m ³ 95%	Mine waste in m ³ 5%	Gravel
	10,85,740 m ³	1,031,457	54,283	2,329m ³
Mineable Reserves	Rough Stone quarry (Volume)	Mineable reserves Recoverable in m ³ 95%	Mine waste in m ³ 5%	Gravel
	5,13,365m ³	4,87,698	25,667	799m ³
Production for Scheme period (Approved SOM) (2023-2028)	Rough Stone quarry (Volume)	Recoverable reserves in m ³ 95%	Mine waste in m ³ 5%	Gravel
	5,13,365 m ³	4,87,698	25,667	799 m ³
Peak Production in this Scheme period	1,19,857 m ³ of Rough stone			
Mining Plan Period / Lease Period	5 Years			
Ultimate Pit Dimension	287m (L) X 121m (W) X 41m (D)			
Toposheet No	57 -L/2			
Water table depth	76m-82m			
Water Requirements	2.5 KLD			
Latitude	12°32'49.8798"N to 12°32'46.6000"N			
Longitude	78°12'49.4269"E to 78°12'39.2801"E			
Highest Elevation	Slightly elevated topography, surrounded by quarries and Crushing units. Altitude of the area is 537m MSL.			
Machinery	Jack Hammer	5		
	Compressor	1		
	Hydraulic Excavator	2		
	Tippers	3		
Blasting	Drilling is carried out by a Jack Hammer drill of 30-32mm diameter, Nitrate Mixture Gelatine packets, and electric / ordinary detonators with delay elements will be used for blasting purpose.			
Manpower Deployment	21 Nos			
Total Cost	A. Fixed Asset Cost	Rs. 33,00,000/-		
	B. Operational Cost	Rs. 40,00,000/-		
	C.EMP Cost	Rs. 4,30,000/-		
	Total	Rs. 77,30,000/-		
CER Cost	Rs.5,00,000/-			
Nearest Habitation	590m-W			
Nearest R.F	Peddathalapalli R.F-2.2km-SW			
Nearest Wildlife	Cauvery North Wildlife Sanctuary-26km-SW Cauvery South Wildlife Sanctuary-40km-SW			
SALIENT FEATURES OF PROPOSAL “P2”				
Name of the Mine	Tmt.K.M.Vijaya			
Land Type	It is a Patta land – non-Forest			
S.F. Nos	78/1B (P),			
Extent	4.00.0 Ha			
Previous EC clearance details	DEIAA – KGI Letter No. 34/DEIAA-KGI/Ec.No. 26/2018 Dated 27.02.2018			

	EC Quantity: 10,80,884m ³ Depth 71m			
TNPCCB /CTO Renewal Copy	F.1682HSR/RS/DEE/TNPCCB/HSR/A/2022 Dated: 22.08.2022			
Previous quarry operation details	It is an Existing Lease.			
Existing Pit Dimension	95.0m(L) x 93m (W) x12m(D) (Avg)			
Geological Reserves	Rough Stone quarry (Volume)	Recoverable Geological in m ³ 95%	Mine waste in m ³ 5%	Gravel
	16,04,820m ³	1524579	80241	22,960m ³
Mineable Reserves	Rough Stone quarry (Volume)	Mineable reserves Recoverable in m ³ 95%	Mine waste in m ³ 5%	Gravel
	9,68,575m ³	920148	48427	20,711 m ³
Production for Scheme period (Approved SOM)(2023-2028)	Rough Stone quarry (Volume)	Recoverable reserves in m ³ 95%	Mine waste in m ³ 5%	Gravel
	7,93,205m ³	7,53,546	39,659	20,711 m ³
Peak Production in this Scheme period	2,26,922 m ³ of Rough stone			
Approved Scheme of Mining Plan Period / Lease Period	5 Years			
Depth of mining	31m (1m Gravel +30m Rough stone)			
Ultimate Pit Dimension	286m(L) x 136m (W) x41m(D)			
Toposheet No	57 L/2			
Latitude	12°32'42.0172''N to 12°32'44.4928''N			
Longitude	78°12'54.6408''E to 78°12'42.8804''E			
Highest elevation	Slightly elevated topography, surrounded by quarries and Crushing units. Altitude of the area is 537m MSL.			
Water table depth	76-82m			
Water level requirements	2.5KLD			
Machinery proposed	Jack Hammer	5		
	Compressor	1		
	Hydraulic Excavator	2		
	Tipplers	3		
Blasting	The massive formation shall be broken into pieces of portable size by drilling and proposed control blasting using jack hammers and shot hole Blasting. Usage of Slurry Explosive with MSD detonators			
Manpower Deployment	21Nos			
Total Project Cost	A. Fixed Asset Cost	Rs. 32,90,000/-		
	B. Operational Cost	Rs. 40,00,000/-		
	C.EMP Cost	Rs. 4,30,000/-		
	Total	Rs. 77,20,000/-		
CER Cost	Rs.5,00,000/-			
Nearest Habitation	700m-W			
Nearest R.F	Peddathalapalli R.F-2.30km-SW			
Nearest Wildlife	Cauvery North Wildlife Sanctuary-26km-SW Cauvery South Wildlife Sanctuary-41km-SW			
SALIENT FEATURES OF PROPOSAL "P3"				
Name of the Mine	M/s. A.M. Quality Stone (Kowshik dev- Managing Partner)			
Land Type	It is a Patta land – non-Forest			
S.F. Nos	87/1B1B & 87/1B2B			
Extent	4.74.90 Ha			
Previous EC clearance details	Lr. No. SEIAA-TN/F.No.3215/EC/1(a)/2645/2015, Dated:05.01.2016 EC approved Quantity: 52,620m ³ Depth 10m			
TNPCCB /CTO Renewal Copy	F.0770HSR/RS/DEE/TNPCCB/HSR/W/2020 Dated: 20.06.2020			
DFO NOC Copy	No.6846/2023/L dated: 10.07.2023			
Previous quarry operation details	Previous Lessee: Tmt. Qamrunnisa Previous Lease Period: 02.03.2016 – 01.03.2021, S.F.Nos 87/1B1(Part) & 87/1B2 (Part) (Extent : 4.75.0 Ha)			

	Proceeding No: Roc No. 08/2013/Mines-1, Dated: 05.02.2016 It is an Existing Lease.		
Existing Pit Dimension	Pit I: 19,730 sq.mt. 15m (D) Max Pit II: 10,240 Sq.mt. 7m (D) Max		
Geological Reserves	Rough Stone quarry (Volume)	Recoverable Geological in m ³ 100%	Topsoil
	8,11,453m ³	8,11,453m ³	9,469m ³
Mineable Reserves	Rough Stone quarry (Volume)	Mineable reserves Recoverable in m ³ 100%	Topsoil
	4,81,920m ³	4,81,920m ³	8,706 m ³
Production for Scheme period (Approved Mining Plan)	Rough Stone quarry (Volume)	Recoverable reserves in m ³ 100%	Topsoil
	4,81,920m ³	4,81,920m ³	8,706 m ³
Peak Production in the mining plan period	1,33,980m ³ of Rough stone		8,706 m ³ Topsoil
Approved Mining Plan Period / Lease Period	5 Years		
Depth of mining	45 (1m Topsoil +44m Roughstone)		
Ultimate Pit Dimension	229m(L) x 144m (W) x45m(D)		
Toposheet No	57 L/2		
Latitude	12° 33' 05.33" N to 12° 32' 58.37" N		
Longitude	78° 12' 53.41" E to 78° 12' 52.97" E		
Highest elevation	Almost an elevated sloping towards West covered with the Roughstone Altitude of the area is 565m MSL.		
Water table depth	The Ground water is about 67m depth from ground level.		
Waterlevel requirements	2.3KLD		
Machinery proposed	Jack Hammer		4
	Compressor		2
	Hydraulic Excavator		3
	Tippers		3
Blasting	The massive formation shall be broken into pieces of portable size by drilling and proposed control blasting using jack hammers and shot hole Blasting. Usage of Slurry Explosive with MSD detonators		
Manpower Deployment	18 Nos		
Total Project Cost	A. Fixed Asset Cost		Rs. 50,12,000/-
	B. Operational Cost		Rs. 30,00,000/-
	C.EMP Cost		Rs. 3,80,000/-
	Total		Rs. 83,92,000/-
CER Cost	Rs.5,00,000/-		
Nearest Habitation	210m-E		
Nearest R.F	Peddathalapalli R.F-2.77km-SW		
Nearest Wildlife	Cauvery North Wildlife Sanctuary-36.5km-SW Cauvery South Wildlife Sanctuary-41km-SW		

Source: Approved Scheme of Mining Plan of the respective proposals

Source: Approved Mining Plan and PFR Report

1.3 STATUTORY DETAILS

Project – P1

- ∞ Lease Granted vide Proceeding No 418/2017/Mines Dated 29.12.2017 for five years.
- ∞ Mining plan approved by the Deputy Director, Department of Geology and Mining vide Rc. No 418/2017/Mines Dated 31.05.2018
- ∞ Environmental Clearance granted at DEIAA – KGI DEIAA vide **Letter No. 35/DEIAA-KGI/Ec.No. 27/2018 Dated 27.02.2018**
- ∞ As per G.O (Ms) No 208 Industries (MMC.1) Department Dated 21.09.2020 lease period extended for another five year.
- ∞ Scheme of Mining plan prepared for the period of 2023-24 to 2026-27 and got approval vide Roc.No. 1121/2020/Mines Dated 27.01.2023
- ∞ Proponent applied for ToR for Environmental Clearance vides online Proposal No. **SIA/TN/MIN/430407/2023, Dated:23.05.2023.**
- ∞ The proposal was placed in 407th SEAC meeting held on 07.09.2023 and reply by the proponent dated 14.11.2023. again 430th SEAC meeting held on 14.12.2023 and 439th SEAC meeting held on 10.01.2024 the committee recommended for issue of ToR.
- ∞ The proposal was considered in 696th SEIAA meeting held on 14.02.2024 and issued ToR vide **Lr No. SEIAA-TN/F.No.10244/2023/SEAC/ToR- 1681/2024 Dated:14.02.2024.**

Project – P2

- ∞ Lease Granted vide Proceeding No 419/2017/Mines, Dated 30.05.2018- for five years.
- ∞ Mining plan approved by the Deputy Director, Department of Geology and Mining, Krishnagiri vide Roc. No 419/2017/Mines Dated 29.12.2017
- ∞ Environmental Clearance granted at DEIAA – KGI vide **Letter No. 34/DEIAA-KGI/Ec. No. 26/2018 Dated 27.02.2018**
- ∞ As per G.O (MS) No 208 Industries (MMC.1) Department Dated 21.09.2020 lease period extended for another five year.
- ∞ Scheme of Mining plan prepared for the period of 2023-24 to 2027-28 and got approval vide Roc. No. 1120/2020/Mines Dated 27.01.2023
- ∞ Proponent applied for ToR for Environmental Clearance vides online Proposal No. **SIA/TN/MIN/430521/2023, Dated:24.06.2023.**
- ∞ The proposal was placed in 407th SEAC meeting held on 07.09.2023 and 439th SEAC meeting held on 10.01.2024 the committee recommended for issue of ToR.
- ∞ The proposal was considered in 658th and SEIAA meeting held on 26.09.2023-27.09.2023 and 696th SEIAA meeting held on 14.02.2024 issued ToR vide **Lr No. SEIAA-TN/F.No.10248/SEAC/ToR- 1676/2024 Dated:14.02.2024.**

Project – P3

- The application was processed by the Deputy Director; the precise area communication letter was received from the Deputy Director, Krishnagiri vide **Rc.No. 1314/2023/Minerals Dated:12.10.2023 (Enclosed Annexure – I)**. To obtain Approved Mining plan and Environmental Clearance from the State Level Environmental Impact Assessment Authority (SEIAA).

- Mining plan approved by the Deputy Director, Department of Geology and Mining vide Rc.No. 1314/2023/Mines Dated: 10.11.2023.
- Previous Environmental Clearance granted at Lr. No. SEIAA-TN/F.No.3215/EC/1(a)/2645/2015, Dated:05.01.2016
- Based on the 500m Radius Cluster Letter obtained from the Deputy Director, Department of Geology and Mining, Krishnagiri vide Letter No 1314/2023/Mines Dated 22.11.2023 the proposal falls under Cluster Category “B1”
- Proponent applied for ToR for Environmental Clearance vides online Proposal No. **SIA/TN/MIN/456285/2023 dated 21.12.2023.**
- The proposal was placed in 441th SEAC meeting held on 31.01.2024 the committee recommended for issue of ToR.
- The proposal was considered in 698th SEIAA meeting held on 02.03.2024 issued **ToR Identification No TO23B0108TN5558418N dated 13.03.2024.**

1.4 PROJECT DESCRIPTION

The proposed project is 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 pit head to the needy crushers and rock breakers to avoid secondary blasting.

2.1 SITE CONNECTIVITY TO THE PROJECT AREA

Nearest Roadway	NH44- Salem – Krishnagiri-Bangaluru - 1km-W SH225-Krishnagiri – Rayakottai Road –2.0km-SW
Nearest Village	Chinnimalpalli 635m-NE
Nearest Town	Krishnagiri – 2.0Km – S
Nearest Railway	Rayakottai Railwaystation – 20km-SW
Nearest Airport	Bangalore HAL Airport – 73Km - NW

2.2 LAND USE PATTERN OF THE PROPOSED PROJECT(P1-P3)

P1		
Description	Present area (Ha)	Area at the end of this quarrying period (Ha)
Quarrying Pit	2.50.0	3.42.0
Infrastructure	Nil	0.01.0
Roads	0.01.0	0.01.0
Green Belt & Dump	0.01.0	0.56.0
Unutilized Area	1.48.0	Nil
Grand Total	4.00.0	4.00.0
P2		
Description	Present area (Ha)	Area at the end of this quarrying period (Ha)
Quarrying Pit	1.39.0	3.42.0
Infrastructure	Nil	0.01.0
Roads	0.01.0	0.01.0
Green Belt & Dump	0.01.0	0.56.0
Unutilized Area	2.59.0	Nil
Grand Total	4.00.0	4.00.0
P3		

Description	Present area (Ha)	Area required during the quarrying period (Ha)
Area under quarrying	3.00.00	3.32.00
Infrastructure	Nil	0.01.00
Roads	0.01.00	0.01.00
Green Belt & Dump	Nil	1.40.90
Unutilized Area	1.73.90	Nil
Grand Total	4.74.90	4.74.90

2.3 OPERATIONAL DETAILS FOR PROPOSED PROJECTS

OPERATIONAL DETAILS FOR PROJECT – P1				
PARTICULARS	DETAILS			
	Rough Stone quarry (m ³) (Volume)	Rough Stone quarry (95%) (m ³) (5Year Plan period)	Mine waste in (m ³) 5%	Gravel (m ³) (1 Years Plan period)
Geological Resources	10,85,740 m ³	1,031,457	54,283	2,329m ³
Mineable Reserves	5,13,365m ³	4,87,698	25,667	799m ³
Production for Next five-year plan period	5,13,365 m ³	4,87,698	25,667	799 m ³
Scheme of Mining Plan Period / Lease Applied Period	5 Years			
Number of Working Days	300 Days			
Production per day	342	325	17	3
No of Lorry loads (12m ³ per load)	29	27	1	1
Total Depth of Mining	41m (1m Gravel +40m Rough stone)			
OPERATIONAL DETAILS FOR PROJECT – P2				
PARTICULARS	DETAILS			
	Rough Stone quarry (m ³) (Volume)	Rough Stone quarry (95%) (m ³) (5Year Plan period)	Mine waste in (m ³) 5%	Gravel (m ³) (1 Years Plan period)
Geological Resources	16,04,820 m ³	15,24,579	80,241	22,960
Mineable Reserves	9,68,575m ³	9,20,148	48,427	20,711
Production for Next five years Plan	7,93,205 m ³	7,53,546	39,659	20,711
Mining Plan Period / Lease Applied Period	5 Years			
Number of Working Days	300 Days			
Production per day	529	502	26	69
No of Lorry loads (12m ³ per load)	44	42	2	6
Total Depth of mining	31m (1m Topsoil +30m Rough stone)			

Source: approved SOM.

OPERATIONAL DETAILS FOR PROJECT – P3			
PARTICULARS	DETAILS		
	Rough Stone quarry (m ³) (Volume)	Recoverable Roughstone quarry in m ³ (100%)	Topsoil (m ³)

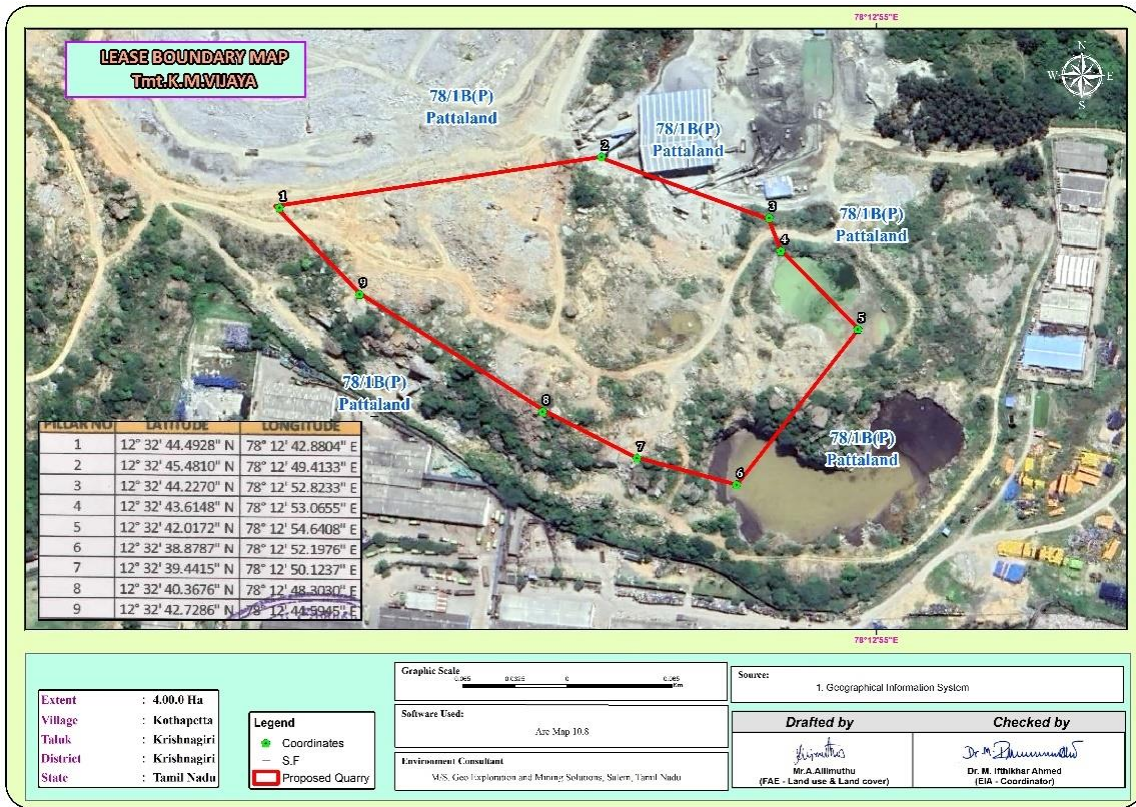
Geological Resources	8,11,453m ³	8,11,453m ³	9,469m ³
Mineable Reserves	4,81,920m ³	4,81,920m ³	8,706 m ³
Production for Next five years Plan	4,81,920m ³	4,81,920m ³	8,706 m ³
Mining Plan Period / Lease Applied Period	5 Years		
Number of Working Days	300 Days		
Production per day	321	321	29
No of Lorry loads (12m ³ per load)	27	27	2-3
Total Depth of mining	45 (1m Topsoil +44m Roughstone)		

Source: Approved Mining Plan

FIGURE – 1: GOOGLE IMAGE SHOWING PROJECT AREA-P1-P3



SATELLITE IMAGERY OF P1



SATELLITE IMAGERY OF P2



SATELLITE IMAGERY OF P3

FIGURE – 2: GOOGLE IMAGE SHOWING CLUSTER (500 m QUARRIES)

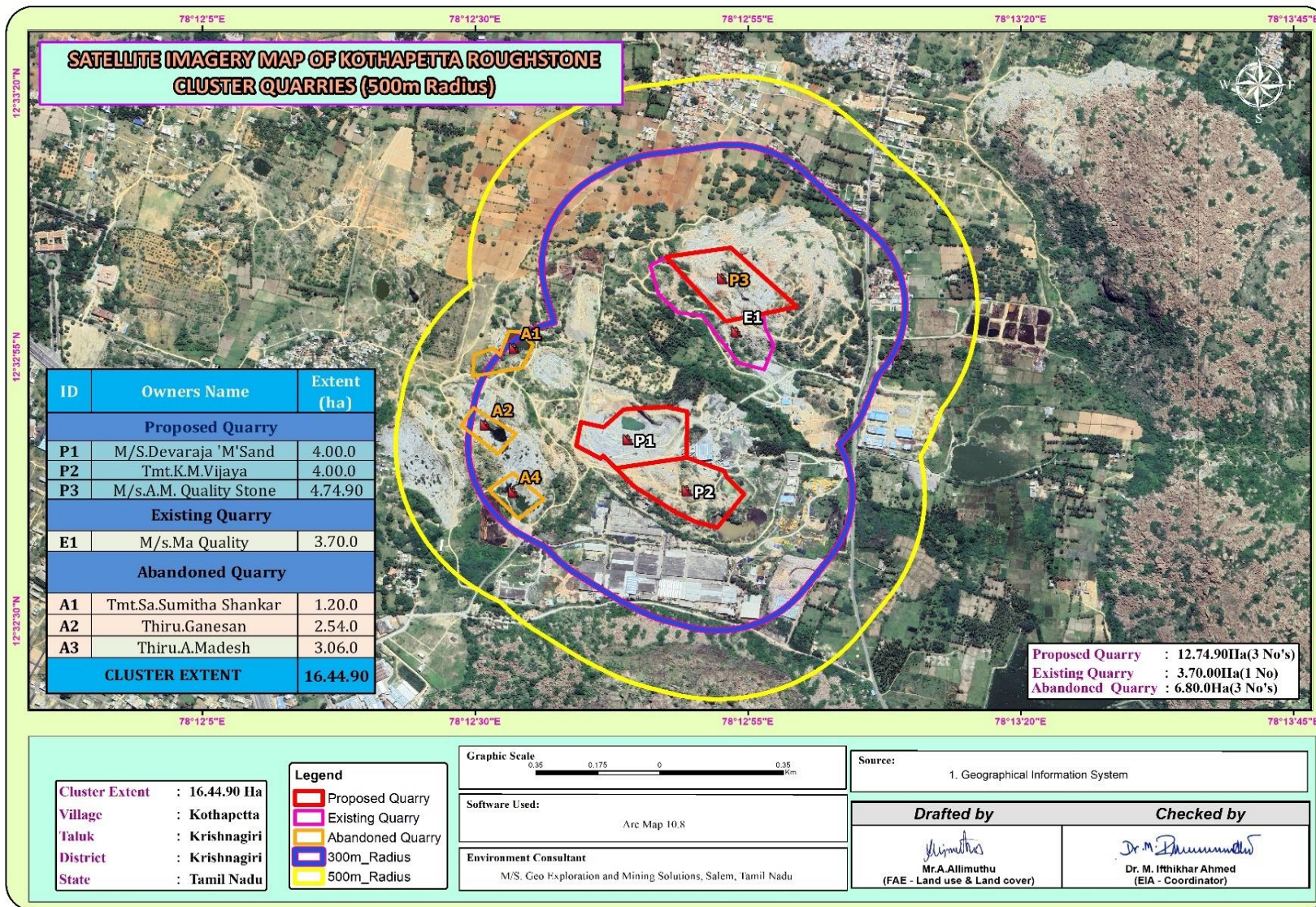


FIGURE – 3: TOPOSHEET MAP COVERING 10 KM RADIUS

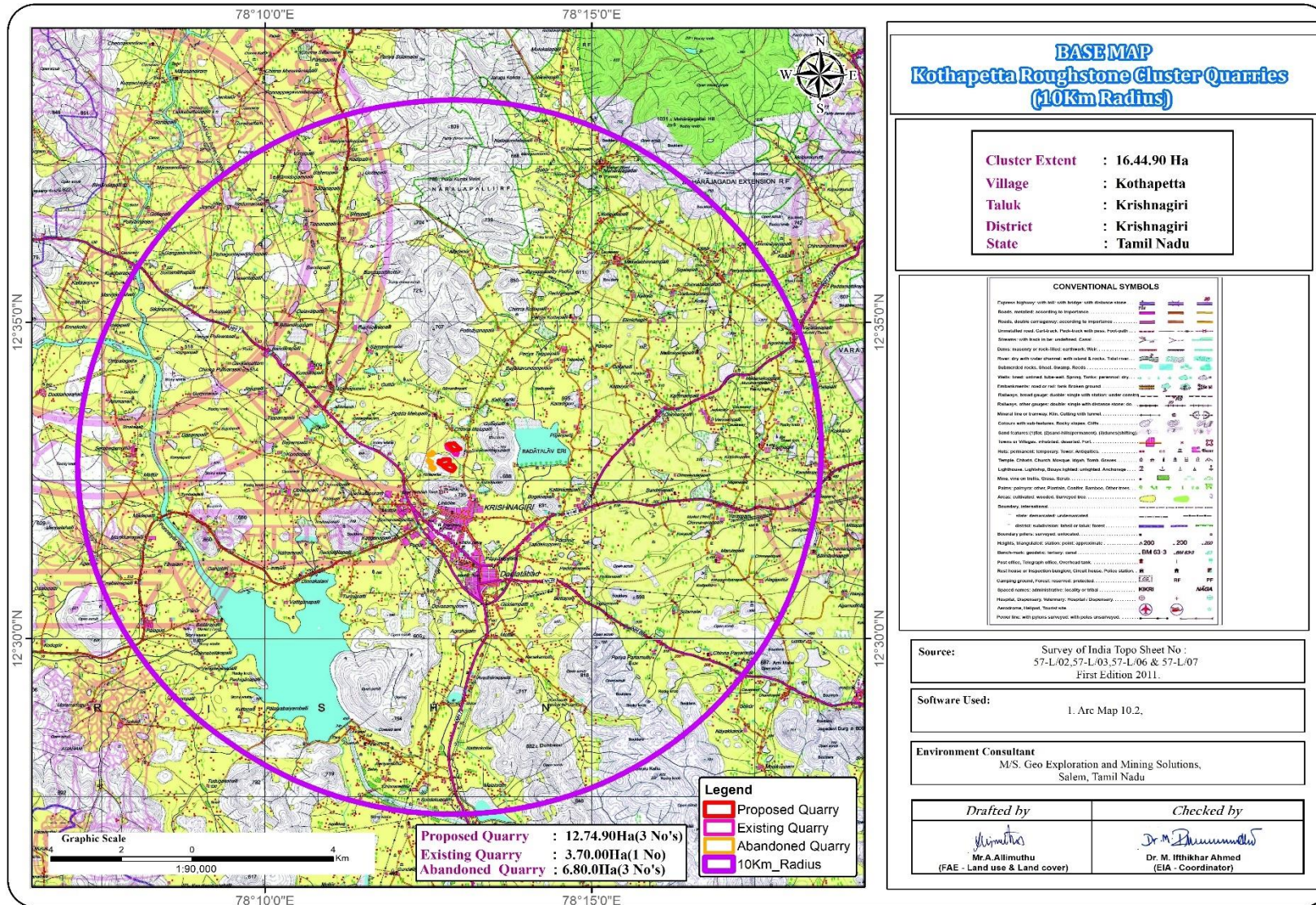
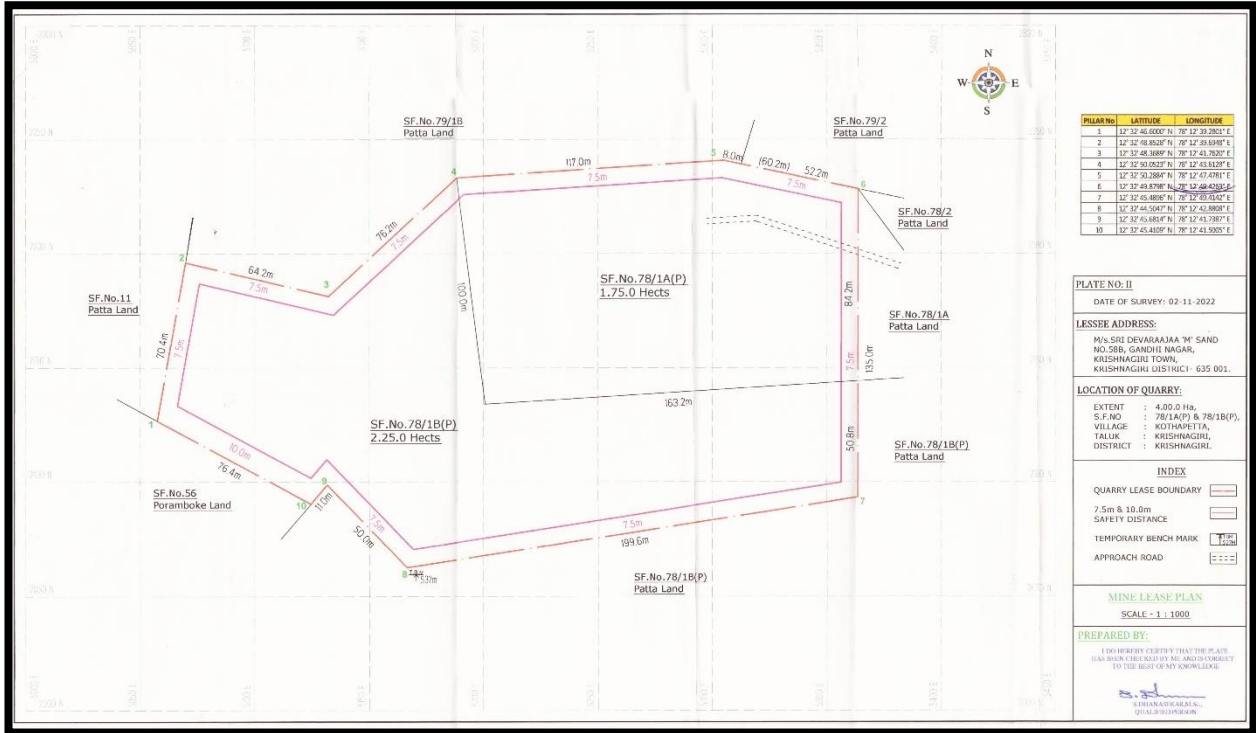
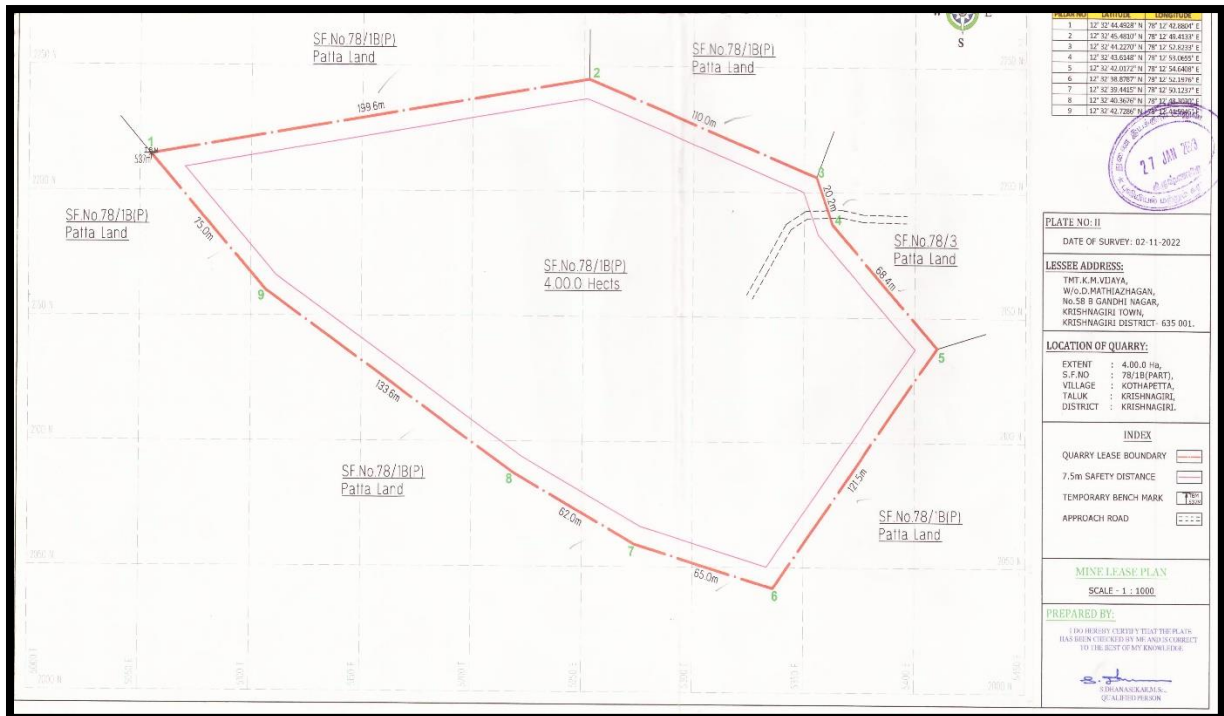


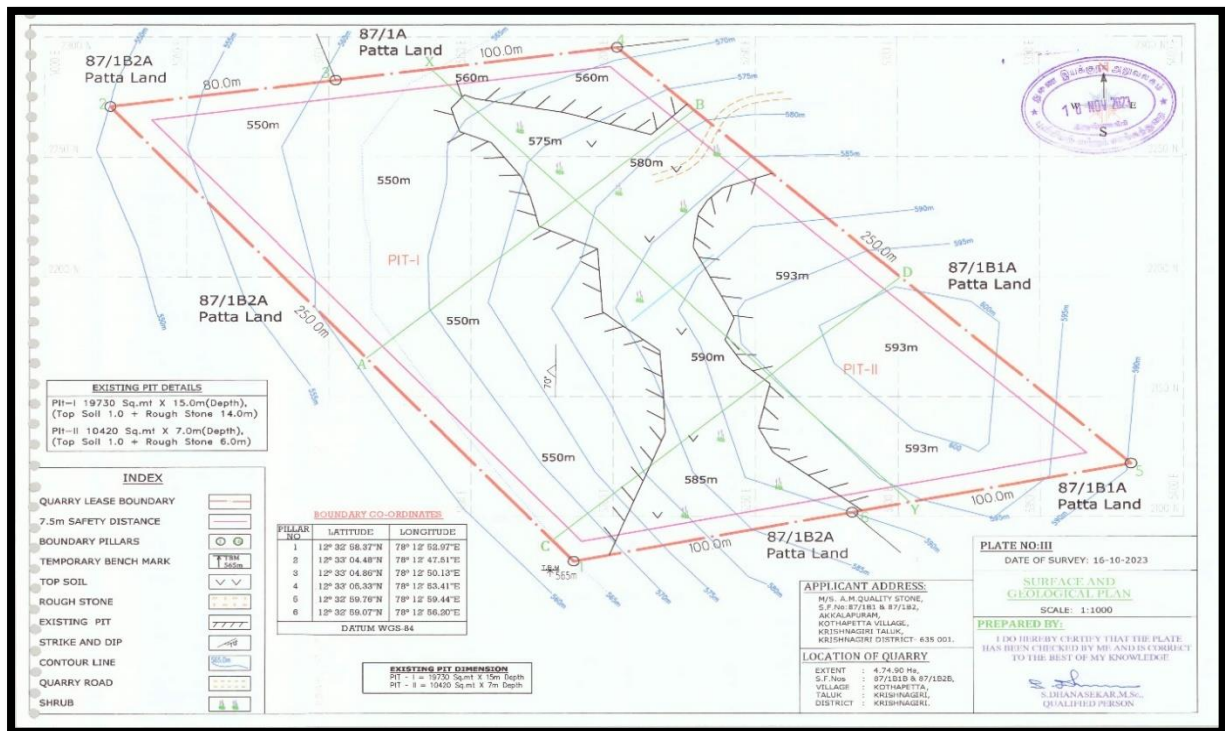
FIGURE – 4: QUARRY LEASE PLAN & SURFACE PLAN

P1– Sri M/s. Devarajaa ‘M’Sand



P2– Tmt.K.M.Vijaya





P3- M/s. A.M. Quality Stone

2.4 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 PROPOSED MACHINERY DEPLOYMENT

PROPOSAL – P1				
S.NO.	TYPE	NOS	SIZE/CAPACITY	MOTIVE POWER
1	Jack hammers	5	25.5mm/Hand held	Diesel Drive
2	Compressor	1	400psi	Diesel Drive
3	Hydraulic Excavator	2	1.2m ³ /L&T or Ex200	Diesel Drive
4	Tippers	3	10 M.T/ Ashok Leyland	Diesel Drive
PROPOSAL – P2				
S.NO.	TYPE	NOS	SIZE/CAPACITY	MOTIVE POWER
1	Jack hammers	5	25.5mm/Hand held	Diesel Drive
2	Compressor	1	400psi	Diesel Drive
3	Hydraulic Excavator	2	1.2m ³ /L&T or Ex200	Diesel Drive
4	Tippers	3	10 M.T/ Ashok Leyland	Diesel Drive
PROPOSAL – P3				
S.NO.	TYPE	NOS	SIZE/CAPACITY	MOTIVE POWER
1	Jack hammers	4	25.5mm/ Hand held	Diesel Drive
2	Compressor	2	400psi	Diesel Drive
3	Hydraulic Excavator	3	1.2m ³ /L&T or Ex200	Diesel Drive
4	Tippers	3	10 M.T/ Ashok Leyland	Diesel Drive

Source: Approved Mining Plan.

2.6 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.,

2.7 ULTIMATE PIT DIMENSION-P1-P3

P1			
Pit	Length (Max) (m)	Width (Max) (m)	Depth (Max) (m)
I	287	121	41m
P2			
Pit	Length (Max) (m)	Width (Max) (m)	Depth (Max) (m)
I	286	136	41m Agl
P3			
Pit	Length (Max) (m)	Width (Max) (m)	Depth (Max) (m)
I	229	144	45m

Source: Approved Mining Plan

3.0 DESCRIPTION OF THE ENVIRONMENT

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 Oct– Dec 2023 as per CPCB & MoEF & CC guidelines.

3.1 ENVIRONMENT MONITORING ATTRIBUTES

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's 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 (2 core & 4 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 ₁₀ PM _{2.5} SO ₂ NO _x Fugitive Dust	24 hourly twice a week (Oct– Dec 2023)	7 (2 core & 5 buffer)	IS 5182 Part 1-23 National Ambient Air Quality Standards, CPCB
*Noise Levels	Ambient Noise	Hourly observation for 24 Hours per location	7 (2core & 5 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 Quadrata & 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.

3.2 LAND ENVIRONMENT

To study the land use pattern of the core as well as a buffer zone, land use/land cover details have been identified/ maps have been prepared in accordance with the Standard ToR point. A visual interpretation technique has been adopted for land use supervised classification based on training site by Level III classification with 1:50,000 scale for the preparation of land use mapping. Land use pattern of the area was studied through **LISSIII, Bhuvan, NRSC**. The 10 km radius map of study area was taken for analysis of *Land use/Landcover*.

TABLE 3.1: LAND USE / LAND COVER TABLE 10 KM RADIUS

S.No	CLASSIFICATION	AREA_HA	AREA_%
BUILTUP			
1	Builtup Urban	637.65	1.90
2	Builtup Rural	264.69	0.79
3	Builtup Mining	148.83	0.44
AGRICULTURAL LAND			
4	Crop Land	18967.75	56.54
5	Agriculture Land	142.29	0.42
6	Fallow Land	4615.93	13.76
BARREN/WASTE LANDS			
7	Scrub Land	3904.02	11.64
8	Barren Rocky	885.05	2.64
FOREST			
9	Forest	1846.36	5.50
WETLANDS/ WATER BODIES			
10	Waterbodies	2132.77	6.36
TOTAL		33545.36	100.00

LU/LC Interpretation:

- ☞ Kothapetta village Rough stone cluster quarries has proposed Project. It is a Patta land.
- ☞ Total project area is 33545.36 ha around 10km radius.
- ☞ Existing/ Proposed mine is coming in the area, percentage of human settlement will be increased in surrounding of project site and Infrastructure facilities also will be developed on the basis of requirement.
- ☞ The 10 km radius study area mainly comprises of crop land & Agriculture land accounting of 56.54% & 0.42% of the total study area. The study area also consists of fallow land of 13.76%.
- ☞ The buffer zone studied has no ecological sensitive area (National Park, Wildlife Sanctuary, Biosphere Reserve/ etc.).
- ☞ Water Bodies such as Rivers, Ponds/ lakes comprises of 6.36% of the total buffer area. The two seasonal rivers such as Ponnaiyar River 7.1km-SW, Badethala Lake 1.9km in NE and Krishnagiri Dam 4.5km-SW direction of the total study area.
- ☞ The Scrub land accounts of 11.64%. As per the primary survey, it was observed the scrub land is mainly occupied by the stony waste and left-over domestic waste generated by the nearby areas.
- ☞ The Peddathalapalli R.F-2.2km-SW direction in 5.50% covered in buffer zone.
- ☞ 0.44% of the total study area has occupied by the mine industries. The area occupied by Mainly Roughstone of the total buffer area. As also observed within the primary survey, the 10 km buffer area is also occupied by the medium scaled granite and small Brick kiln industries also located in the study area.

2.69% of the area is covered under the Builtup Land. The nearest village within the 3 km radius from the project site boundary is observed to be villages Kothapetta, Chinnampalli, Kallukurukki, and Krishnagiri Town & Panchayat etc.,

3.3 SOIL ENVIRONMENT

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

Physical Characteristics –

The physical properties of the soil samples were examined for texture, bulk density, porosity and water holding capacity. The soil texture found in the study area is Clay to Sandy Soil and Bulk Density of Soils in the study area varied between 0.96– 1.14 g/cm³. The Water Holding Capacity (45.4-48.7%) and Porosity of the soil samples is found to be medium i.e., ranging from 42.8– 46.1%.

Chemical Characteristics –

- The nature of soil is slightly alkaline to strongly alkaline in nature with pH range 7.59 to 8.71
- The available Nitrogen content range between 300.2 mg/kg to 381.7 mg/kg
- The available Phosphorus content range between 1.7 mg/kg to 4.1 mg/kg
- The available Potassium range between 30.1 mg/kg to 49.7 mg/kg

Whereas, the micronutrient as zinc (Zn), iron (Fe) and copper (Cu) were found in the range of 1.09 to 2.9 mg/kg; 1.19 to 2.76mg/kg.

3.4 WATER ENVIRONMENT

The study area is studded with few tanks that serve as the source of drinking water and also their surplus feeds adjoining tanks. The rainfall over the area is moderate, the rainwater storage in open wells and trenches are in practice over the area and the stored water acts as source of freshwater for couple of months after rainy season.

Surface Water

The pH of surface 7.55-7.73 while turbidity found within the standards. Total Dissolved Solids 423-504mg/l and Chloride 93.8-118mg/l. Nitrates 6.4-6.6 mg/l, while sulphates 51.1-67.4mg/l.

Ground Water

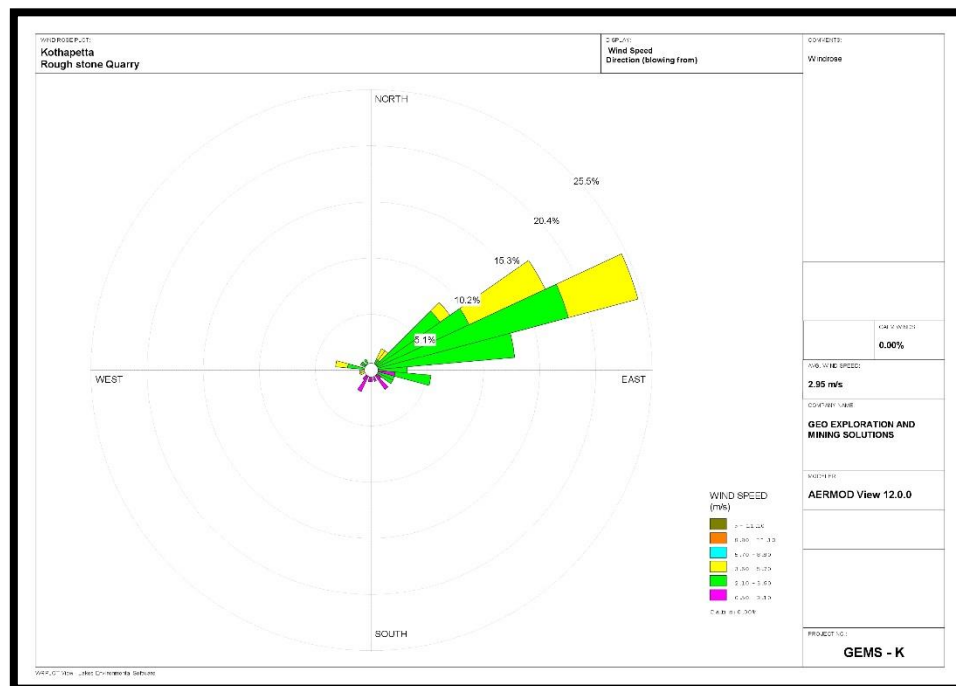
The pH of the water samples collected ranged from 7.01 to 7.97 and within the acceptable limit of 6.5 to 8.5. pH, Sulphates and Chlorides of water samples from all the sources are within the limits as per the Standard. on Turbidity, the water samples meet the requirement. Total Dissolved Solids were found in the range of 401– 572mg/l in all samples. The Total hardness varied between 145.62 – 194.24 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.

3.5 AIR ENVIRONMENT

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.

FIGURE – 6: WIND ROSE DIAGRAM



3.6 SUMMARY OF AMBIENT AIR QUALITY

As per monitoring data, PM_{10} ranges from $39.1 \mu\text{g}/\text{m}^3$ to $45.2 \mu\text{g}/\text{m}^3$, $PM_{2.5}$ data ranges from $17.2 \mu\text{g}/\text{m}^3$ to $23.9 \mu\text{g}/\text{m}^3$, SO_2 ranges from $4.4 \mu\text{g}/\text{m}^3$ to $8.9 \mu\text{g}/\text{m}^3$ and NO_2 data ranges from $19.1 \mu\text{g}/\text{m}^3$ to $25.6 \mu\text{g}/\text{m}^3$. The concentration levels of the above criteria pollutants were observed to be well within the limits of NAAQS prescribed by CPCB.

The minimum & maximum concentrations of PM_{10} were found to be $39.1 \mu\text{g}/\text{m}^3$ in Core area & $45.2 \mu\text{g}/\text{m}^3$ in MC Palli Village respectively. The minimum & maximum concentrations of $PM_{2.5}$ were found to be $17.2 \mu\text{g}/\text{m}^3$ in Pedattalapalli Village & $23.9 \mu\text{g}/\text{m}^3$ in core area respectively. The maximum concentration in the core zone is due to the cluster of quarries situated within 500m radius.

3.7 NOISE ENVIRONMENT

Ambient noise levels were measured at 7 (Seven) locations around the project area considering cluster quarries. Noise levels recorded in core zone during day time were from 40.3-41.5 dB (A) Leq and during night time were from 34.7-35.1 (A) Leq. Noise levels recorded in buffer zone during day time were from 38.3 – 42.3 dB (A) Leq and during night time were from 33.2– 35.2 dB (A) Leq.

The values of noise observed in some of the areas are primarily owing to quarrying activities due to cluster of quarries within 500m radius, movement of vehicles and other anthropogenic activities. Noise monitoring results reveal that the maximum & minimum noise levels at day time were recorded in the range of 48.5 dB(A) in Core area and 31.3dB(A) in MC Palli, Pedattalapalli Village in Minimum noise levels. 39.4

dB (A) billanakuppam Village and 29.5 dB (A) Peddanapalli Village, MC Palli Village respectively in night time noise levels. Thus, the noise level for Industrial and Residential area meets the requirements of CPCB.

3.8 ECOLOGICAL ENVIRONMENT

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

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

3.9 SOCIO ECONOMIC ENVIRONMENT

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.

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 60 persons to the local people there by improving the indirect employment opportunity for 100 persons and in turn the social standards will improve.

4. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

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.

4.1 LAND ENVIRONMENT:

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.

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.

4.2 SOIL ENVIRONMENT

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).

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.

4.3 WATER ENVIRONMENT

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.

MITIGATION MEASURES

- Garland drain, settling tank will be constructed along the project 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 settling 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.

4.4 AIR ENVIRONMENT

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.

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 includes 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 check-ups, trainings and campaigns will be arranged to ensure awareness about importance of wearing dust masks among all mine workers & tipper drivers
- Ambient Air Quality Monitoring will be conducted six months once to assess effectiveness of mitigation measures proposed.

4.5 NOISE ENVIRONMENT

ANTICIPATED IMPACT

Noise pollution poses a major health risk to the mine workers. Following are the sources of noise in the existing open cast mine project are being observed such as Drilling, & Blasting, Loading and during movement of vehicles.

MITIGATION MEASURES

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

4.6 BIOLOGICAL ENVIRONMENT ANTICIPATED IMPACT

The developmental programs, policies, and projects operated or managed by government or private bodies can cause potentially significant changes in the physical, biological, and socio-economic environment. In some cases, the changes may be beneficial while in others it may be detrimental to the environment. Accordingly, environmental impact studies are required for systematic identification, qualification, and interpretation of the anticipated changes. The main environmental problems associated with mining activities are deforestation, land degradation (change in topography, soil erosion), visual intrusion, disturbance to the hydrological system, and water, air, and noise pollution which ultimately impact upon the floral and faunal status of the project area.

MITIGATION MEASURES

Greenbelt means the planting of special types of plants suitable to that particular agroclimatic zone and soil characteristics in a place that will make the area cooler, reduce air pollution, prevent soil erosion, and further improve the soil fertility status. A green belt around the periphery of the boundary and roadside will be created to avoid erosion of soil, prevention of landslides, and minimize air pollution and noise pollution in the project area. Green plants are capable of absorbing air pollutants and forming sinks for pollutants. Leaves with their vast area in a tree crown, absorb pollutants on their surface, effectively reducing their concentration and noise level in the ambient.

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.

GREENBELT DEVELOPMENT PLAN

PROPOSAL FOR P1				
Year	No. of trees proposed to be planted	Survial %	Area to be planted	Name of the species
I	It is proposed to plant 2000Nos of trees in the 1 st year	80%	Safety barrier, Un utilized areas and nearby village roads	Neem, Pongamia pinnata, Casuarina, etc
PROPOSAL FOR P2				
I	It is proposed to plant 2000 Nos of trees in the 1 st year	80%	Safety barrier, Un utilized area's and nearby village roads	Neem, Pongamia pinnata, Casuarina, etc.,
PROPOSAL FOR P3				
I	It is proposed to plant 2400 Nos of trees in the 1 st year	80%	Safety barrier, Un utilized area's and nearby village roads	Neem, Pongamia pinnata, Casuarina, etc.,

4.7 SOCIO ECONOMIC ENVIRONMENT

Anticipated Impacts:

- ♣ No. of people will get employment during the construction stage resulting in the ancillary development and growth. Nearby Local people will be given preference for employment on the basis of their skill and experience.
- ♣ Further due to proposed project, influx of working community will also generate an indirect employment through development of nearby market/ shops, trade centers, activities, transportation etc.
- ♣ Population influx during the construction phase can introduce various water and vector borne diseases which can lead to various unhygienic health problems in the area by disturbing the existing sanitation infrastructure.
- ♣ Rapid diverse population influx at the project site can create unusual behavioural activity such as worker-community conflicts, increase violence such as theft/stabbing and increased consumption of drugs/alcohol within the area.
- ♣ Impacts on the health of nearby villagers can be envisaged due to the transportation activities leading to short term exposure of fugitive dust, resulting in various acute diseases such as increased eye irritation, nausea, headache etc.

Mitigation measures:

- ♣ Deploying of mobile toilets or the construction of temporary toilets will be done near to the construction site with the adequate water supply.
- ♣ Awareness programme will be conducted before the monsoon season regarding the spread of water borne/ vector diseases.
- ♣ Mosquito repellents will be provided in the nearby villages and at construction site to avoid the spread of diseases.
- ♣ To overcome behavioural impact, proper site in charge with timely supervision will be done. In advance, facilities with equipped medical and safety services will be provided to take a control over the incident/violence if any caused.
- ♣ To overcome behavioural impact, supervision will be done by site in charge. In advance, emergency cell will be formed with fully equipped communication system, medical and safety services to take control over the incident/violence caused.

4.6.2 Operation Phase:

Anticipated Impacts:

- ♣ Long term exposure to the pollutants such as PM, SO₂ and NO₂ dust have a potential to create health impacts such as risk of cardiovascular and respiratory disease, eye irritation, bronchitis, lung damage, increased heart ailments, etc.
- ♣ Other impacts, associated with the applied for rough stone quarry Project will create a positive impact as it will result in the overall development of the area in respect to the infrastructure development, educational growth, health facilities etc., as a part of the CSR activity.

Mitigation Measures:

- ♣ In order to mitigate the long-term health impacts, efficient Air Pollution Control Equipment (APCE) like Bag House / Bag Filter / ESP will be installed at all major stacks to keep the emissions within the permissible limits. To reduce the gaseous emission, Pyro-process itself acts as a long SO₂ scrubber and De - NO_x system will be

installed for fuel burning along with calciner for low NO_x formation. To reduce fugitive emission from vehicles and machineries will be regularly monitored and maintained.

♣ For emergency, proposed to develop an occupational health centre for its employees and nearby villagers.

4.3 Impact Evaluation:

Table 4.3.1 Impact Evaluation Impact evaluation is given in table below.

Impact Evaluation Element	Impact on socio economics due to the applied for Kothapetta rough stone quarries over an extent of 16.44.9 ha of Patta land of Kothapetta Village, Krishnagiri Taluk, Krishnagiri District, Tamil Nadu State..			
Potential Effect/ Concern	Proposed project will provide direct & indirect employment opportunities to the local residents, which will help to increase their earning and better living standard as well as further up-liftment of socio-economic status of the area.			
Characteristics of Impacts				
Nature	Positive		Negative	Netural
	✓			
Type	Direct	Indirect	Cumulative	
			✓	
Extent	Project area	Local	Zonal	Regional
		✓		
Duration	Short time		Long term	
			✓	
Intensity	Low		Medium	High
			✓	
Frequency	Remote (R)	Occasional (O)	Periodic (P)	Continuous (C)
			✓	
Significance of Impact				
Significance	Insignificant	Minor	Moderate	Major
			✓	

5. ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

No alternatives are suggested as all the mine sites are mineral specific.

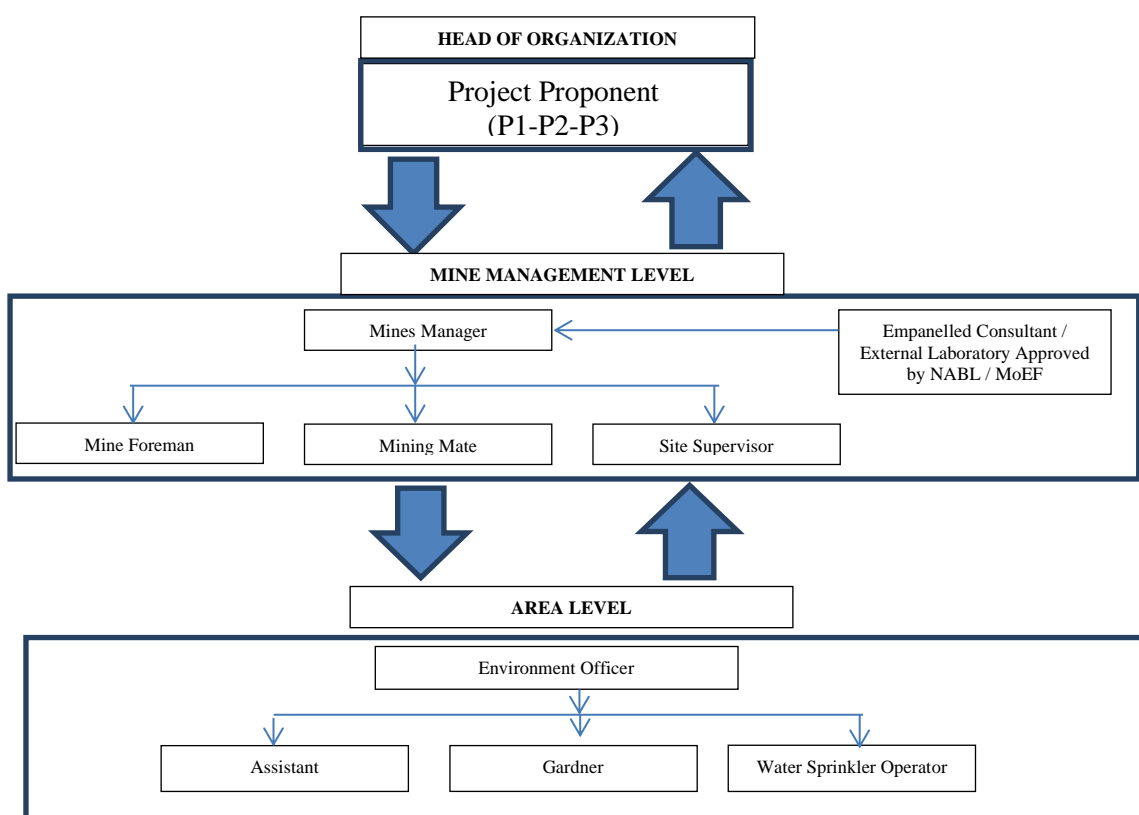
6. ENVIRONMENT MONITORING PROGRAM

An Environment monitoring cell (EMC) will be constituted to monitor the implementation of EMP and other environmental protection measures in all the proposed quarries. 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.

6.1 ENVIRONMENTAL MONITORING CELL



6.2 POST ENVIRONMENTAL CLEARANCE 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 _{2.5} , PM ₁₀ , SO ₂ and NO _x .
2	Meteorology	At mine site before start of Air Quality Monitoring & IMD Secondary Data	Hourly / Daily	Continuous online monitoring	Wind speed, Wind direction, Temperature, Relative humidity and Rainfall
3	Water Quality Monitoring	2 Locations (1SW & 1 GW)	-	Once in 6 months	Parameters specified under IS:10500, 1993 & CPCB Norms
4	Hydrology	Water level in open wells in buffer zone around 1 km at specific wells	-	Once in 6 months	Depth in 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

7. ADDITIONAL STUDIES

7.1 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 31st December, 2002. The DGMS risk assessment process is intended to identify existing and probable hazards in the work environment and all operations and assess the risk levels of those hazards in order to prioritize those that need immediate attention. Further, mechanisms responsible for these hazards are identified and their control measures, set to timetable are recorded along with pinpointed responsibilities.

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

7.2 DISASTER MANAGEMENT PLAN

Natural disasters like Earthquake, Landslides have not been recorded in the past history as the terrain is categorized under seismic zone III. The area is far away from the sea hence the disaster due to heavy floods and tsunamis are not anticipated.

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

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

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

7.3 CUMULATIVE IMPACT STUDY

CUMULATIVE PRODUCTION LOAD OF ROUGH STONE IN CLUSTER

Quarry	Production for Five-year plan period m ³	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Day @ 12m ³ per load
P1	4,87,698	97,540	325	27Trips /Day
P2	7,53,546	1,50,709	502	42Trips /Day
P3	4,81,920	96,384	321	27Trips /Day
Total	17,23,164	3,44,633	1148	96 Trips /Day
Quarry	Production for five-year plan period m ³	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Day @ 12m ³ per load
E1	5,00,977	1,00,195	334	28 Trips /Day

Total	5,00,977	1,00,195	334	28 Trips /Day
G.Total	22,24,141	4,44,828	1,482	124 Trips /Day

CUMULATIVE PRODUCTION LOAD OF GRAVEL IN CLUSTER

Quarry	Mineable Reserves in m ³	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load @ 12m ³ per load
P1	799	799	3	1 Trips /Day
P2	20,711	20,711	69	6 Trips /Day
P3	-	-	-	-
Total	21,510	21,510	72	7 Trips/ Day
E1	-	-	-	-
G.Total	21,510	21,510	72	7 Trips/ Day

CUMULATIVE PRODUCTION OF TOPSOIL IN CLUSTER

Quarry	Mineable Reserves in m ³	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load @ 12m ³ per load
P3	8,706	8,706	29	2
Total	8,706	8,706	29	2 Trips/ Day

PREDICTED NOISE INCREMENTAL VALUES FROM CLUSTER

Location ID	N1	N2	N3	N4	N5	N6	N7
Maximum Monitored Value (Day) dB(A)	48.5	48.5	46.8	45.7	45.7	42.9	42.5
Incremental Value dB(A)	60.1	56.6	41.0	24.8	27.0	22.6	28.1
Total Predicted Noise level dB(A)	60.4	57.2	47.8	45.7	45.8	42.9	42.7
NAAQ Standards	Industrial		Day Time- 75 dB (A)		Night Time- 70 dB (A)		
	Residential		Day Time- 55 dB (A)		Night Time- 45 dB (A)		

SOCIO ECONOMIC BENEFITS

Location Code	Employment	Project Cost	CER Cost
P1	21	Rs. 77,30,000/-	Rs.5,00,000/-
P2	21	Rs. 77,20,000/-	Rs.5,00,000/-
P3	18	Rs. 83,92,000/-	Rs.5,00,000/-
E1	15	Rs.66,40,000	Rs.5,00,000/-
Grand Total	75	Rs. 3,04,82,000/-	Rs.20,00,000/-

A total of 60people will get employment due to 3 mines in cluster. 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 all the mines.

8. PROJECT BENEFITS

The three Proposed Projects for Quarrying Rough Stone at Kothapetta Village Cluster Quarries Village aims to produce cumulatively **17,23,164m³** Rough Stone quarry over period of five Years & Gravel 21,510 m³ and 8,706 m³ of Topsoil over a period of 1 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

9. ENVIRONMENT MANAGEMENT PLAN

The Environment Monitoring cell discussed formed by the mine management 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 programme.
- ✦ Compliance to statutory provisions, norms of State Pollution Control Board, Ministry of Environment and Forests and the conditions of the environmental clearance as well as the consents to establish and consents to operate.

10. 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.
